Jennifer Grace

From: estark@aldf.org
Sent: Tuesday, November 28, 2006 1:56 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

It is long overdue for Oregon to adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need if they are to survive.

Oregon's draft plan is inadequate if we are to meet the specific criteria that must be achieved in restoring their populations. More can and must be done.

I urge you to include in Oregon's coho recovery plan:

1. Mandatory protections both for coho AND their habitat. The draft coho plan assumes that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but habitat protections must be mandatory and strongly enforced if we are to bring coho back from the brink of extinction.

2. Without adequate funding, effective recovery efforts simply cannot be accomplished. We need you to guarantee funding to support the state's efforts to recover wild coho.

3. Research shows that current coho populations are not sustainable. The plan is dangerously limited and places the coho populations in grave danger.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual. Don't let them die out as so many species have, at the hands of humans.

Sincerely,

Eileen Stark
3820 NE WISTARIA DR
PORTLAND, OR 97212-2830

Jennifer Grace

From: sasquatch@watershedweb.net
Sent: Tuesday, November 28, 2006 1:28 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Kit Robinson
24026 CRYSTAL LAKE RD
WOODINVILLE, WA 98077-9590

Jennifer Grace

From: erinmiller111@comcast.net
Sent: Tuesday, November 28, 2006 1:28 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

erin miller
19412 VIEW DR
WEST LINN, OR 97068-1336

Jennifer Grace

From: berwickacres@juno.com
Sent: Tuesday, November 28, 2006 1:19 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Hector Amaro
4716 60th Ave. NE
Salem, OR 97305-3713

Jennifer Grace

From: liz.kelly@earthlink.net
Sent: Tuesday, November 28, 2006 1:17 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Liz Kelly
2325 NW LINCOLN AVE
CORVALLIS, OR 97330-4301

Jennifer Grace

From: mark@rootsrealty.com
Sent: Tuesday, November 28, 2006 1:10 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Mark Wheeler
628 SE 58th
Portland, OR 97215

Jennifer Grace

From: carol_bruce@verizon.net
Sent: Tuesday, November 28, 2006 1:10 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Carol Bruce
19900 SW Gassner Rd
Beaverton, OR 97007-6004

Jennifer Grace

From: minnerly@qwest.net
Sent: Tuesday, November 28, 2006 1:07 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Don Minnerly
4508 N WILLIAMS AVE
PORTLAND, OR 97217-2956

Jennifer Grace

From: callawad@hotmail.com
Sent: Tuesday, November 28, 2006 1:04 PM
To: PLAN Coho
Subject: Addtional inclusions to strengthen the wild coho recovery plan

Dear Commission Chair Rae:

I am concerned Oregon's draft plan to restore coastal coho populations include actions that are inadequate to reach it's goals.

I ask that Oregon's coho recovery plan, to properly conserve and restore our coastal populations and the habitat necessary for survival, include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Daniel Callaway
629 NE MORRIS ST
PORTLAND, OR 97212-3162

Jennifer Grace

From: crimper@hotmail.com
Sent: Tuesday, November 28, 2006 12:57 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

bryan smith
1041 NW FEDERAL ST
BEND, OR 97701-2340

Jennifer Grace

From: lavatera@harborside.com
Sent: Tuesday, November 28, 2006 12:45 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Please insure that Oregon adopts a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

The draft plan is a step in the right direction but the actions are inadequte to meet those goals.

Please insure that Oregon's coho recovery plan include:

1. Drastic reduction in use of herbicides on timberlands. Studies have shown that herbicides can cause behavior changes and inability to avoid predators, which leave young salmon vulnerable to early death.

2. Mandatory protections both for coho and their habitat. Enforceable habitat protections are necessary to bring coho back from the brink of extinction.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Maxine Centala
PO Box 365
Seal Rock, OR 97376-0375

Jennifer Grace

From: molly@olcv.org
Sent: Tuesday, November 28, 2006 12:39 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Molly Kramer
6525 SE 45th Ave
Portland, OR 97206

Jennifer Grace

From: rob27@comcast.net
Sent: Tuesday, November 28, 2006 12:38 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Rob Gould
255 Richmond Ave SE
Salem, OR 97301

Jennifer Grace

From: thehomecountry@onemain.com
Sent: Tuesday, November 28, 2006 12:37 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline.I work on coastal land use issues,and I know from experience that even our land use system (one of the most comprehensive in the country) is not enough to protect coho habitat. Voluntary efforts are also insufficient, though they are helpful. Enforceable habitat protections are necessary to bring coho back from the brink of extinction. This could also include, for example, strong financial incentives to adjacent landowners who take appropriate action; but the base of the recovery plan must be obligatory habitat protection.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished. For many years now funding for natural resources has been starved. The effects don't show much yet, but they will, if the trend is not reversed. The coho program is a place where funding is most essential.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. It is important to have honest science in an issue of this kind: not playing around wtih figures, but a straightforward assessment of the truth. Only from this base can real solutions be crafted.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual. What would Oregon be without its treasured salmon?

Sincerely,

Cameron La Follette
1825 23rd St. NE
Salem, OR 97301

Jennifer Grace

From: judyjudy@hevanet.com
Sent: Tuesday, November 28, 2006 12:37 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Judy Henderson
2541 SW MILES ST
PORTLAND, OR 97219-2557

Jennifer Grace

From: missirene@comcast.net
Sent: Tuesday, November 28, 2006 12:36 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

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2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

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The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Irene Mills
2174 NW DAVIS ST APT 402
PORTLAND, OR 97210-3581

Jennifer Grace

From: equinox@efn.org
Sent: Tuesday, November 28, 2006 12:34 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

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2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

A Opus
239 Adams Ave
Cottage Grove, OR 97424-2156

Jennifer Grace

From: nrollow@comcast.net
Sent: Tuesday, November 28, 2006 12:33 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

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1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

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The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Nina Rollow
1333 SE NEHALEM ST
PORTLAND, OR 97202-6627

Jennifer Grace

From: Bross597@msn.com
Sent: Tuesday, November 28, 2006 12:26 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

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The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Bonnie Ross
PO BOX 313
MONMOUTH, OR 97361-0313

Jennifer Grace

From: johncovey@sbcglobal.net
Sent: Tuesday, November 28, 2006 12:23 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

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2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

john covey
167 LEE 103
MARIANNA, AR 72360-7898

Jennifer Grace

From: jangellsumner@yahoo.com
Sent: Tuesday, November 28, 2006 12:21 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

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The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Jenefer Angell
8517 N ENDICOTT AVE
PORTLAND, OR 97217-7133

Jennifer Grace

From: ZAIS Elliot
Sent: Tuesday, November 28, 2006 12:21 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

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2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Elliot Zais
6942 N Williams Ave
Portland, OR 97217-1754

Jennifer Grace

From: greg.norman@siemens.com
Sent: Tuesday, November 28, 2006 12:18 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

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The coho deserve more than business as usual.

Sincerely,

Greg Norman
4485 LARKWOOD ST
EUGENE, OR 97405-3995

Jennifer Grace

From: spinehealth9@hotmail.com
Sent: Tuesday, November 28, 2006 12:12 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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The coho deserve more than business as usual.

Sincerely,

Robert Schwartz
170 RIDGE RD
ASHLAND, OR 97520-2827

Jennifer Grace

From: spottedowl2000@yahoo.com
Sent: Tuesday, November 28, 2006 12:12 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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The coho deserve more than business as usual.

Sincerely,

Jennifer Ferschweiler
25854 HIGHWAY 20
EDDYVILLE, OR 97343-9708

Jennifer Grace

From: laceym@pghmail.com
Sent: Tuesday, November 28, 2006 12:11 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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The coho deserve more than business as usual.

Sincerely,

Mark Lacey
PO Box 530
Joseph, OR 97846-0530

Jennifer Grace

From: larry.bulling@orst.edu
Sent: Tuesday, November 28, 2006 12:09 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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The coho deserve more than business as usual.

Sincerely,

Larry Bulling
PO BOX 113
CORVALLIS, OR 97339-0113

Jennifer Grace

From: rwaa@erols.com
Sent: Tuesday, November 28, 2006 12:08 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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The coho deserve more than business as usual.

Sincerely,

Roxanne Warren
523 W 112TH ST
NEW YORK, NY 10025-1614

Jennifer Grace

From: rivergardener@dcwisp.net
Sent: Tuesday, November 28, 2006 12:06 PM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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The coho deserve more than business as usual.

Sincerely,

Patricia Gilbert
1660 Whistlers Ln
Roseburg, OR 97470-9437

Jennifer Grace

From: dbean@solidnet.com
Sent: Tuesday, November 28, 2006 12:07 PM
To: PLAN Coho
Subject: Please make the wild coho recovery plan work.

Dear Commission Chair Rae:

Oregon is the cornerstone of the Great Northwest with its giant mountains, giant trees and giant fish. OK forget the giant and the Great. The relation between the fish and the forest cannot be denied. For six ice ages the salmon have provided 'fish meal' fertilizer with trace minerals to the roots of trees; delivered.

The Coho, or 'swamp fish' was best with regard to colonizing areas around wetlands, those rude, stinky nurseries of life. Without wild salmon, that fertilizer delivery system is broken, sick trees and resultant fires are the fruit.

In the family of salmon the King, coho, sockeye,chum and pink all play their important part. The bottom of the food chain and the small tributaries are critical. I presume I do not need to educate you on the coho's relation here.

Oregon's draft plan is a step in the right direction but the actions fall short of meeting those goals.

Most important in my view is stoping what is being done that is injurious to habitat. Throwing money at the problem will and has has little effect if the injutious behavior is not halted.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan dreams that our land use policies will protect coho and their habitat from further decline. Well it hasn't worked has it.Voluntary efforts are good, but right now enforceable habitat protections are the ticket to stop the coho's plunge into extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. No nursery, no babies, no fish. Concret troughs are not nurseries.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. In this case Oregon is NOT for Dreamers.

The recovery plan must work, not pretend to work. The coho deserve more than the ritual that has transpired for the last 15 years.

Imagine the shouts in the streets: "The Salmon are Back!"

The people and their offspring are behind your success. Praise God and tie your shoes.

Sincerely,

David Bean

3100 SE 10TH AVE
PORTLAND, OR 97202-2520

12/19/2006

Jennifer Grace

From: jnordt@comcast.net
Sent: Tuesday, November 28, 2006 11:55 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Joan Nordt
3360 SW Hamilton Ct
Portland, OR 97239

Jennifer Grace

From: virtualcreator@hotmail.com
Sent: Tuesday, November 28, 2006 11:55 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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Sincerely,

Krissie McCreery
1699 N. Terry Street. #300
Eugene, OR 97402

Jennifer Grace

From: avatar11@rediffmail.com
Sent: Tuesday, November 28, 2006 11:54 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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Sincerely,

Ravi Grover
PO BOX 802103
CHICAGO, IL 60680-2103

Jennifer Grace

From: polwonks@comcast.net
Sent: Tuesday, November 28, 2006 11:51 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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The coho deserve more than business as usual.

Sincerely,

Ramsay Weit
5350 NW Pondosa Dr
Portland, OR 97229-1016

Jennifer Grace

From: johnk@oregonnet.com
Sent: Tuesday, November 28, 2006 11:49 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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Sincerely,

John Koenig
3968 Brae Burn Dr
Eugene, OR 97405-4973

Jennifer Grace

From: nickhedlund@hotmail.com
Sent: Tuesday, November 28, 2006 11:45 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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Sincerely,

Nicholas Hedlund
240 SW Birdshill Road
Portland, OR 97219-8504

Jennifer Grace

From: janineoffutt@hotmail.com
Sent: Tuesday, November 28, 2006 11:43 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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The coho deserve more than business as usual.

Sincerely,

Debra Offutt
924 4th St
Oregon City, OR 97045-2306

Jennifer Grace

From: garyr@technologiesna.com
Sent: Tuesday, November 28, 2006 11:44 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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The coho deserve more than business as usual.

Sincerely,

Gary Rawson
4090 IRELAND LN
WEST LINN, OR 97068-2975

Jennifer Grace

From: christopherduran@hotmail.com
Sent: Tuesday, November 28, 2006 11:41 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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The coho deserve more than business as usual.

Sincerely,

Christopher Duran
3714 N WILLIAMS AVE
PORTLAND, OR 97227-1441

Jennifer Grace

From: jdsalmon@gmail.com
Sent: Tuesday, November 28, 2006 11:38 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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The coho deserve more than business as usual.

Sincerely,

jeremy salmon
4524 NE 6TH AVE
PORTLAND, OR 97211-3906

Jennifer Grace

From: sallyaneedham@hotmail.com
Sent: Tuesday, November 28, 2006 11:37 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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Sincerely,

Sally Needham
1025 NW Couch St
Unit 619
Portland, OR 97209

Jennifer Grace

From: brian@beinlich.org
Sent: Tuesday, November 28, 2006 11:37 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

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Sincerely,

Brian Beinlich
PO Box 1417
North Plains, OR 97133-1417

Jennifer Grace

From: terryr@peak.org
Sent: Tuesday, November 28, 2006 11:36 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

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1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Rod & Linda Terry
1010 NW 32ND ST
CORVALLIS, OR 97330-4412

Jennifer Grace

From: lhanley@oregon.uoregon.edu
Sent: Tuesday, November 28, 2006 11:34 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Laurel Hanley
1569 Fetters Loop
Eugene, OR 97402-6703

Jennifer Grace

From: dianejacobs@igc.org
Sent: Tuesday, November 28, 2006 11:33 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Diane Jacobs
2828 NE 69TH AVE
PORTLAND, OR 97213-4654

Jennifer Grace

From: basildog@msn.com
Sent: Tuesday, November 28, 2006 11:33 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved. But, the actions are inadequate to meet those goals.

Oregon's coho recovery plan must include mandatory protections both for coho and their habitat. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

We also must guarantee funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

Whenever a conflict arises, we need to err on the side of the species. The plan suggests current coho populations are sustainable, but that is not supported by the data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Anna Goldrich
3055 NE Davis St
Portland, OR 97232-3238

Jennifer Grace

From: cassie.wieden@wk.com
Sent: Tuesday, November 28, 2006 11:32 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Cassie Wieden
3405 NE 44th Ave
Portland, OR 97213-1140

Jennifer Grace

From: darcycronin@yahoo.com
Sent: Tuesday, November 28, 2006 11:30 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

I'm a busy working Mom, but I want to take a moment to let you know that I care about the future of Oregon's wild Coho salmon. Please strengthen the draft plan to include stronger conservation and restoration measures.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

Wild coho and Oregon deserve more than business as usual.

Sincerely,

Darcy Cronin
7004 N GREELEY AVE
PORTLAND, OR 97217-5238

Jennifer Grace

From: chrisl@dsl-only.net
Sent: Tuesday, November 28, 2006 11:27 AM
To: PLAN Coho
Subject: Please strengthen the wild coho recovery plan

Dear Commission Chair Rae:

Oregon should adopt a strong plan for conserving and restoring Oregon's coastal coho populations and the habitat they need to survive.

Oregon's draft plan is a step in the right direction because it sets out specific criteria that must be achieved in restoring their populations. However, the actions are inadequte to meet those goals.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The draft coho plan suffers from the flawed assumption that our land use policies will protect coho and their habitat from further decline. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Err on the side of the species. The plan suggests current coho populations are sustainable, which isn't supported by data. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

The recovery plan not only needs to address the above issues but also provide enough immediate habitat protection to give the longer-term recovery plan time to take hold.

The coho deserve more than business as usual.

Sincerely,

Chris Leck
7433 SW 36th Ave.
Portland, OR 97219-1627

Jennifer Grace

From: KNAPP Suzanne * Governor's Office [Suzanne.Knapp@state.or.us]
Sent: Friday, October 20, 2006 5:01 PM
To: Kevin Goodson; Bruce McIntosh
Subject: FW: [coastrange] State Releases its Latest Coastal Coho Plan - CRA Responds
Attachments: message-footer.txt

FYI. Not supportive of the plan.

Sue

From: SOLLIDAY Louise [mailto:Louise.C.Solliday@state.or.us]
Sent: Friday, October 20, 2006 4:42 PM
To: KNAPP Suzanne * Governor's Office
Subject: FW: [coastrange] State Releases its Latest Coastal Coho Plan - CRA Responds

FYI

From: CURTIS Julie
Sent: Friday, October 20, 2006 8:30 AM
To: SOLLIDAY Louise
Subject: FW: [coastrange] State Releases its Latest Coastal Coho Plan - CRA Responds

Did you get this?

Julie Curtis
Communications Manager
Oregon Department of State Lands
775 Summer St., NE, Suite 100
Salem, OR 97301-1279
ph: 503-378-3805, ext. 298
fax: 503-378-4844
julie.curtis@state.or.us
www.oregonstatelands.us

From: Chuck Willer [mailto:chuckw@coastrange.org]
Sent: Friday, October 20, 2006 8:03 AM
To: coastrangenews@lists.onenw.org
Subject: [coastrange] State Releases its Latest Coastal Coho Plan - CRA Responds

Dear Friends,

The state has released its latest coastal coho recovery plan. Once again, the plan fails to reign in big
timber and offer serious forestry reform. Below is a CRA message on how you can respond to the state's plan.

But before you proceed, take a peek at Google Earth and use it to 'fly' over our coastal forestlands. From
Clatsop County to Coos County the forest is over cut and the land is over worked by big timber. Don't
take my word for it, use Google Earth to view YOUR heritage - the watersheds and forests of the
great Coast Range region.

Google Earth is available at http://earth.google.com/

Best wishes,

Chuck Willer
Director
http://www.coastrange.org/

Speak out for Wild Coastal Coho Salmon!

State releases flawed plan

Oregon has released its draft recovery plan for wild coastal coho salmon, but the plan falls short of what the
coho need to survive. Oregon's plan is a step in the right direction; however, the voluntary efforts called for
simply are not enough to recover coastal coho. The State must guarantee enforceable habitat protections
and sufficient funding to truly recover wild salmon. This involved finally getting serious about forestry reform.

I'm asking everyone to speak out about the state's plan for the coastal coho.
Tell Gov. Kulongoski and the Oregon Dept. of Fish & Wildlife (ODFW) that the salmon need **mandatory protections**
and **guaranteed funding** for recovery. Relying only on voluntary efforts and the same forest management policies
that continue to damage coastal watersheds won't bring back the coho.

******Comments must be submitted by November 17******

A **sample comment letter** is provided below. Try to personalize your comments as much as possible - ODFW

and the Governor need to know they are hearing from real people who care about the fate of coastal coho salmon!

Why Coho Salmon Need Your Help
Oregon's coho recovery plan **falls short** in several areas:

- Fails to cite specific actions for salmon recovery. The plan's goal is measurable recovery, but does not set out how this will get done;
- Relies heavily on Oregon's current land use policies (i.e. forestry) to restore the coho, when it was these same rules that messed up coho habitat in the first place;
- Wrongly asserts that right now coho are currently sustainable, when the science shows that this is an unknown and wrong to argue; and
- Overly relies on voluntary efforts, eliminating oversight by state fish and wildlife agencies.

Immediate efforts to conserve and restore Oregon's coastal coho populations and their habitats are needed, and **now is the time to speak up.**
Here's How:

Email the Governor and ODFW. **Ask** that Oregon's coho recovery plan include:

- **Mandatory** protections both for coho and their fresh water habitat. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary. The fact is that the Board of Forestry continues to keep its collective head in the silt when it comes to stream protection rules.
- **Guaranteed funding** to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

Oregon Governor Ted Kulongoski & ODFW need to know that you support strong protection for coastal salmon and their habitat.
We only to November 17th to comment on the plan, so please contact the Governor & ODFW today and ask them to give coho salmon the protection they deserve.

Sample Comment Letter

Here's a sample comment letter. You can cut and paste this directly into an e-mail (cohoplan@state.or. us) or print it out and mail it in. Include "Attention: Coho Plan comments" in your subject line.

Oregon Governor Kulongoski
Commissioner Marla Rae, Chair
Oregon Department of Fish and Wildlife
3406 Cherry Ave. NE
Salem, OR 97303

cohoplan@state.or.us
RE: Oregon Coast Coho Conservation Plan

Dear Governor Kulongoski and ODFW Commissioner Rae:
I support immediate efforts to conserve and restore Oregon coast coho populations and their habitats. Oregon's draft plan is a step in the right direction because it calls for restoration of these salmon populations and sets out

specific measurable criteria
that must be achieved. However, the actions prescribed to meet the coho recovery goals are inadequate.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The State must guarantee enforceable habitat protections and sufficient funding to truly recover wild salmon. The draft coho plan suffers from a flawed central assumption that Oregon's current land use policies will protect coho populations and their habitat from further decline and degradation. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Specific actions for salmon recovery. The plan's goal is measurable recovery, but does not set out how this will get done.

4. A low-risk recovery approach. The plan's assertion that the coho populations are currently sustainable is not supported by the best available scientific data and is premature. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.
In order to best protect wild coho, the recovery plan not only needs to address the above issues but also provide enough real and immediate **habitat protections** to ensure the species' survival ***now*** so that the long- term goal of recovery will be achieved in the future.
The coho deserve more than business as usual.

Sincerely,

[your name and signature here]

Here is the ODFW's official announcement of the plan's release

ODFW Releases Coastal Coho Plan and Seeks Input

Contact: Steve Marx, (503) 947-6010

SALEM — Oregon Department of Fish and Wildlife officials have released the draft State of Oregon Conservation Plan for the
Oregon Coast coho ESU and are asking for public input.

The 45-day public review period of the draft plan begins Oct. 6 and ends Nov. 17. The plan builds on the Oregon Plan for Salmon
and Watersheds by providing guidance and action commitments that will continue rebuilding coastal coho populations. The draft plan
is available on the Oregon Plan website at:

http://www.oregon-plan.org/OPSW/cohoproject/coho_proj.shtml

Four Town Hall meetings will be scheduled the final week of the comment period (mid-November) in Newport, Tillamook, Coquille
and Florence to provide additional opportunity for public input. At each meeting, a brief overview of the Conservation Plan's
development, goals and strategies will be presented, followed by an informal "open house" question and answer period. Public
comments will be recorded at the meetings. Town Hall meetings previously scheduled in October were cancelled this week to
allow more time for public review of the plan.

Hard copies of the plan may be viewed at ODFW District Offices in Tillamook, Newport, Roseburg and Charleston as well as the
ODFW Headquarters in Salem. Comments may be submitted by email to cohoplan@state.or.us or mailed to the Oregon Department
of Fish and Wildlife, 3406 Cherry Ave. NE, Salem, OR 97303. Please include "Attention: Coho Plan comments" in your subject line.

A public stakeholder team representing fish conservation, fishing, private land, timber, agriculture, tribal and other interests helped
guide the planning efforts. State natural resource agencies involved in this planning effort include the Departments of Agriculture,
Forestry, Environmental Quality, Fish and Wildlife, State Lands, State Parks and Recreation, Land Conservation and Development,
Water Resources, Transportation, Geology and Mineral Industries, and the Oregon Watershed Enhancement Board.

From: Roy Elicker
Sent: Monday, December 18, 2006 6:47 PM
To: Kevin Goodson; Charles Corrarino; Nicholas, Jay; Kelly Moore
Cc: Bruce McIntosh; Stephen Williams
Subject: FW: comments on Coho Plan

OFB comments on Coho Plan. Katie spoke to me about them again today. If you need further details call me.

From: Virgil Moore
Sent: Friday, December 08, 2006 6:06 PM
To: Ed Bowles; Roy Elicker; Casaria Tuttle
Subject: FW: comments on Coho Plan

Virgil

From: Katie Fast [mailto:katie@oregonfb.org]
Sent: Friday, December 08, 2006 3:22 PM
To: PLAN Coho
Cc: MOORE Virgil
Subject: comments on Coho Plan

December 8, 2006

Virgil Moore
Director
Oregon Department of Fish and Wildlife
3406 Cherry Avenue N.E.
Salem, OR 97303

(Re: Coho Plan)

Dear Mr. Moore,

Thank you for the opportunity to comment on behalf of the membership of Oregon Farm Bureau Federation (OFB). OFB supports regional approaches that are based on voluntary cooperative conservation to achieve sustainable fish populations. It appears that these principles are reflected in parts of the Coastal Coho Conservation Plan.

However, there remain some concerns with your Department's drafting and distribution of the plan. Our members' frustration with some elements of the plan was voiced at the public meetings. The plan could have been released for comments in ways that eased this frustration without changing the intent or plan's direction to the agencies.

First, the plan is too long for grassroots involvement. While the plan is only 50 pages, the numerous attachments and appendixes bring it to over 600 pages. This is a visual barrier to the people you want to collaborate with. In the future, the Department must become more concise with their writing. Also, citizens interested in reading and commenting on the plan were told they would have to pay over $130.00. It is unacceptable to financially shut people out of the process.

OFB is disappointed that predation is not addressed within the plan. As the state takes an in depth look at Coho populations, it should not only focus on habitat, but assess all impacts to fish survival. We urge the Department to reassess this issue.

Throughout, the plan is described a voluntary, however on page 35 it is stated that Oregon Department of Forestry will be passing new regulations to implement the Coho Plan. These two statements seemed clearly contradictory. If these are rules to help implement voluntary landowner actions, then we agree the rules fit the spirit of the plan. If they are regulatory actions as described, we do not believe they should be endorsed by the Coho Plan.

The ability for farmers and ranchers to conduct fill and removal activities is critical in the coastal area. The comment "DSL may consider program changes to more effectively protect those areas" make our members concern that the plan will bring regulatory limits to their management instead of the voluntary conservation that the Plan endorses.

OFB does not agree with the hatchery management policies outlined in the plan. We believe Oregon's hatchery program is an important and necessary tool in the process of recovering and protection the region's salmon. We do not support the reduction of released hatchery numbers and the discontinuance of smolt release in the Salmon and North Umpqua Rivers. We support an enhancement of the STEP and hatchbox programs. These are true grassroots efforts in Coho conservation.

Through discussions with our membership on the Coho Plan, it seems the Department's regional staff has a positive relationship with the landowner community, however the Coho planning process felt more like a top down approach without grassroots input. The Department may want to address this perception.

Thank you for considering our comments. OFB looks forward to working with the Department on the Coho and other issues in the future.

Sincerely,

Katie Fast
Associate Director of Government Affairs
Oregon Farm Bureau Federation
503-399-1701

December 8, 2006

Plum Creek

Oregon Department of Fish and Wildlife
3406 Cherry Avenue N.E.
Salem, OR 97303

RE: Coastal Coho Conservation Plan

Dear ODFW:

Plum Creek Timber Company applauds ODFW for completing the coastal coho conservation plan (CCCP) and offers support for its implementation. Plum Creek owns and manages almost 300,000 acres of timberland within the coastal coho ESU boundary. As an industrial forest landowner, Plum Creek has been actively engaged in the protection and restoration of coho habitat through implementation of the Oregon Forest Practices Act and participation in the Oregon Plan. Like many Oregon landowners, Plum Creek is encouraged by the recent upswing in coho abundance and by the state and federal recognition of the value of the Oregon Plan's voluntary measures. We also appreciate that further habitat restoration work will be needed, and we pledge to continue our efforts in this area. The CCCP is comprehensive in scope and sufficiently detailed to allow readers to see the goal of the plan and how this will be achieved. Listed below are some suggestions for improvement, and points which need clarification.

1. Define "high quality habitat" in a way that relates to how it would be measured in the stream as a result of restoration work. Freshwater habitat quality is mentioned throughout the CCCP as a key factor in achievement of the desired status. For many forest landowners, maintaining or restoring in-stream large woody debris (LWD) loads is their primary contribution to coho conservation. Although LWD is mentioned as one feature of high quality habitat, the amount of LWD needed to boost stream complexity to where it produces 2,800 coho smolts per mile is not described. Nickelson (1998) describes the use of juvenile coho density by habitat type to predict smolt capacity, but the connection between LWD and the smolt capacity is not clear.

It is important for ODFW to make this connection, and not just for implementation and monitoring of the CCCP. Target values for in-stream LWD (size and number) are being contemplated for revisions to the Oregon Plan's voluntary measures and as part of potential new forest practice rules. Therefore, the question of "how much is enough" is pertinent. The authors should explain in Appendix 2 and the CCCP what LWD loads (or other quantifiable parameters) constitute high quality habitat.

2. Also in regard to high quality habitat, it should be noted how high quality habitat relates to HIP stream segments. Is there a conflict between estimated HIP stream miles and the estimated potential miles of high quality habitat (Table 7 of Appendix 2: Measurable Criteria)? Are there truly 3500 miles of stream in the coastal coho ESU that can produce 2,800 smolts per mile?

3. Measurable Criteria. The six criteria for measuring success of the CCCP (Appendix 2) seem to be reasonable but also appear to be largely unproven as ingredients for achieving the desired status. How the uncertainties in these criteria will be addressed through research, monitoring, and continuous improvement should be discussed in the Adaptive Management section. Also, include with each criterion a description of the source of research and monitoring information that will feed them. For example, it is mentioned in the Research Monitoring, and Evaluation Section (p. 44) of the CCCP how ongoing spawning surveys and life-cycle monitoring programs will generate data for criterion 1 – adult abundance. Be sure to identify in the CCCP *all* of the programs that relate to the measurable criteria, and provide this same linkage with each criterion description in Appendix 2.

4. Research and Monitoring. Studies that investigate better ways of predicting ocean conditions and associated marine survival seem to be an important contextual feature for informing plan success and also for harvest management. This is mentioned in Appendix 2: Measurable Criteria. Carry this discussion to Appendix 4: Research Topics.

5. Adaptive Management. At the end of the CCCP, the authors discuss how voluntary efforts will be relied on to achieve the desired status, and if sufficient progress isn't made, then regulatory changes will be considered. It is equally important to continually examine the desired status and to adjust this when necessary.

Overall, the CCCP is well written and Plum Creek supports moving forward with approval and implementation. Thank you for the opportunity to comment and participate in the review process.

Sincerely,

Jeff Light
Forest Hydrologist
Plum Creek Timber Company
P.O. Box 380
Toledo, OR 97391
(541) 336-6227
FAX 336-5827
Cell (206) 669-3025
jeff.light@plumcreek.com

Nov. 09, 2006

Oregon Department of Fish and Wildlife
Governor Kulingoski,

I am writing in comment to the proposed Oregon Plan.

In my opinion, there needs to be clear specific legal protections—particularly for habitat protection, restoration and enhancement of existing functioning habitat. The idea that cooperative efforts are important is certainly a good strategy but this can not be the sole work plan for the state. Voluntary efforts are great! But that cannot be the state's only solution or response to a very dire condition.

Oregon coastal Coho have had some return in numbers but no where near the numbers that the Federal Government's expert scientists say are necessary to ensure survival. There needs to be a large enough population to be able to succeed even in bad ocean condition years. If the population reservoir is too low, a few poor years could completely finish certain stocks.

It can not be business as usual! This has not worked.

It is bad judgment to rely on watershed councils to solve this crisis. It is bad judgment to rely on just grant programs and incentives. Sometimes, specific protections must be put into place for the survival of a species (habitat protections) and the greater good. These protections do not have to be onerous or such that would cause economic disruption. In most cases, prudent policy would work both toward protection of the Coho and economic gain of the landowners (urban, agricultural and timber).

Greater protections must be given to low land streams, estuaries and wetlands. On the coast, these are being totally destroyed as I write this. There are regulations in place but there seems to be no will to enforce these protections.

Estuaries must be protected at all costs. They should be purchased from willing private landowners. They should be restored to a condition that will provide adequate rearing habitat for the Coho.

Exotic species must be controlled or eliminated in coastal streams and lakes (freshwater game fish i.e. bass) and efforts made to control or limit the spread of New Zealand mud snails. ODFW has fallen short of addressing any of these issues.

Hatcheries must be closed. Pumping excess numbers of fish into functioning or partially functioning downstream areas and estuaries limits the ability of wild Coho to utilize this rearing habitat. (i.e. excess Chinook into the Salmon River estuary to compete with any remaining native Coho) The Salmon River hatchery caused the extirpation of a good native run of Coho. Why now compound the issue by still pouring forth excess Chinook? The river has a good native run.

Watershed councils:
I have just completed over 6 years of working in a watershed council. I truly believed in its ability to get local people to work together and to provide a safe place for local people to discuss "watershed" issues. However, I have become totally disillusioned.

The watershed council process is well on its way to becoming just another government agency—filled with bureaucracy, and limiting the voices of citizens. Even the councils themselves realize that they are not attracting (or keeping members). There are efforts to "advertise" for members. But once in the councils, there are no real mechanisms to keep "regular folks."

Projects are either become so "agency" oriented or so complex, regular folks can not be involved. The processes in place have become so bureaucratic that it just turns people away.

So while the state is relying on these "councils", the "councils" are in fact struggling to stay alive. Unless, the councils find a way to involve citizens and engage their "hearts and minds", citizens will soon not fund them at all.

It is ludicrous to rely on these councils for a "Major" effort to 'save Coho". Problems include lack of consistency—many of the coordinators from numerous councils leave every year. Another part of the problem is lack of secure funding (and realistic amounts). Coordinators are expected to have good educational backgrounds and experience. Yet most are not paid a good market rate. Expectations and needs of the councils burn out many who have taken the position due to passion and commitment.

Each year councils struggle to find dollars to "stay alive". The councils must rely on grants (and administrative funds) or private grants and donations. And in this struggle, the councils have "morphed" into a quasi-state agency.

Of course, larger projects are not bad and some wonderful things have happened from the work of watershed councils. And even the "small" tree plantings, assist Coho survival. I am proud of what our small watershed council has accomplished.

But in no way is our council capable of doing the work necessary to "ensure" survival or even really increase numbers of our local Coho stocks. The problems are really larger and more complex than individual watershed councils can manage.

Councils can do good projects. Councils can provide publicity. They can provide a "face" for salmon projects.

But if the state does not provide "teeth" or habitat protection regulations, it's like bailing out the bath tub while the water runs. Citizens are not dumb. They soon recognize this and it begins to feel more and more futile. Unless real efforts are made the state will loose both the Coho and the watershed council movement. This would be a shame.

Katheryne McKenzie
POB 131
Neotsu, OR 97364

Northwest Sportfishing
Industry Association
PO Box 4, Oregon City, OR 97045

December 7, 2006

Oregon Department of Fish & Wildlife
3406 Cherry Ave
Salem, OR 97303

The Northwest Sportfishing Industry Association appreciates this opportunity to comment upon the current draft of the Coastal Coho Conservation Plan. The NSIA has been part of the ongoing process to evolve the Wild Fish Management Policy to the individual conservation planning that was developed under the current Native Fish Conservation Policy (NFCP). It was during the creation of the NFCP that our representative, Don Swartz, as well as the other NFCP Taskforce members developed the concept of conservation planning on a basin wide scale. The NFCP is a management plan that sets no specific goals, but is designed to guide how conservation planning will occur and what attributes are necessary when considering conservation needs for wild populations. The NFCP, along with requiring the development of Conservation Plans, sets forth specific language that each Conservation Plan is to contain in an effort to address what our representative and other stakeholders deemed important and essential if any conservation plan were to be viable. The conservation plans are to address the following elements:

(a) Identification of the species management unit and constituent populations pursuant to subsection (4) of this rule;

(b) Description of the desired biological status relative to biological attributes contained in subsection (6) of this rule;

(c) Description of current status relative to biological attributes contained in subsection (6) of this rule;

(d) An assessment of the primary factors causing the gap between current and desired status, if there is a gap, and identify factors that can be managed;

(e) A description of the short- and long-term management strategies most likely to address the primary limiting factors;

(f) A description of monitoring, evaluation, and research necessary to gauge the success of corrective strategies and resolve uncertainties;

(g) A process for modifying corrective strategies based upon the monitoring, evaluation and research results;

(h) Measurable criteria indicating significant deterioration in status, triggering plan modification to begin or expand recovery actions;

(i) Annual and long-term reporting requirements necessary to document data, departures from the plan, and evaluations necessary for adaptive management, in a format available to the public;

(j) A description of potential impacts to other native fish species.

Although NSIA recognizes the enormous effort staff has made to include nearly all of these requirements, we believe that the plan may fall short of addressing short term or immediate strategies that will begin to reduce the impact of the primary limiting production factors. We know for many streams that harvest and hatchery outputs were limiting factors and have been addressed. On both counts, it is the sport fishing community that absorbed the necessary changes for the protection and enhancement of native coastal Coho populations. ODFW staff did yeoman's work in their lengthy review of these populations as part of the NOAA Fisheries re-listing process for Oregon Coastal Coho. Data from this Coho Assessment and the subsequent Coho Stakeholder Team process both found that stream complexity and over winter habitat is the primary remaining limiting factor in most of the Coho populations affected by this conservation plan. ODFW staff must develop immediate and short-term strategies to help mitigate this wild production bottleneck.

While NSIA understands that only through partnership and cooperation with landowner and resource stakeholders will long term progress be made with regard to this habitat issue, we believe that ODFW can develop a leadership role and set forth explicit short term goals within this Conservation Plan in an effort to address the primary limiting factors. NSIA also believes that any effort to improve stream complexity and over winter habitat must recognize the importance that estuarine habitat will play in any short or long term strategy.

The current draft of the Coho Conservation Plan can be strengthened to address some of the issues surrounding beavers and the high production habitat they create. One of the driving principles of sound restoration is the restoration of ecological integrity. This has many facets but is directed at restoring the conditions under which ecosystems evolved. Lack of complexity and over wintering habitat can be traced to the elimination of key components or natural processes that have been interrupted by development activities. In the case of beavers they were once a very significant influence on small streams in the NW, and we believe it makes ecological and economic sense to take advantage of natures' free engineers. A program of protection of the beavers and incentives to landowners could be a very cost effective way of improving the production and survival of Coho. Recent changes in state regulations now allow beaver to be killed on private lands without the need for a permit or tracking of harvest. NSIA believes this reduces ODFW's ability to gauge beaver harvest within areas of high intrinsic potential. Given the critical interaction between beaver created habitat and coho production, it makes sense to track harvest upon a species that is so important to Coho. Where there is good potential for new, highly productive Coho habitat, NSIA encourages the development of programs to directly monitor beaver harvest, provide incentives to landowners and evaluate methods for increasing beaver densities within critical Coho habitat. We stress this management action because it is one of the few activities on private lands over which ODF&W does have jurisdiction.

Under habitat improvements and protections, we support prioritizing fish passage funding to areas that are currently blocked and identified as coho habitat. Correcting fish passage problems can be the least expensive activity in a restoration process to reattach habitat reaches that were historically utilized by coho. ODf&W should have final input to prioritize funding of those passage projects that will provide the most restored benefits to wild coho. Beyond that we would like to see ODF&W serve a more significant role in advising county and city land use planning processes. Protection of the best habitat from draining, diking and destruction due to highway modification, forest practices, agricultural practices and homebuilding will be necessary to provide adequate habitat from which to rebuild and renew other coho areas. Enhancement efforts, whether through artificial or natural mechanisms (beaver included!) will only provide increased benefits to natural populations when they are added to an adequate regulatory 'back stop'.

We fear that measure 37 will turn out to be very damaging as some timber companies will offer marginal forest lands for high-value development, which will damage Coho productivity. We are hopeful that a legislative clarification of measure 37 that better reflects voter intent will help put Oregon's land use laws back on track for the natural systems and beauty our citizens value.

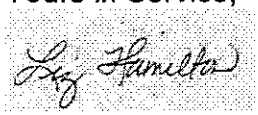
For the long term, NSIA would like to see more planning and emphasis on the impacts to Coho as the climate changes and the sea level rises. Has a "climate overlay" on a map been produced to anticipate impacts on future Coho productivity? How about land use change anticipation over the next 30-50 years? If our cities and counties continue to permit disruptive activities in the floodplain/riparian zone/estuary, do current models actually suggest that voluntary actions will be enough? As cities grow and their need for water grows, what will give? Is there an overlay map for where critical coho habitat resides in farmlands and under county land use laws? Will a voluntary approach acquire an adequate amount of additional protection in areas where key coho habitat intersects with agricultural practices and development? Will redevelopment continue to reoccur after every flood event? These are the impacts that are most likely to threaten coastal Coho and should guide key investments now. We suggest a larger emphasis on buying conservation easements on the remaining low elevation "Coho factories" while they are still in agricultural or forest land uses.

In the regulatory world of ODF&W, the agency has done nearly every action under their authority to regulate. Hatchery practices and harvest practices that were identified as detriments have been eliminated. These regulatory actions were taken by ODF&W with the support of the Northwest Sportfishing Industry Association. Most of the balance of what needs to be done to protect and restore the Oregon Coast Natural Coho is outlined primarily as voluntary work with private landowners. It is our belief that the remaining work needs to be approached with the Oregon Department of Fish and Wildlife serving a strong, leadership role. We sincerely hope that other agencies will apply appropriate regulatory actions to protect vital coho habitat with the diligence displayed by ODF&W. Hatchery and Harvest reforms were not voluntary measures, they were regulatory.

We expect that ODF&W will continue to apply adaptive management principals, as they serve in the central role of science advocates to 1) identify the desired status of coho

and their habitat, 2) monitor and articulate the successes and failures and 3) advise and consult with other agencies and landowners on changes and adaptations necessary based on monitoring. In closing, we again acknowledge that the staff of ODF&W has done excellent work. Thank you for the opportunity to comment.

Yours in Service,



Liz Hamilton
Executive Director
Northwest Sportfishing Industry Association

Cc:
Oregon Fish & Wildlife Commission
Mike Carrier

Coho Plan Coordinator
Oregon Department of Fish and Wildlife
3406 Cherry Ave. NE
Salem, OR. 97303

Dear coordinator,

As a farmer, sport angler and former ODFW employee I have several concerns with the proposed draft coho conservation plan. My main concern is the emphasis on freshwater habitat. As a spawning surveyor for several years for ODFW, I walked dozens of miles of excellent coho habitat during the mid 1990's where very few salmon actually returned to spawn. There was available spawning gravel, refuge habitat, excellent riparian buffers but not enough spawners to seed the habitat. The recent rebound of coho populations indicates to me that ocean conditions played a significant role in the coho crash. My belief is further reinforced when I look at hatchery return data that show that hatchery and wild populations from the same basin typically mirror each other . In other words, years where hatchery returns are low typically coincide with years that wild returns are low. This would indicate that some other factor than freshwater rearing habitat, most likely ocean rearing, is having a greater influence on survival. Even this draft coho plan, on page 13, indicates that reduced harvest and improved ocean conditions are the main factors in the rebound of coho populations and yet this plan puts priority in freshwater habitat improvement

I also fear that this plan does not promote the use of restoration hatchery techniques to boost numbers. I worked on such a project in the early 1990s on the Freshwater Creek basin of Humboldt Bay in California where coho salmon populations were restored to self-sustaining levels. I believe that similar hatchery programs were used in Oregon's Lakes Basins and those populations are now so strong as to allow wild coho harvest. Additionally, ODFW is having success with its native brood projects for steelhead at several hatcheries. Why not expand this program to coho salmon? As a member of the advisory board for the new Hatchery Research Center, we will soon be conducting research to develop new hatchery techniques that could aid in maintaining genetic integrity of a stock while providing a harvestable surplus of fish. The emphasis on naturally produced coho in this plan does not seem to allow for further hatchery supplementation. This plan therefore reduces sport fishing opportunities and the ability to maintain viable populations during periods when ocean conditions reduce the adult spawner abundance. Since the majority of mortality occurs in the egg to emergence stage, doesn't it make sense to use hatchery technology to preserve depressed populations? Simple methods such as collecting wild brood stock from a basin and rearing their eggs in trays, where survival is much higher than in natural gravel, could allow ODFW to maintain a viable number of future spawners and therefore protect the genetic integrity of a stock. If allowed to remain in the wild, those limited spawners may produce a more genetically diverse population, but if 80% of those fish die before emergence then you still have a genetic bottleneck and once again you have the problem of fewer smolts migrating to the ocean, where conditions may have improved enough to allow excellent survival.

This is also a cause for concern since current reductions in hatchery fish will result in more limitations on the ocean fishery. Since adipose fin-clipped coho are the only fish that can be retained by anglers, reducing hatchery production means reducing harvest. A wild stock fishery like chinook, is at minimum several years away and until then ODFW is basically reducing angler harvest further. This is ironic since I also believe that ODFW bears the brunt of the blame for the original 1990's crash as the mixed stock ocean fisheries were allowed to overharvest wild fish during a period of poor ocean conditions. ODFW's original resistance to 100% fin clipping meant that the mixed stock fishery targeted stocks at risk. Now with the proposed reduction of hatchery programs and the hope that wild populations can rebuild to allow harvest, once again ODFW is setting itself up for overfishing of wild stocks and another possible collapse. If ODFW intends to allow a viable sport and commercial ocean fishery, the continuation of hatchery supplementation with 100% fin clipping is necessary to avoid overharvest on wild stocks. The best result would be small restoration hatcheries using native stocks on basins all along the coast so that marked, harvestable surpluses from every basin are available. This would also allow freshwater harvest by anglers which might increase license revenues.

Perhaps the thing this plan lacks most is research on ocean conditions. The emphasis on freshwater management, while important, is less than ½ of the coho life history and yet no recommendations for ocean research, except for predation, were even discussed. The current dependency on jack counts to predict marine survival needs to be re-evaluated as evidenced by recent inaccurate predictions made by Columbia River fish managers. Since jack counts appear to fail as recruitment predictors when ocean conditions suddenly change and the remaining two-year-old fish die from starvation other methods of predicting marine survival should be used. Development of ocean condition predictors that better forecast spawner populations and allowable harvest should be a main component of this plan. Ideas such as pelagic bird population surveys, test trawls to capture and measure ocean salmon for growth, measurement of offshore upwelling and nutrient levels or other such research projects should be proposed for funding. Additionally, out of work salmon anglers could be hired to use their boats for such research.

Finally, ODFW needs to develop a more adaptive management plan that takes into account both freshwater habitat and ocean conditions. Wild fish should be used as the genetic core of our fisheries while hatcheries should be used to create harvestable surpluses when ocean conditions are good and can provide food for a large ocean population. Hatcheries should also be used to maintain and restore populations that are in danger of being genetically bottlenecked during periods of low marine survival. Fishery managers should have the tools and data to be able to accurately predict the ocean conditions and therefore determine when viable sport and commercial harvest can occur. Increased harvesting of fin-clipped hatchery fish, should not harm wild populations as the pre-1990's mixed stock fisheries did, and as a result should provide increased revenue to ODFW in license sales and landing fees while boosting the coastal economy.

Respectfully

Chris Vandenberg
12503 Pedee Creek Road
Monmouth, OR 97361
Wombatfrm@earthlink.net

RESPONSE TO THE PUBLIC DRAFT OF THE CONSERVATION PLAN FOR THE OREGON COAST COHO EVOLUTIONARILY SIGNIFICANT UNIT

As members of the Coos Soil and Water Conservation District Board we are strongly opposed to the implementation of the Oregon Coast Coho Conservation Plan. This opposition is based on three general assessments.

1. The premise that wild spawning populations of Coho Salmon in our coastal streams can be significantly increased by restoring stream habitat in the ways described in the Plan is patently false. Two major controlling factors of Coho survival, predation and the current catch-and-release fishing regulations, are not seriously addressed in the Plan and yet can completely negate any gains one might achieve through stream habitat restoration projects. Predator populations of pinnipeds and seabirds have reached asymptotic equilibrium levels over the last 30 years, and at these levels one will never reach the Plan's stated goals without managing for predators. It is also clear that reaching Coho Salmon population levels that will sustain large volume commercial and recreational fisheries is not possible without: 1) a significant supplementation of Coho wild production with hatchery/hatchbox operations to "swamp" bird predation; and 2) active control of pinniped numbers. As an aside, it is ludicrous to argue that hatchery/hatchbox operations, with proper brood stock selection, will lead to a decrease in genetic diversity, a shift in genetic structure of a population beyond what naturally occurs, or domestication of the stock. Given the inexpensive methods that are available for monitoring the genetic makeup of fish produced in hatcheries, one can reliably mirror the genetic makeup of the wild fish and thereby avoid domestication problems.

Depending on various study results, it has been shown that 18% to as high as 60% of the fish that are caught and then released die. Changing the fishing regulation so that one keeps the first two Coho Salmon caught whether or not they are fin-clipped, would result in a net gain in the number of wild fish returning to the streams without having to put one dollar into habitat restoration.

2. The criteria and the analysis methods proposed for assessing the success of the habitat restoration efforts do not appear to be adequate for separating the influence of favorable ocean conditions (e.g. strong upwelling years) from the influence of changes in stream habitat. Further, how is it that to this day after the expenditure of millions of dollars through our coastal watershed councils one cannot statistically show that stream habitat "improvements" have increased the number of wild spawning Coho? We fear that the same mistake is being made again.

3. Even though the Plan stresses that implementation of the various elements of habitat restoration will be done on a cooperative basis with landowners, the legislative intent of the various agencies, as listed in the Plan, indicates to us that another suite of regulations will be imposed on landowners with the potential for massive losses of production on farmlands in the coastal zone of Oregon. If regulations are established to carry out the Plan's habitat restoration elements (which appears to be highly likely), coupled with the existing regulations that hinder maintenance of drainage systems (e.g. dredging, and

culvert, tide gate and levee repair), restrict water use and impose often ridiculous limits on non-point source "pollution", thousands of acres of pastures and croplands will be taken out of production. For example, consider what will happen if landowners are no longer able to remove beavers and beaver dams, are forced to place woody debris in and willows along streams, and told to not prevent streams from meandering through their pastures. Maintenance dredging would be completely shut down and bottomland pastures in coastal Oregon will become cattail marshes that will never dry out during the summer months. We fully realize that there are those involved in the development of the Coastal Coho Conservation Plan who can hardly contain their glee over such an outcome. But since the function of Soil and Water Conservation District Boards is to assist farmers/ranchers in participating in various federal and state water and soil conservation programs while minimizing the loss of farm production, and since this Plan will undoubtedly lead to significant economic losses to farmers at the same time it insures economic losses to the commercial and recreational fishing industry, we absolutely reject the Coastal Coho Conservation Plan in its entirety, and will work to insure that it is never implemented.

Charlie Waterman, Chair
Arlene Guerin, Vice Chair
Jeff Cochran
Gordon Hayes

Sharon Waterman, Secretary
Daniel Varoujean, Treasurer
Helen Franklin

NATIVE FISH SOCIETY

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Portland, Oregon 97280
(503) 977-0287
Email: greenhills@oregoncoast.com

December 8, 2006

Mr. Kevin Goodson
Conservation Planning Coordinator
Oregon Department of Fish and Wildlife
3406 Cherry Avenue, N.E.
Salem, OR 97303

RE: Comments on Final Coastal Coho Conservation Plan

The Native Fish Society would like to offer the following brief comments on the state's Coastal Coho conservation Plan. We have previously submitted detailed comments but would like to emphasize the following three points, which give us cause for concern.

First, we question the validity of the state's novel low abundance paradigm that ODFW has used to declare coastal coho are viable. The Department stands alone in its assessment, with serious concerns raised by knowledgeable scientists from the IMST, TRT, etc. As you know, NFS has joined with others in a legal challenge of NOAA's political de-listing determination that was based upon the state's novel theory along with promises of renewed volunteer cooperation.

Second, we would like to see a detailed plan for monitoring and evaluation proposals. We fully support a rigorous M&E program but very few specifics have been revealed in the plan. It would be helpful to prioritize various monitoring components and provide an overall cost estimate in order to efficiently implement these efforts. It is apparent that funding has not yet been secured for this responsibility, which is central to ODFW's role in coho recovery.

Finally, we cannot support the state's sole reliance on voluntary efforts to recover essential habitat for coho. The complete absence of new regulatory measures is unfortunate given the continuing decline of overall critical over-wintering habitat. Little is being done to actually restore intact ecological processes, especially on agricultural and forestlands. Indeed, Oregon has one of the least sufficient Forest Practices Rules on the west coast and agricultural rules affecting habitat beyond water quality are virtually non-existent. It is clear that we need both regulatory and voluntary efforts in order to successfully address the limiting factors affecting coastal coho.

In conclusion, we would like to suggest the ODFW step back and take a hard look at overall monitoring needs and develop a budget proposal we can work together on. This will require a coordinated legislative approach. Monitoring and evaluation of population

and habitat status, along with ecological processes, will be required regardless of listing status. Additional regulations will also need to be developed by non-ODFW agencies and OWEB in particular will need to re-direct funding priorities to projects that address limiting factors as identified in the plan. Land/easement acquisition funding should also be a priority element in order to ensure successful recovery of our coastal coho.

Thank you for the opportunity to comment. We look forward to working on improvements to the plan in the future.

Regards,

Les

Les Helgeson
Native Fish Society

December 8, 2006

Mr. Virgil Moore, Director
Oregon Department of Fish and Wildlife
3406 Cherry Avenue N.E.
Salem, OR 97303

RE: Coho Plan

Dear Mr. Moore:

Thank you for providing us the opportunity to comment on the Coho Plan on behalf of the member of Oregonians for Food and Shelter, Inc. (OFS). OFS is committed to the goals and objects of the Coastal Coho Conservation Plan.

Before I go further with my comments, let me express to you how appreciative OFS Staff and members are for the excellent leadership and work that the Oregon Department of Fish and Wildlife provided to NOAA Fisheries as they were contemplating whether officially list the Northern Coastal Coho. We believe because of the Department's efforts the Northern Coastal Coho was granted a "Not Warranted to List" decision. Your staff is to be congratulated for their commitment to both insure that the fish population is sustainable well into the future and for recognizing the private landowners contribution to accomplishing this well deserved no listing. It is for these reasons that OFS is willing to lend our name in supporting Department of Fish and Wildlife's **volunteer** Coho Plan.

We believe that any communication should be crystal clear. This is particularly true as we comment on this Coho Plan.

First, for OFS to continue to allow our name, Oregonians for Food and Shelter, it is imperative that the Coho Plan is always executed voluntarily. We feel strongly that at no time should a government agency advance onto the property of anyone without the expressed permission of the landowner. This is the bedrock of our support. Should this one item be violated OFS will pull our support.

Second, we believe for this plan to be successful that the field staff who has the rapport with the landowners should be the designated individual to interact with the landowner. Those Salem staff, and in particular the Governor's Office, should stay out of the field. Once the public comment period has closed, we believe it is no longer necessary for the headquarters staff to be involved.

Third, all activities that threatened the sustainability of the Coho should be taken into serious consideration. This plan concentrated on the habitat. However, additionally we believe other elements needs to be addressed such as predators that will impact the survival of the Coho.

Fourth, we ask that you read and study the comments that were given or sent to you based on the public hearings you held up and down the Coast. We ask that you respond to any comments or questions the public provided at these hearings. We have received a number of these comments in our office following the hearings.

Finally, OFS staff and members are passionately committed to the long-term survival of the Coho and will do all that is necessary to accomplish this mission with the above stated comments in mind.

Thank you taking our comments and we look forward to working with your field operation as they connect with out landowners in the future.

Sincerely,

Paulette Pyle
Director of Grass Roots

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

NORTHWEST FISHERIES SCIENCE CENTER
NEWPORT RESEARCH STATION
2032 SE OSU Drive
Newport, Oregon, 97365

13. December 2006

Michael Carrier
Natural Resources Policy Director
Oregon Governor's Natural Resource Office
State Capitol Building
900 Court Street NE
Salem, Oregon 97301

RE: Comments on the Public Draft of the Oregon Conservation Plan for Oregon Coast Coho Salmon

Dear Mr. Carrier,

Thank you for the opportunity to continue our collaboration with the State of Oregon on Oregon Coast Coho Salmon. After providing staff-to staff comments on the previous drafts, The Oregon Coast Coho Salmon Workgroup has reviewed the Public Draft of the Oregon Conservation Plan for Oregon Coast Coho Salmon. Our comments are attached. We have provided big-picture comments at the beginning and specific comments and suggestions following. It has been our intention to provide useful suggestions for improvement of the conservation plan, so if there are comments that are not clear, please contact Heather Stout at 541-867-0290 or Heather.Stout@NOAA.gov for clarification. We look forward to working with your staff on the subsequent Implementation Plan that will be needed to carry out the general concepts outlined in the conservation plan.

Sincerely,

Peter W. Lawson, PhD
Co-chair, ONCC TRT

General Comments

We appreciate that this Oregon Conservation Plan (OCP) has required a lot of time and effort. Overall, the OCP is much improved over previous versions with regard to readability, directness, and understanding what is proposed. The report does a good job of describing its purpose, what it covers, and what it doesn't cover. It is very straightforward with regard to the time it may take to achieve desired status condition (i.e., decades). This directness is refreshing—no beating around the bush! Even if we don't agree with the assumptions or the science, it is particularly useful to have the assumptions spelled out. Nice job!

The plan would benefit from being presented in recovery planning format. For a review of the types of information TRT reviews generally include for recovery plans, see http://nwfsc.noaa.gov/trt/puget/pstrtwatershedguidance.pdf.

The glaring absence of citations and other forms of support for the OCP seriously restricts the credibility of this document. At a minimum, the State should provide the basis for its contentions and support for its arguments in a sound and rational manner. Otherwise, this is a very empty and unconvincing document. There are many assertions and very little support for them, and it is difficult to tell what science this "science-based" plan is based on.

The State asserts that the OCP is based on principles of conservation biology. Links to conservation principles are weak in many areas and are not explicitly described. The OCP does not explicitly address these basic principles. The State argues in several cases about social, etc. limitations. What are the consequences of these limitations and what are their effects on the conservation plan? What are the tradeoffs with conservation principles? Are there ways to use societal goals constructively?

Conservation of metapopulations, which is appropriate for coho salmon, require the conservation of: (1) numerous patches of suitable habitat over time; and (2) the potential for dispersal among the patches (Harrison 1994). Where there is a current lack of a sufficient number of patches of high quality habitat, it is important to protect the existing high quality patches in the near term (Frissell 1997). Minimizing or eliminating external threats increases the likelihood of persistence of these patches (Meffe and Carroll 1997). These areas will serve as sources of individuals to colonize new patches as they develop favorable habitat. Development of future patches of favorable habitat requires the protection or restoration of critical ecological processes that create favorable habitat over time (Meffe and Carroll 1997).

Another serious flaw with this OCP is the lack of recognition of the need for diversity in the plan. One of the basic tenets of viable salmonid populations is the conservation of diversity (McElhany et al. 2000). This includes diversity of habitats, life history, and simply the opportunity to utilize habitats in diverse ways. We suggest that restoration practitioners would provide a different view of wild coho life histories and habitat usage than the one presented here. Paul Heikila (OSU Extension), Jon Sauder (Coos Watershed Council), Bruce Miller and Bob Buckman (ODFW), and Craig Cornu and colleagues (South Slouth Estuary Reserve) would be good people to talk to regarding documentation of alternative life histories and the role they may play in restoration of the watersheds they work in.

The OCP appears to depend on the federal lands anchoring some of the key habitats for coho salmon and assumes that this will continue in the future (p. 51 and Appendix 3). Federal lands, BLM, and the Forest Service contain about 20% of the high intrinsic potential habitat. What will happen if BLM opts away from the Aquatic Conservation Strategy of the Northwest Forest Plan? How will that change the assessment of the OCP? This should be addressed in the Assessment section of the OCP.

Many of the deficiencies in this document are expected to be covered by the implementation plan that will detail specific actions with time and costs provided. The implementation plan is an integral piece of conservation planning. In the implementation plan, limiting processes in entire basins need to be identified, along with spatial strongholds for high productivity.

We don't see in this document scientific evidence that the actions proposed will actually meet the goals proposed. It is difficult to discern the basis for optimism expressed in this document regarding the achievability of restoration given increase of human population, conversion of forest and agricultural lands to suburban land use, and climate change. While it is true that the expression of goals is beginning to crystallize with the identification of lowland habitat as critical to restoration, it appears that for the most part, the conservation plan is a reiteration of business as usual. Existing regulatory statutes, along with the level of enforcement of the statutes, is not sufficient to protect existing high quality habitat or enable the establishment of new high quality habitat that is critical to achieving the goals of this plan.

Specific Comments

2. Current ESU Status

Page 17, Table 2. This is a valuable table, but definitions should be consistent with the laws. "Endangered" in the ESA has no mention of "likely" or "foreseeable future", just "[The ESU] is in danger of extinction throughout all or a significant portion of its range." Also, why not use the common meaning of "extinct"—i.e., none left?

Page 17-18. We disagree with the certainty of the conclusion that the ESU is currently viable. Our analysis shows this conclusion to have only low to moderate certainty. (This is acknowledged on pp. 18-19.)

3. Desired Status

Page 19 (Goal). The previous draft had a goal of doubling productive capacity; this draft has a goal of doubling returns at 1.1% marine survival. This does make the goal more quantitative, but changes the focus from ecosystem function to numbers, and makes everything contingent on our statistical ability to estimate marine survival. The goal should be to restore ecosystem processes that allow high levels of production. The specific measure of doubling returns is a performance measure. We suggest going back to the productive capacity goal, and saving the numerical specifics for the criteria.

Pages 20-21. Desired status vision bullets. Good list of vision elements!

4. Conservation Strategy

Unfortunately, the OCP does not appear to be substantively different from previous versions and, therefore, our comments are almost verbatim of those made in August, 2006. This section is still long on rhetoric but short on details and even shorter on evidence to support contentions that it makes. The following are some examples:

Page 22."The primary focus of the OCP is to: (1) protect existing productive capacity of habitat to maintain viability of the ESU; and (2) improve the productive capacity in order to achieve desired goals." And page 23 "The positive effects of these laws (i.e. current land-use regulations) are expected to continue to accrue...."

These are commendable contentions but there is no evidence presented to support them. In fact, evidence in the literature would argue that these are unlikely to happen with current regulations. Previous scientific reviews of rules and regulations, such as the State Forest Practices Act by Botkin et al. (1995) and the IMST (1999) would argue to the contrary. Where do state regulations deal with headwater (i.e, non-fish bearing) streams, which are now known to be important influences on conditions in fish-bearing streams? How do you reconcile differences between your contentions and independent evaluations and why are such reviews not presented? In the list of what each agency promises to do under the plan, there is very little that is likely to lead to the improvement of habitat.

Also, much of the habitat focus appears to continue to allow land use practices that either prevent or retard the development of favorable watershed conditions to continue and to attempt to mitigate the negative effects of these practices with "band-aid" activities. Past and many present approaches to management of freshwater habitats of anadromous salmonids with similar focus have generally not been successful (Bisson et al. 1992) and habitat loss and degradation continue. Williams et al. (1989) also found that such a strategy failed to halt the decline of habitat quantity and quality for other freshwater fishes. How will the OCP avoid this problem? The State should provide a rationale for why this strategy was chosen and evidence to support why this strategy should work when so many of the other similar strategies have failed.

Williams et al. (1989) noted that the focus of recovery programs on habitat rather than ecosystem restoration may be responsible in part for the failure in the recovery of any fish species after listing under the U.S. Endangered Species Act. Habitat losses may result from human activities that directly destroy habitats or change the long term dynamics of ecosystems (Rapport et al. 1985, Webb and Thomas 1994). Recent proposals for restoring and protecting habitats of at-risk fishes (e.g., Reeves et al. 1995; FEMAT 1993; Moyle and Yoshiyama 1994) addressed habitat destruction, primarily through the establishment of watershed-level reserves in which human impacts would be minimized, as advocated by Sheldon (1988) and Williams et al. (1989). Williams et al. (1989) called for recovery efforts to restore and conserve ecosystems rather than habitat attributes. The OCP is focused on habitat attributes, not watershed processes. As a result, we would contend that it has a very limited likelihood of leading to improvement of habitat conditions especially over the long term, much less successfully maintaining existing good habitat conditions.

The likelihood of habitat improvement under the OCP is further limited by the failure to focus on the watershed level. Past attempts to recover fish populations were generally unsuccessful because the focus was on fragmented areas of good habitat in stream reaches and not on a watershed perspective (Moyle and Sato 1991, Naiman et al. 1992, Williams et al. 1989).

Page 26. Prioritizing Conservation Investment. It is true that it is very difficult to prioritize areas for investment of limited resources and that the social and political factors will be considered in any prioritization efforts. The OCP should make suggestions for factors that could be considered in developing a prioritization scheme that will be part of the implementation plan. It is our suggestion that the OCP not specifically identify the wadeable high IP streams as a priority until your analysis for limiting factors in each population is complete during the implementation phase. The emphasis on the WHIP streams may be inappropriate for some systems and therefore lead to work that does not contribute substantially to restoration.

Page 26. "Conservation action that supports the desired status for coho is expected to benefit other native fish and wildlife species and improve watershed and ecological processes." What is the basis for this statement? Reports cited in comments on pages 22 and 23 above suggest that regulations such as those for riparian zones under the State Forest Practices are unlikely to do this. Where is your support for this statement or contention? Also, what program does the State currently have that is focused on improving watershed condition? Our understanding from this document is that most of the efforts of this program will be on improving in-channel conditions, primarily through the addition of large wood to channels. Putting wood in channels by itself will not lead to an improvement in watershed condition. We would suggest taking a look at the Forest Service's effectiveness monitoring program for federal lands for a template of a program with a watershed focus. The State could consider using the decision support models developed by the Forest Service and BLM as a tool if the goal is to improve watershed conditions.

Page 26. The State contends that "....efforts to increase stream complexity for juvenile coho salmon are likely to improve water quality and benefit associated native species." What is the basis for the statement and where is the evidence? We know of no evidence to support this (see Botkin et al. [1995] and IMST [1999]). In fact there are a few examples of where the opposite is true. The most obvious example is where land owners can remove more of the riparian zone if they add large wood to the channel. This may lead to an increase in channel complexity but at the same time reduce litter input (an important food sources for aquatic invertebrates) and shade, and possibly increase water temperature. The increased level of harvest in the riparian zone is unlikely to benefit riparian wildlife.

7. Agency Actions

Hatcheries

The proposal to end hatchery coho smolt releases in the Salmon River is a good step for recovery of the native coho salmon run. We remain concerned about the effect of the remaining hatchery Chinook releases on the recovering Salmon River coho salmon populations.

Harvest

Retention of harvest restrictions under Amendment 13 remain appropriate. Harvest activities have a significant effect on the restoration potential and ecosystem effects for coho populations.

Thank you for including a discussion of the importance of beaver dams to coho salmon, however there does not appear to include any meaningful actions associated with the discussion. It would be good to refer readers to Appendix 3.

8. Adaptive Management

Additional assumptions need to be specifically communicated as a baseline for adaptive management. For example, information that alternative life histories and estuaries are important to wild coho salmon may become clearer in the future. How will new information be incorporated into the adaptive management of coho salmon populations? The Adaptive Management section is quite vague as to scientific procedures for designing monitoring and management processes to provide critical information. It is fine to say that it will be done through the legislative and administrative processes, but these institutions are not well suited to incorporating scientific information and guiding active adaptive management.

Desired Status Criteria (Appendix 2)

"Truth values" are mentioned on p. 2 but not defined. Because a basic tenet of the conservation plan is that all populations will pass the TRT criteria, truth values need not be mentioned. Also, make clear that desired status is societally—based. Many of these criteria are based on "high quality habitat," but aside from Criterion 1 there is little discussion of what this means and what the implications might be. This section is much improved (again), but still not there yet.

Page 3. "Criterion 1--Adult Abundance":

The discussion is greatly improved. Generally, this seems a reasonable approach, although there seems to be little scientific basis for choosing these thresholds over others. However, it is not clear what the justification is for the goal of "doubling the abundance"? Is this a restoration goal? How would this higher abundance affect overall stock status? If this is a societally-based goal, make sure it is portrayed as such.

It is not clear that linear scaling of abundance with marine survival is appropriate, given likely expansion/contraction of within-population range with respect to habitat quality. It is probably okay as a default assumption, but there should be a means of changing the criteria if we get more data under medium to high marine survivals.

It is not clear that the doubling objectives are actually achievable for all populations, for example the lakes. There needs to be a better description of the methodology – particularly in relation to the lakes.

As defined, the thresholds represent a 12-year median of abundance; was there discussion of using a 12-year mean instead? Why or why not?

Tables 1 and 2 give midpoints for the survival categories, but don't define the cut-points. Without the cut-points, we don't know how to classify any given year (e.g., is a year with a survival of 3.2% in the "extremely low" or "low" category?). Do we assume a linear interpolation between the tabulated values?

Page 9. "Criterion 2--Persistence"

The State has more faith in viability models than we do. Increasing the persistence criteria from 95% to 99% is intended to "raise the bar," but models are only as good as what goes into them. In particular, their ability to predict future conditions doesn't increase just because the passing level has increased.

The previous draft stated "This does not appear to be a very sensitive indicator of desired status." We agreed wholeheartedly, but this statement was dropped from the revision. The TRT used persistence modeling as an indicator of the "Endangered" threshold; it has little to do with broad-sense recovery as addressed in this plan, and this criterion is adequately covered by the requirement of meeting the TRT sustainability criteria—if those are met, populations will be FAR above the levels of persistence specified here. We strongly suggest dropping this criterion as it gives the impression that it is an important piece of measurement of restoration. If it is kept, you need to specify a time-frame for the persistence modeling (TRT used 100 years).

If some model-based population forecast criterion is desired, the state might consider forecasting population "robustness" rather than persistence, perhaps by using the models to predict the probability of achieving or staying above the VL abundance goals into the foreseeable future. This could be done by using the abundance thresholds as a "quasi-recovery" (as opposed to "quasi-extinction") level in the model analyses.

Page 11. "Criterion 3--Productivity":

There is no criterion presented here, and there must be. There is lots of discussion of problems, and it is true that there will be some problems with any approach used, but that is no reason not to decide on an approach. It's not as hard as the discussion suggests. For example, from Figure 1, it is clear that median or mean R/S should be greater than 1.0 whenever spawner abundance is below the spawner goal (assuming the goal is realistic). If not, the population will never reach the goal. So, a quite usable criterion would be that the 12-year median (or mean if you prefer) R/S be greater than 1.0, excluding years when spawners exceed the abundance goal. It is true that such a criterion would be trumped by the abundance goal when desired status is achieved, but it would be a valuable measure of progress along the way.

Page 11. "Criterion 4--within-population distribution"

The state has made a good, creative effort to try to come up with metrics for distribution. Unfortunately, the metrics presented are not, and will never be, workable.

Metric 1 has a few logical flaws. First, as the state points out in the "Analysis" section, it is tautological in that the same data are used both to define the goal and to evaluate it. The suggestion that this will be fixed with time as we collect data beyond the base period,really isn't true. The parameters of the model are dependent on a particular distribution of habitat quality for each population. If habitat remains constant in the future, then the estimated parameters will still apply, but the problems haven't been fixed. Under this scenario, there is a 50/50 chance of passing the criteria with no improvement in population condition. If habitat improves, then the estimated parameters are no longer appropriate, and we may get false positives.

Second, there are statistical problems with the way parameters are estimated, made obvious by the ridiculous parameter estimates for the Lake populations, with percent occupancy projected to be in the tens of thousands. Regardless of the population, the model asymptote (a) should be equal to 1.0 (100% occupancy)—there is a saturation point where, at some very high population abundance, all the habitat has to be occupied. The slope parameter (b) will likely vary over time depending on whether the population is rising or falling (at least if we believe the expansion/contraction dynamics predicted by the Nickelson-Lawson model.)

Metric 2 is an interesting application of modern spatial statistics, but it is doubtful that we will ever have enough samples for most populations to obtain a reliable estimate of the statistic. It is also not clear that regularity of distribution, particularly as measured by the Dirichlet tesselation method, has any meaning in terms of conservation goals. The discussion also seems to confuse regularity with randomness—they are not the same, and it would be rare for a fish population to exhibit either.

The SVB method sounds intriguing, but there is little information about it. We can see how it would give a measure of the uniformity of distribution but is a uniform distribution most desirable? Perhaps it would be better to have population aggregates. How does this metric relate to population dynamics, risk, desirable status etc. In short, how does this statistic relate to coho salmon?

The relationship between number of spawners and percent occupancy is not very strong in the range it is being applied. Most of the "action" is at extremely low spawner numbers, below the numbers in the criteria. Maybe this is good, but it doesn't make this a very sensitive criterion for desired status.

Is the spawner density criterion of 4 fpm measured as peak abundance or AUC? We suggest that peak is more appropriate. Also, is this "desired status" or minimum viable?

Page 18. "Criterion 5--Diversity"

Clarify: naturally-produced or total spawner abundance?

Forecasts based on a single model are of questionable reliability; it would be better to use empirical observations, and modify the criterion to fit the data available. If a model is used, at least provide confidence intervals on the results, including effects of both parameter estimation error and environmental variation.

There is a lot more to maintaining diversity than simply maintaining an approximation of genetic effective population size. Consider other measures of phenotypic, habitat, or life-history diversity.

Page 20. "Criterion 6--Habitat Conditions"

This is a great improvement over previous efforts for this criterion. However, there is no metric to describe the amount of protected habitat or the amount of habitat added or removed from this status. The first element of desired status should be that adequate habitat is protected from degradation.

Good points: a clear, non-circular definition of "high quality habitat"; goals are tied to criterion 1 abundance goals, attempting to answer the question: how much habitat improvement is needed to double productive capacity; notes future refinements through the RM&E process. Bad points: all is conditional on the Nickelson (1998) habitat limiting factors analysis, so may miss important types of high quality habitat (particularly because they are not included in the data sets); the analysis drops the lake populations, so we have no habitat improvement goals for them.

Page 22. "Dependent Pops Criterion 1--Spawner trend"

Clarify: "total" or "naturally-produced" adult escapement?

Consistency of terminology: Is "adult escapement" the same as "spawners" in other criteria??

Thresholds: something's wrong here: "except where dependent populations exhibit steeper trends" seems to imply that the criterion passes if dependent populations are declining faster than the independent populations, which probably isn't what was meant. Also, is there any statistical confidence requirement for the comparison?

The dependent population criteria are not very sensitive to change. By the time statistically significant results could be obtained irreversible damage would have been done. Perhaps satellite images (or aerial photography—the area affected is not great) could be used to assess habitat change in previous 5, 10, 20 years. This could be stratified by habitat type, and could identify both improved and degraded areas. Some ground-truthing would be necessary, but we suspect the cost would be little different.

Appendix 3

For Appendix 3, US Fish and Wildlife Service should be a part of the presentation—they have been doing an outstanding job of doing projects in the ESU, particularly in the estuaries. Contact Roy Lowe 541.867-4550 or Fred Seavey at 541.867-4558.

Implementation Plan

As a first step, in the implementation plan, in accordance with the principles of conservation biology, an identification of what we know about the best spawning, summer rearing, winter rearing, smolting and migration habitat should be assembled as quickly as possible and a substantial effort should be made to identify how to conserve it.

A list of voluntary actions taken by non-governmental organizations, watershed councils, timber companies, woodlot owners, etc., is essential to understanding the scope of restoration activities within a population, and subsequently what is needed to provide sufficient habitat to produce restoration-level numbers of fish. This should be an integral part of the implementation plan.

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From: Nancy Nichols [nancyn@efn.org]
Sent: Thursday, November 16, 2006 4:09 PM
To: PLAN Coho
Subject: Comments on Coastal Coho Project plans

The following items should be included in the State of Oregon's coastal Coho conservation Plan:

1) Research should be funded to cover the study of effects and distribution of likely toxics such as herbicides, pesticides, fertilizers, and lead from sinkers. We need specific research to determine if any of the chemicals widely sprayed on Coastal forests are causing harm to salmon. This includes study of the surfactants and other so called "inert" ingredients. Some chemicals probably should not be sprayed on intermittent steam beds as is currently allowed. There is also a real possibility that lead (from sinkers) is causing a problem in some rivers. We know lead lowers IQ in people so it seems likely that salmon exposed to lead could be less intelligent thus less able to survive. More information on preliminary lead studies in the Siuslaw could be obtained from Ray Kinney at 541-964-3981.

2) There should be an incentive for people who are willing to give up all or part of their water rights to fish use. A number of older water rights are not being fully utilized most years. If there were an easy way to "give back" a water right and get some compensation for it, some people would do it. Fish in some streams are dependent on water that could legally be used for something else. A future owner might well use water to the maximum amount allowed every year. The incentive could come from a tax credit or a dedicated fund. Guidelines could be developed so older water rights in the most stressed streams would be worth more and given priority for funding.

3) If measure 37 claims are allowed to degrade essential habitat, the damage needs to be mitigated, hopefully at the expense of those who profit from measure 37. Measure 37 could be a huge problem in some areas and needs to be addressed.

4) Some research should be directed to the Lakes systems since they differ considerably from rivers where most research has been occurring.

5) ODF rules should be modified to leave wood in intermittent streams as source wood to naturally provide wood to creeks.

Please confirm that you received my comments.

Sincerely,

Nancy Nichols
93849 Deadwood Creek Road

Deadwood, OR 97430

Oregon Anglers

P.O. Box 253, West Linn, OR 97068
503-655-4077

Comments on the Public Draft of the Coastal Coho Project

Overall, this project is based on voluntary compliance, which is the key ingredient in the Oregon Plan for Salmon and Watersheds. We endorse the spirit of cooperation that is set forth in this document. But we observe that Oregon's fisheries, which are already constrained to the point of economic hardship for many communities.

The main problem area is that of recovery time. When 50 years is the "most realistic" recovery scenario, and we manage to the weakest stock, many fishermen will see little use in continuing to support this effort. After all, who is going to see many results? Also the 50 year scenario is not affordable. This calls for monies that do not exist currently, and will not likely increase in the foreseeable future.

There is no component to address biological efforts to bring back Coho. Success is totally dependent on coho responding to the increase of spawning and rearing areas. But if these areas are infertile from a lack of returning adults the likelihood of rapid recovery is nil. From ODFW's surveys of Coho redds the assumption of this whole plan is that there are inadequate numbers of spawners in most of our basins. Why are we not addressing the fact that unless we get more adults up the river to fertilize the spawning grounds the survival of fry will continue to be substandard.

To see a successful restoration model look to the volunteer effort of Fish First on the Lewis River. This model incorporates both the restoration of the basin and the "boost" of fish populations.

If we are so philosophically opposed to using conservation hatcheries to shorten the timeline and reduce the economic impact to the coastal communities, there is another even cheaper option. Gravel implanting of eyed wild broodstock eggs was championed by Dr. Ernest Brannon, and has been implemented successfully by Tod Jones of the Clatsop County Economic Development Council's fisheries program. When coupled with carcass fertilization of the streams, this approach can greatly increase early survival. In Karluk, Alaska he restored a nearly extirpated run of sockeye using this method. This run was restored in seven years to the point that will allow annual harvest of ½ million sockeye.

Density dependent mortality from competition is not nearly the sticking point that some biologists have claimed, according to research by Achord, Levin and Zabel of NOAA and Dr. Robert Bilby. The success of multitudes of fry surviving is directly dependent on the fertility of the rearing grounds. To confirm this in a practical way we only have to look at Alaska streams that have no more rearing gravel than similar ones in Oregon. The difference is the wave after wave of fish coming in to spawn that make them very fertile.

Another problem is that our biologists look at spawning availability in a two dimensional aspect when in reality it is three dimensional. Again in Alaska many types of fish use the same spawning gravel, but they all seem to prosper.

Efforts in a few selected basins could bring about significant positive results to demonstrate congress, the state legislature, and to the public. This will have a sustaining effect on funding and voluntary compliance to keep the effort going over the long haul. We are not suggesting to neglect the restoration of the basins. Merely keep in mind that public relations with the majority of your stakeholders and supporters will be a key to success.

ANALYSIS OF INDIVIDUAL POINTS

1. Implementation, page 7:
BE HONEST! It should read: "Two Coho programs are eliminated (or transferred) on the theory that they were affecting viability." Instead of: "Two Coho Programs are being altered in a manner that is designed to achieve viability for the affected populations".

You need to remember that the hatchery summer steelhead have been eliminated from the upper Clackamas River with the supposition that the wild fish would make a comeback without the competition. This has been a rousing success, even though we have experienced relatively good ocean and river conditions. Do we wait 50 years with a 70% reduction in mitigation before we can adequately evaluate the competition theory?

2. Oregon's Vision for ESU Desired Status, Page20, last paragraph: "Ample opportunity will be given for people to fish for and keep naturally produced Coho in the ocean and in many streams, again, consistent with population-based conservation goals."

With this kind of logic, ODFW's income from license fees will be suffering greatly. The ocean opportunity is already lacking in most areas. Don't forget that the fishermen are one of the biggest factors in

supporting the department. Those who wonder why license sales are down need only to go out of most of our ports and troll all day long without landing a single "keeper" to answer that question!!!

The biggest question is WHEN will there be ample opportunity? When most Oregon sport fishing businesses are shut down? When our coastal towns are going broke?

Low populations in basins with adequate spawning beds and over-wintering habitat could be jump-started by hydrostatic egg infusion into redds, along with ongoing carcass fertilization. (See Todd Jones of the Clatsop County Economic Development Council- Fish Division.)

3. Research Topics:

A. Limiting Factors:

Many places mention harvest as being a limiting factor. But during the many meetings we also said that harvest was no longer a factor, and was the easiest to control. Let's please address harvest as a <u>previously contributing factor</u>.

B. Predation:

"The public's perception" of predation by sea lions, harbor seals, cormorants, and arctic terns is far more than just "speculative". Thousands of observations, many visually recorded, far outweigh a few brief and biased scientific reports. When the IMST becomes an objective scientific group, rather than a political tool, the public will have more faith in their "findings". We probably have to wait until fishermen are killed or maimed before adequate attention is given this factor.

C. Evaluation of program:

When major changes are made, such as removing the Coho mitigation programs in the Salmon River, business-like plans should be made for evaluation of the re-establishment of the wild fish. Perhaps, since neither wild nor hatchery fish have been very successful in this river, it is now better suited to other species. This would be a great opportunity to re-introduce a non-competitor like Chum. They would add to the sport fishery. They would be contributors to the nutrient level of the stream. Or perhaps, increasing the numbers of Steelhead or Chinook would be in order.

Dennis Richey, Executive Director

December 15, 2006

Bruce McIntosh
Asst. Conservation and Recovery Program Manager
Oregon Department of Fish and Wildlife
28655 Highway 34
Corvallis, OR 97333

Re: *Oregon Coast Coho Conservation Plan – 10/6/2006 Public Draft*

Dear Bruce,

Thank you for the opportunity to comment on the October 6th, 2006 public draft of the Oregon Coast Coho Conservation Plan (Plan). During the last four years that Trout Unlimited has been working on Oregon Coast coho recovery, we have watched, with great sadness, the population rapidly decline by over fifty percent. Each year has provided new opportunities to make progress towards recovering these economic and biological powerhouses for the coast, but instead we seem to be moving backwards. One key example of this is the State's failure to account for the potential impact of Measure 37, passed in 2004, claiming that its impacts were "uncertain" despite the ability of the law to undo most land use requirements. That fear has rung true in the past weeks as Plum Creek Timber has filed claims to convert 9% of its total Oregon holdings, 32,000 acres of coastal timberland in Coos and Lincoln Counties, to housing developments. Eugene Register Guard, Dec. 2, 2006. Stimson Lumber has 135 claims filed with a minimum of 3400 acres in Lincoln County alone. Oregonian, Dec. 2, 2006. Lane County faces claims on 4000 acres from four different timber companies. As identified by the State, these habitats are vitally important to coho recovery and now face even greater restoration hurdles. The threats and worst case scenarios for coho are upon us. Our comments that follow restate the comments we have made up to this point, both biological and administrative, and then address specific comments in this October draft Plan.

As identified in the State's Viability Assessment (hereinafter "Assessment"), coho have a few key criteria to survive and recover. First, they need clean, cold water. Second, they need food and space (competition). Third, they need wood – in the streams and on the banks. Fourth, they need shelter, preferably in the form of deep pools (created by large wood and beavers) or slow side channels (created by stream complexity and flood plain areas). Fifth, they need gravel to spawn. The Assessment identifies and prioritizes these needs within individual watersheds. The Plan is supposed to then connect management actions to these prioritized needs. Those management actions can, and should, build upon the laudable, but limited Oregon Plan for Salmon and Watersheds with new, innovative mixes of private and public, voluntary and regulatory, actions that incorporate the best available science. Instead, the Plan, with few exceptions, is merely a restatement of the status quo.

Trout Unlimited continues to propose the following voluntary and regulatory actions, as identified in all of our previous comments, to move the Plan closer to success. Those recommendations are recaptured below and can be found in further detail in our prior comments.

Biological:

1) Full implementation of all recommendations by the Independent Multidisciplinary Science Team.
2) Change management of beavers to increase their numbers and functions on high quality habitat, track their trapping and relocation, and change their management from a nuisance animal to wildlife. This is by far the lowest hanging fruit and one of the most biologically important changes available to the agencies.
3) Create an incentive program to remove tidegates and improve connectivity and complexity on agricultural lands, and improve riparian area protections and shading to address 404(d) temperature violations on both agricultural and forest lands (i.e. respond to EPAs comments to the Department of Forestry on this point).
4) To increase riparian protection and water quality on agricultural lands, pursue a state-utility-landowner arrangement that would remove manure to a methane digestion power plant and possibly return that power to the farms at a subsidized rate, in exchange for riparian set back and restoration commitments, or connectivity and flood plain (such as removing tide gates) improvements. This would have the added benefit of improving the state's renewable energy portfolio and reduce greenhouse gas emissions.
5) On private forest and agricultural lands, restore high intrinsic potential habitat as a primary means for dealing with widespread recovery of coastal coho (Burnett et. al., *in press*).
6) Memorialize in regulation the recent District Court injunction that eliminates spraying of numerous pesticides and herbicides within 100 feet of any anadromous-bearing streams. See Washington Toxics Coalition v. EPA, 413 F.3rd 1024 (9th Cir. 2005). Also address and respond to the development in floodplain areas and insurance funding through FEMA, as poignantly raised in National Wildlife Federation v. FEMA, 345 F.Supp.2d 1151 (W.D. Wash. 2004).
7) Create programs that protect the wood delivery system, such as unstable, steep slopes and uplands; maintain wood in the stream from source to ocean; diversify amount and types of wood on riparian areas; create stronger protections for intermittent streams and state forests. One example is to encourage large landowners to keep wood and debris that builds up behind bridges, road crossings and culverts, in the stream. Alternatively, establish instream "leave tree" requirements.
8) Create both a management and adaptive program that addresses the extensive implications of land management changes under Measure 37.

9) Require metering of all instream water withdrawals, residential, commercial, agricultural and otherwise.

10) Establish a "floor" or biological benchmarks, at which point the state will seek a federal ESA listing. Alternatively establish a "no net loss" requirement with identified consequences if there are losses such as we have seen over the past 4 years.

11) Strengthen the monitoring aspects of the program to detect finer levels of changes in the biological criteria. For example, the Assessment stated that the monitoring could not detect, after 7 years, any changes in the habitat conditions – not because there weren't changes, but that the monitoring program was not set up in a way that could detect the changes that happened. Yet, the Plan relies heavily on monitoring to detect changes and respond rapidly to any deviation from "viability."

12) Review remaining non-coho hatchery production to determine the impacts, if any, of those programs on coho recovery (such as Fall Chinook at the Salmon River hatchery, where hatchery fish were identified as a primary limiting factor). Also, explore the treatment of fish in ongoing facilities, such as broodstock maintenance, breeding protocols, and other factors that may impact naturally produced coho in the systems, for example, 25% or 6 independent populations will have significant impacts from hatchery strays.

13) Review Amendment 13 for adequacy of basic assumptions and data, such as the categorization and cataloguing of "high quality habitat."

Administrative

1) A sufficiency analysis of the proposed actions in the Plan by an independent science team.

2) Improve accountability of actions in the plan by creating an incentive/disincentive program with clear lines of accountability to individuals in the agencies and in the Governor's office for categories of actions.

3) Enhance enforcement of actions in the Plan.

4) Enhance the adaptive management of the Plan by including triggers for increasingly restrictive actions when certain decreasing benchmarks are met, such as declining abundance, productivity, spatial distribution or diversity and "rewards" such as additional harvest opportunities when benchmarks are high enough.

5) In addition to ODFW adopting this plan, all other responsible agencies should either officially adopt the Plan or issue a statement committing to its implementation. Many of the activities are outside the jurisdiction of ODFW and yet no other agency has stepped forward to officially adopt the commitments in this Plan. A statement from this administration, absent an executive order, does not address this concern.

Trout Unlimited supports the key commitments identified in the Plan, but believes, that in order to recover coho and even come close to the desired status, we need to do much, much more. Furthermore, some of the key commitments do not address the needs identified during the two year stakeholder process. For example, the Oregon Plan Habitat Strategy centers on providing technical and financial support to landowners implementing the Oregon Plan. We do not discount the need for technical and financial assistance. However, never in the process was the lack of technical or financial support raised as an issue or limitation to habitat improvements. Instead, watershed councils identified limited willing landowners resulting in spotty improvements instead of holistic watershed approaches to coho recovery. The real need is to figure out a way to encourage more willing landowners, and increase the capacity of the watershed councils and soil and water conservation districts to capture and respond to those increasing willing landowners. How does the Habitat Strategy propose to get more people to step forward and take advantage of the technical and financial support and then wrap it into the local watershed council or SWCD? Have we exhausted our bank of willing landowners?

The Plan also misses an entire category of threats – future threats – that would otherwise be required in a federal recovery plan. These threats are not insignificant for coho and include the expanding urbanization of critical coastal lowland areas; changes in ocean currents and food sources as evident by the frequent and increasing dead zone; global warming changes that will affect stream temperatures and patters of runoff, flow and flooding, to name a few. While these problems can't be solved in this Plan, they can be address and mitigating management actions identified.

On pg. 11, it is important to note that the NFCP focuses on naturally produced fish for biological reasons as well – they are the foundation of a functioning ecosystem and the only ticket to long term self-sustainability. To that end, it is important in the introduction that the *statutory* definition of recovery also be included next to the *administrative* definition of conservation and native fish.

On pg. 12, the public draft unfortunately removed language about the importance of the recovery plan regardless of a listing determination. We would encourage the State to return that language to the final draft. Pg. 19 identifies this somewhat, but not as well as the July draft. Furthermore on pg 19., the statement that this Plan will "produce a significant improvement in the productive capacity of the ESU…" is speculative at best and lacks any support. Instead, the statement highlights the need for a sufficiency analysis.

Pg. 20 – the section on what the desired status will look like is great. If anything, it understates what it will look like. For example, restoring sufficient high quality habitat will not only support increased numbers of smolts, but will expand the life histories (run-timing), diversity and distribution of smolts and adults. We would caution that the existence of hatcheries is not guaranteed, but rather they *may* be producing coho to support fisheries *if* the cultural and societal needs are not being met and ONLY if they are not negatively impacting the wild populations. By all but guaranteeing hatcheries, the

recovery plan discounts the balancing of conservation, recovery and science that must take place.

Pg. 22. We believe that bullets 4 and 7 are the crux of the entire plan and it is unfortunate that this is the only place where we see them mentioned. Management plans and activities must direct relate to restoring processes for habitat and developing long-term stratgies, but sadly none do. Major revisions to the plan must center around these goal. Indeed, our continued participation in the development of this Plan was because we were continually led to believe that this Plan would address those two goals in much greater depth.

We support the development of the CWHIP maps as a new proposal. However, it is important to not only map all permitted activities (as explained on pg. 33), but also create a system to understand the collective impact of all the individual permits in a watershed, strata and the total ESU.

We also encourage adding a bullet that states there will be no roll backs in management or biological parameters from the date of the no-listing decision. The statement at the bottom of the page that "[p]rotection of existing productive capacity of the ESU implies that no long-term loss of productive capacity of habitat will occur..." is simply too weak and too vague to protect the species. How long is long-term? If you drive the fish to extinction, it is irrelevant if habitat returns to some productive capacity fifty years later.

Pg. 23 – the discussion of the adequacy of existing regulatory structures completely misses the volumes of analysis that has stated otherwise. This is further evidenced by the fact that Oregon's own monitoring and evaluation program is not sensitive enough to detect changes over 7 years. As a result, this discussion is optimistic at best, and disingenuous at worst. The discussion of Oregon's Regulatory Programs on pg. 25-26 is similarly in sufficient.

Pg. 25. We agree with the characterization that habitat conditions for overwintering juveniles must include large wood, lots of wood, connected off-channel alcoves, beaver ponds, connected floodplains among other characteristics. This Plan should, but does not, connect management actions back to development of these characteristics. As such, there is no action in this Plan that anyone can point to and say "this will result in more beaver ponds, or open more floodplans, or attract more wood to streams." This lack of connectivity between needs and management actions is an unfortunate fatal flaw in this Plan.

Pg. 26-27. The prioritization of activities and funding has weakened in this draft. Furthermore, while the guidelines are helpful, there is no requirement that they be based on the best available science. We would recommend creating a process, with a one-year deadline, a prioritization system rooted in biological parameters but also incorporates social, economic and temporal factors as well.

Pg. 28 – The Plan must identify a much more sensitive habitat monitoring program. The loss of 30% of high quality habitat before any responsive action is

unacceptable. At that rate it would take a catastrophic loss or improvement for any reaction to occur. This is especially important given the reliance of the Plan on this monitoring system in the absence of any new, additional regulatory and non-regulatory habitat actions. Furthermore, this monitoring program is completely inconsistent with the implied requirement that there will be not net loss in productive habitat.

Pg. 30. The Oregon Plan Habitat Strategy is unacceptably weak. It is telling that the named "supporters" are organizations that were not included in the stakeholder process, and none of the stakeholder groups are identified as supporters of this proposal. There is no confident conclusion that this Plan will result in more habitat qualities needed to improve and recover coho.

Pg. 32 – Oregon must include a review, monitoring and evaluation program for Amendment 13.

Pg 33 – As previous stated, we believe that much more can and should be done to protect and restore beavers.

Pg. 35 – Oregon Department of Forestry

It is important to note that all rule concepts developed by FPAC in the past few years have been rejected. Furthermore, none of the proposed POPs are tied to the limiting factors for coho, nor do they address coho recovery. They are specific to existing, ongoing forestry projects that are being manipulated to fill out their commitments in this Plan.

Pg. 36 – Oregon Department of Agriculture

Similar criticisms apply for DOA as they do for DOF. In addition, an agency report to comply with HB 3182 recommends *eliminating* all FTEs that manage the Oregon Plan compliance. This is not included in the Plan and would be disastrous. It also emphasizes the need of all other agencies to make a legitimate commitment to this Plan. Other agencies should report how their proposed compliance with HB 3182 would impact their commitments under this Plan.

Pg. 38 – The Department of State Lands should coordinate and prioritize all permanent impacts to wetlands and corresponding compensatory mitigation with the identified High Quality Habitats.

Pg. 39 – DOGAMI should report and address their instream activities.

Pg. 41 – We highly support ORPD's commitment to use Measure 66 funds to acquire land and conservation easements. We encourage the department to prioritize those actions according to high quality habitat, and would like to find ways to expand this program.

Pg. 41 – Please expand the discussion by the EPA on their actions as they relate to coho recovery.

Pg. 41 – the discussion of the BLM and Forest Service actions is somewhat disingenuous given the NEPA process and the proposed changes and abandonment of the Northwest Forest Plan for those lands. Because their management and ownership of huge tracts of key coho habitat, the future of management of those lands, and the potential loss of the Northwest Forest Plan, is incredible important and must be discussed. Furthermore, if the BLM and Forest Service roll back protections provided in the Northwest Forest Plan, this section must include a discussion of how they intended to maintain protections for coho habitat nonetheless.

Pg. 44 – Research, Monitoring, and Evaluation

Expand the spawner and habitat surveys to include all types of habitat. The theory that coho constrict themselves to high quality habitat during low densities must be verified further. In addition, we need to better understand the use of low quality habitat and the diversity and distribution qualities that result from the use of low quality habitat.

Pg. 45 – Adaptive Management

As mentioned previously, the adaptive management component is woefully inadequate. Oregon's track record, with the exception of Amendment 13, demonstrates that management and regulatory programs maintain the status quo in times of declining population trends. Despite the loss of 60% of abundance over the last four years, and a recurrence of failing broodyears, there has been NO change in the regulatory or management programs for coho. Unlike the Native Fish Conservation Plan, there are no benchmarks established that would trigger a responsive action by the State or any managing entity. Under this Plan, coho could be on a very clear trajectory to extinction and all the State would have to do is simply document and report it, but not lift a finger to do anything to stop it. The mere possibility of that kind of blind eye response is unacceptable. The lack of any substance to the adaptive management component highlights the weakness of the oversight plan as well (pg. 47). We have discussed these inadequacies at length in our prior comments and are very discouraged that changes have not been made to these components of the Plan.

Pg. 49 – We support the time frame to the desired status. We believe that the ambitious desired status goals and the time frames to get there require a much more rigorous, detailed Plan than is provided.

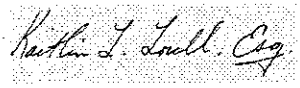
Pg. 50 – Assessment of the Conservation Plan

The discussion of the inability of the regulatory regime to achieve the desired status is telling and should be put up front in the introduction. There is no analysis to suggest that this Plan will achieve the desired status, instead packaging the Plan with rose colored glasses to all who will read it. This planning process could and should do much more to support the recovery of coho. The desired status goals and timeframes are a good starting point. The Plan must do more to fill in the gaps to get us there.

Conclusion

Thank you again for the opportunity to comment on this conservation plan. We see opportunity for great improvements for coho through this plan and look forward to working with the State and various partners to achieve recovery of Oregon Coast coho.

Sincerely,

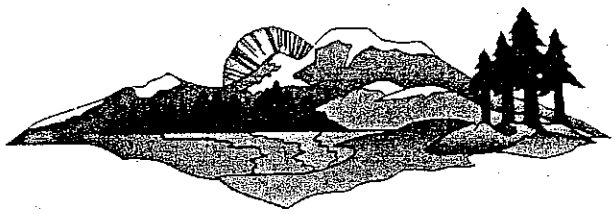


Kaitlin Lovell
Salmon Policy Coordinator
Trout Unlimited

/s/ Paul Engelmeyer
Paul Engelmeyer
Public-At-Large
Ten Mile National Audubon Sanctuary

Citations:

Burnett, Kelly, Gordon Reeves, Dan Miller, Sharon Clark, Ken Vance-Borland, Kelly Christiansen. *In Press*. Distribution of Salon-Habitat Potential Relative to Landscape Characteristics and Implications for Conservation. Ecological Applications.



Coos Soil & Water Conservation Distric
382 North Central Boulevard
Coquille, Oregon 97423-1244
(541) 396-6879 Fax (541) 396-5106

October 30, 2006

The Honorable Theodore R. Kulongowski
Governor
160 State Capitol
900 Court Street
Salem, OR 97301-4047

Dear Governor Kulongowski;

The enclosed response to the Public Draft of *The Conservation Plan for the Oregon Coast Coho Evolutionarily Significant Unit* is forwarded for your information and action.

The Coos Soil & Water Conservation District Board of Directors strongly opposes the Plan as outlined in the Public Draft.

If you have any questions about these comments and concerns, please contact Coos SWCD Director Dan Varoujean, 541-756-6955.

Respectfully,
/S/
Coos Soil & Water Conservation District
Charlie Waterman
Chairman

CC:
OACD
OCZMA
ODFW
Coastal SWCDs:
Curry SWCD Lincoln SWCD Siuslaw SWCD
Umpqua SWCD Tillamook SWCD Clatsop SWCD

RESPONSE TO THE PUBLIC DRAFT OF THE CONSERVATION PLAN FOR THE OREGON COAST COHO EVOLUTIONARILY SIGNIFICANT UNIT

As members of the Coos Soil and Water Conservation District Board we are strongly opposed to the implementation of the Oregon Coast Coho Conservation Plan. This opposition is based on three general assessments.

1. The premise that wild spawning populations of Coho Salmon in our coastal streams can be significantly increased by restoring stream habitat in the ways described in the Plan is patently false. Two major controlling factors of Coho survival, predation and the current catch-and-release fishing regulations, are not seriously addressed in the Plan and yet can completely negate any gains one might achieve through stream habitat restoration projects. Predator populations of pinnipeds and seabirds have reached asymptotic equilibrium levels over the last 30 years, and at these levels one will never reach the Plan's stated goals without managing for predators. It is also clear that reaching Coho Salmon population levels that will sustain large volume commercial and recreational fisheries is not possible without: 1) a significant supplementation of Coho wild production with hatchery/hatchbox operations to "swamp" bird predation; and 2) active control of pinniped numbers. As an aside, it is ludicrous to argue that hatchery/hatchbox operations, with proper brood stock selection, will lead to a decrease in genetic diversity, a shift in genetic structure of a population beyond what naturally occurs, or domestication of the stock. Given the inexpensive methods that are available for monitoring the genetic makeup of fish produced in hatcheries, one can reliably mirror the genetic makeup of the wild fish and thereby avoid domestication problems.

Depending on various study results, it has been shown that 18% to as high as 60% of the fish that are caught and then released die. Changing the fishing regulation so that one keeps the first two Coho Salmon caught whether or not they are fin-clipped, would result in a net gain in the number of wild fish returning to the streams without having to put one dollar into habitat restoration.

2. The criteria and the analysis methods proposed for assessing the success of the habitat restoration efforts do not appear to be adequate for separating the influence of favorable ocean conditions (e.g. strong upwelling years) from the influence of changes in stream habitat. Further, how is it that to this day after the expenditure of millions of dollars through our coastal watershed councils one cannot statistically show that stream habitat "improvements" have increased the number of wild spawning Coho? We fear that the same mistake is being made again.

3. Even though the Plan stresses that implementation of the various elements of habitat restoration will be done on a cooperative basis with landowners, the legislative intent of the various agencies, as listed in the Plan, indicates to us that another suite of regulations will be imposed on landowners with the potential for massive losses of production on farmlands in the coastal zone of Oregon. If regulations are established to carry out the Plan's habitat restoration elements (which appears to be highly likely), coupled with the existing regulations that hinder maintenance of drainage systems (e.g. dredging, and

culvert, tide gate and levee repair), restrict water use, impose often ridiculous limits on non-point source "pollution", thousands of acres of pastures and croplands will be taken out of production. For example, consider what will happen if landowners are no longer able to remove beavers and beaver dams, are forced to place woody debris in and willows along streams, and told to not prevent streams from meandering through their pastures. Maintenance dredging would be completely shut down and bottomland pastures in coastal Oregon will become cattail marshes that will never dry out during the summer months. We fully realize that there are those involved in the development of the Coastal Coho Conservation Plan who can hardly contain their glee over such an outcome. But since the function of Soil and Water Conservation District Boards is to assist farmers/ranchers in participating in various federal and state water and soil conservation programs while minimizing the loss of farm production, and since this Plan will undoubtedly lead to significant economic losses to farmers at the same time it insures economic losses to the commercial and recreational fishing industry, we absolutely reject the Coastal Coho Conservation Plan in its entirety, and will work to insure that it is never implemented.

Charlie Waterman, Chair
Arlene Guerin, Vice Chair
Jeff Cochran
Gordon Hayes

Sharon Waterman, Secretary
Daniel Varoujean, Treasurer
Helen Franklin

Dear Governor Kulongoski and ODFW Commissioner Rae, 10/31/06

Please do all you can to conserve Oregon coast coho populations and to restore their habitats. Oregon's coho recovery plan should include mandatory protections for both the coho and their habitat. Voluntary efforts are a good idea, but at this point we need mandatory efforts.

We also need adequate, guaranteed funding if we are to succeed in the recovery process.

Along with the plan's goal of measurable recovery, there needs to a specific listing of the actions needed for recovery.

The best and most recent scientific data shows that the coho populations may not be currently sustainable. Therefore we need a low risk recovery approach.

Sincerely,
Laurie Pavey

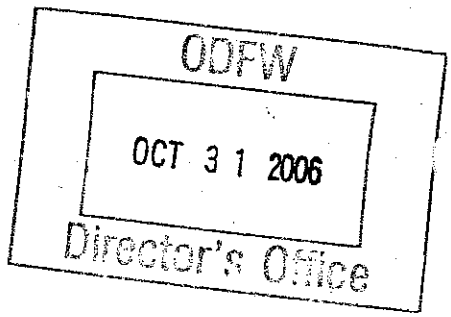
Laurie Pavey
33785 SE Terra Cir.
Corvallis, OR 97333

Pacific Rivers Council

Save the Coho - Sample Comment Letter

You can cut and paste this directly into an e-mail (include "Attention: Coho Plan comments" in your subject line) or print it out and mail it in. Remember to personalize it as much as possible – ODFW and the Governor need to know they are hearing from real people who care about the fate of coho salmon!

Oregon Governor Kulongoski
Commissioner Marla Rae, Chair
Oregon Department of Fish and Wildlife
3406 Cherry Ave. NE
Salem, OR 97303
cohoplan@state.or.us



RE: Oregon Coast Coho Conservation Plan

Dear Governor Kulongoski and ODFW Commissioner Rae:

I support immediate efforts to conserve and restore Oregon coast coho populations and their habitats. Oregon's draft plan is a step in the right direction because it calls for restoration of these salmon populations and sets out specific measurable criteria that must be achieved. However, the actions prescribed to meet the coho recovery goals are inadequate.

I ask that Oregon's coho recovery plan include:

1. Mandatory protections both for coho and their habitat. The State must guarantee enforceable habitat protections and sufficient funding to truly recover wild salmon. The draft coho plan suffers from a flawed central assumption that Oregon's current land use policies will protect coho populations and their habitat from further decline and degradation. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

2. Guaranteed funding to support the state's efforts to recover wild coho. Without adequate funding, effective recovery efforts cannot be accomplished.

3. Specific actions for salmon recovery. The plan's goal is measurable recovery, but does not set out how this will get done.

4. A low-risk recovery approach. The plan's assertion that the coho populations are

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Save the Coho

Join the campaign to save coho salmon.

Defending the ESA

Protecting wild species and their habitat.

Learn about our Amphibian Conservation Program

currently sustainable is not supported by the best available scientific data and is premature. This places a substantial risk of error on imperiled coho populations that can't afford any errors right now.

In order to best protect wild coho, the recovery plan not only needs to address the above issues but also provide enough real and immediate **habitat protections** to ensure the species' survival ***now*** so that the long-term goal of recovery will be achieved in the future.

The coho deserve more than business as usual.

Sincerely,

John and Claudia Wadsworth

[your name and signature here]

PRC's acclaimed stream restoration project in Oregon's Coast Range.

P.S. Oregon deserves a plan which restores a healthy and viable watershed and salmon populati

Thanks for your efforts to keep our state healthy for future generations.

Back to top

Site Map

cc: Fish

Oct 21, 06

Governor Kulongoski
Oregon Department of Fish and Wildlife

Regarding Oregon Coast Coho Conservation Plan

I live on forest land interlaced by several streams as they flow through the foothills into the Nehalem River on the Oregon Coast. Over the past seventeen years, I have watched the forests lands around me clearcut by both the timber industry and my neighbors. I have watched the application of the Oregon Forest Practices Act that requires an owner to leave "two trees and two logs per acre for the wildlife" and allows no buffer for small tributaries in the upper watershed--as if these streams, swollen by winter rains, did not wash silt downstream into the larger creeks and into the Nehalem river-- which no one seems to question is filling with silt.

For ten years I have been a member of the Lower Nehalem Watershed Council. As you know, Councils like ours were formed through the inspiration and encouragement of Governor Kitzhauber. We are residents of the area who have planted trees, replaced culverts, and regularly tested creeks and river for temperature, ecoli, turbidity. Slowly we have had some influence on the habitat as well as people's awareness of what makes healthy salmon habitat.

You will find few around here who believe the coho runs have reached a point of "sustainability" so we can coast on our present laws. We do know, however, that the hard work of citizens who care about where they live is of no significance if it is not backed up by State Laws that require all land owners (large and small) to protect the rivers, streams, and forests.

Why is Oregon presently far behind the state of Washington in protecting its waterways? Governor Kulongoski, we need some leadership here. Do not stand by and watch the degradation of our native landscape.

Sincerely,
Gwendolyn Endicott

Gwendolyn Endicott
42130 Anderson rd.
Nehalem Or 97131

October 25, 2006

cc: Fish

Governor Ted Kulongoski
Commissioner Marla Rae, Chair
Oregon Department of Fish and Wildlife
3406 Cherry Ave. NE
Salem, OR 97303
RE: Oregon Coast Coho Conservation Plan

Dear Governor Kulongoski and ODFW Commissioner Rae:

I support ODFW's efforts to conserve and restore Oregon coast coho populations and their habitats. The draft plan is a step in the right direction because it calls for restoration of coho populations and sets out specific measurable criteria that must be achieved. However, the actions prescribed to meet the coho recovery goals are inadequate. Missing is mandatory habitat protection. Voluntary protection is not sufficient to bring coho back from the verge of extinction.

Specific funding earmarked for coho salmon recover is also needed in the ODFW budget to be sure that the goals for recovery can be met. The current plan asserts that coho populations are sustainable at present populations levels. The best scientific data does not support this contention. At this crucial stage of recovery, ODFW should err on the side of caution and not place the risk of error on the salmon. Coho cannot afford any errors right now.

Protect coho habitat with rules that have teeth in them, provide adequate funding for recovery efforts to take place and err on the side of caution.

Thank you and best of luck in this extremely important effort!

Sincerely,

Jeffry Gottfried

Jeffry Gottfried, Ph. D.
7040 SW 84th Ave.
Portland, Oregon 97223

cc: Fish

4267 Innsbruck Ridge
Medford, OR 97504
October 23, 2006

Oregon Governor Kulongoski
Commissioner Marla Rae, Chair
Oregon Department of Fish & Wildlife
3406 Cherry Ave NE
Salem, OR 97303

RE: Oregon Coast Coho Conservation Plan

Dear Governor Kulongoski and ODFW Commissioner Rae:

I am pleased that Oregon's draft plan to conserve and restore the Oregon coast coho populations has been issued. I support this effort, but believe that more work needs to be done in the area of specific recovery goals. In this regard, I ask that Oregon's recovery plan include the following:

1) Mandatory protections for coho and their habitat. Voluntary methods only work for those few parties that wish to comply. We need enforcement of regulations regarding riparian use, setbacks and other zoning regulations. Of course that means we need funding for enforcement, but I believe it's the only way we can achieve real habitat protection.

2) Specific actions for salmon recovery – how this is to be accomplished should be set forth.

3) An approach that assumes that coho populations are in real trouble in the area of sustainability. My understanding is that this is indeed the case and is supportable by scientific data. This approach adds a sense of urgency to this issue.

If the above issues are addressed and acted on, I believe we can succeed. Lets start as soon as possible by providing sufficient habitat protection.

Sincerely,

William D. Rittenhouse

William D. Rittenhouse, past president
Rogue Flyfishers, Medford, Oregon

COMMENTS
STATE OF OREGON CONSERVATION PLAN
FOR THE
OREGON COAST COHO EVOLUTIONARILY SIGNIFICANT UNIT

BY
SHARON WATERMAN
87518 Davis Creek Lane
Bandon, Oregon 97411

I have owned land in Coos County for thirty-five years and married into a family who has lived in the County since 1913. Landowners throughout Coos County have spent an unbelievable amount of dollars and time doing projects on their own as well as worked with the watersheds for the sake of the salmon. As a landowner, I provide habitat and feed your elk, deer, cougar, coyotes, bear, plus a multitude of other species at my own expense. Now you have brought to us a coho plan which expects more of us as landowners plus adds a "regulatory" flare to all the work and expense we incur for the sake of fish and wildlife in Oregon.

I oppose the Plan because of the following:

1. The Plan is sold as voluntary and non-regulatory. Supposedly there are no "new" rules. So, why should I be concerned? Attached are two pages of statements and this is not all inclusive of venues that could lead to more regulation of private lands. The OAR's are not yet developed for the Plan according to the facilitator's report. ODF has already approved and will implement revised/additional Forest Practices rules in 2007. That is two out of the 18 concept proposals. There is more to come. Do you remember SB1010? That was non-regulatory and voluntary too. The result of that Plan was a set of rules with fines for violations. Remove all statements that have to do with "regulatory" framework.

2. Research, Monitoring, and Evaluation (RME's) Currently we cooperate with three different agencies to do stream/fish/water monitoring on our property. Why would any landowner want to cooperate with these agencies when the vary data they receive may be used to further regulate you? Remove all references to policy, rule, and legislative concepts that result from monitoring on private lands.

3. Predation: The pinniped population as well as avian populations have an affect on coho populations. Control is needed in order to maintain or increase the coho to desired status. The ODFW must control introduced bass populations that have a huge impact on smolts. Numerous years ago when the coho was being listed, I attended a meeting in Reedsport. An audience member brought up the need for control of the bass populations in our lake system. The person was told that was impossible because the bass fishermen would have a fit. It is time for ODFW to step up to the plate on predation.

4. Ocean Conditions: Ocean conditions play a major roll in the coho life cycle. Will these

ocean conditions be considered when determining the desired status of the coho?

5. This Plan is just a huge addition to government spending and staffing. The ODF is requesting 31 FTE's. ODFW suggest they only need one addtional person. DSL has added three new staff persons funded through an EPA grant. OWRD requests 6 FTE's. It is suggested by one of the Stakeholder group that additional staffing is 40-50% of the budget. Just think of the on-the-ground projects that could be funded with that money. I suggest providing each SWCD along the coast with a staff person for project development/implementation and funding to complete coho projects in their area. Working cooperatively with landowners will provide added insights into what works on the ground for fish in each county.

6. What does the Plan do for coho? All I can see is a continuation of the Oregon Plan. The focus is on staffing, RME's, and overwintering habitat. How much money was spent on this process? It would have been great to have spent that money funding coho projects for the last 2 1/2 years.

7. Hatcheries and hatchboxes: The Plan wants to discontinue smolt releases in the North Umpqua and Salmon Rivers. It was suggested by another Stakeholder that maybe ODFW should visit and evaluate the successful hatchery programs in other states. If ODFW feels there are problems with our hatcheries, I think that is a great suggestion. Go back and review historic hatchery releases with today's releases. Compare that with what is happening today. Less hatchery stock, less fish. There is a need to support our STEP programs as well as return the hatchbox programs to the rivers in our area. I suggest we no longer fin clip smolts like the tribes on the Columbia.

8. The Stakeholder group should have been made up of owners of the 90% private lands that have coho habitat. Why was there only one agriculture person and one timber representative among a long list of fish/environmental groups? The Stakeholder group should have included a good cross section of affected landowners, local SWCD's, and timber owners. How can you expect cooperation from the agriculture industry which is essential to implement these projects with only one lone representative on the Stakeholder group.

9. I serve on two Boards that were represented on the Stakeholder group. Up until I received a copy of the Plan, I had no idea of the contents of the Plan. I had never had a conversation about the proposed Coho Plan nor was it the topic at either of those organization meetings. It is sad that there was such inadequate communication during the plan writing process. There was no reason the Stakeholder minutes could not have been dispersed to the SWCD's, local organizations, watersheds, and others who are important partners in this process.

10. What is the purpose of this plan when the coho is delisted and does not fit the definition of an ESU? The Plan states the coho is viable and sustainable.

11. There is no bibliography on the science and studies referred to in the Plan. It was suggested by a commercial fisherman that the graph of caught vs returns has no validity.

How can there be such a huge percentage of 1997 catch when these very fisherman have not been allowed to catch coho since 1992.

12. I'm not a "fish" person but I thought comments by two persons at the Coquille meeting warranted being included in my comments. First, the coho in the Coquille are an introduced species. Second, there is plenty of overwintering habitat in the Coquille. Both of these men are extremely knowledgeable and have spent years volunteering for the sake of fish.

I strongly object to this proposed Plan and suggest each county form a work group of agencies, SWCD's, watersheds, and landowners to determine projects for the benefit of coho and put the money on-the-ground where it belongs rather than in the government trough. I also suggest any Plans developed in the future should be completely voluntary and non-regulatory without the RME's and agency focus on regulation. You must have cooperation with the 90% private landowners in order to make this program successful.

STATEMENTS IN THE OREGON COASTAL COHO PLAN THAT OPEN THE DOOR TO FURTHER REGULATE THE PRIVATE NATURAL RESOURCE LANDOWNER:

1. Regulatory programs: State and federal agencies will implement, monitor compliance with, and enforce their legislatively mandated regulatory programs. (pg. 6)

2. Desired status represents a level of population performance that exceeds the level at which an ESU is considered viable and is a goal that is based on a combination of legislative mandates, social values, and non-regulatory contributions. (Pg. 19)

3. Modified management and regulatory programs will be considered, as necessary, by the Oregon Legislature and the various governing boards and commissions as future monitoring data are available to track trends and rates of improvements in coho and habitat conditions across the ESU. (Pg. 26)

4. RME provides the basis for adaptive management based on future assessments of the ESU; its supporting habitat; and the management and regulatory programs that are intended to achieve desired status. (pg. 33)

5. Private Forest Regulatory Actions: At the direction of the BOF, ODF is developing new rule concepts for stream classification (rule concept 3), landslides (rule concept 4) and Riparian Function for fish bearing and non-fishbearing streams (rule concept 8 and 11). (Pg. 35)

6. Depending on the results of the pilot program, DSL may consider program changes to more effectively protect those areas. (Pg. 38)

7. These include work with coastal local governments to review and update comprehensive land use plans and ordinances to incorporate policies and standards aimed at reducing impacts to salmon habitat from effects of development. The Department will work with local governments and other entities such as Oregon Sea Grant to promote salmon-friendly development practices by extending current work with local governments to adopt or improve stormwater management

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8. Development and revision of the State water quality standards: (Pg. 41)

9. Results of data analysis are considered by a responsible agency, board, or commission regarding the need or appropriateness of changes to statutes, rules, or management policies. Occasionally the deliberation may involve a broader Legislative and public policy discussion. (Pg. 46)

10. Evaluate potential need for modified management or regulatory programs to conserve productive capacity of habitat. (Pg. 49)

11. Modified management and regulatory programs will be considered, as may be appropriate by Oregon and the various governing boards and commissions as future monitoring data are available to track trends and rates of improvement in coho and habitat conditions across the ESU. (Pg. 52)

COQUILLE INDIAN TRIBE

P.O. Box 783 • 3050 Tremont • North Bend, OR 97459
Telephone 541-756-0904 • FAX 541-756-0847

November 29, 2006

Oregon Department of Fish and Wildlife
3406 Cherry Avenue N.E.
Salem, Oregon 97303

Re: Coho Plan – comments to public draft dated October 6, 2006

Dear ODF&W staff,

The Coquille Indian Tribe appreciates the opportunity to comment on the final draft of the Oregon Coast Coho Conservation Plan (Plan). We have a particular interest in the success of your Plan because we manage lands within the Oregon Coast Coho ESU and share the vision of healthier watersheds and fish populations. To this end, we have worked with ODFW, Coquille Watershed Association, OSU and others to prepare a subbasin plan for the Coquille Coho population which tiers off of your Plan. The Coquille Watershed Association will incorporate it into their Action Plan and begin implementation immediately as they have a waiting list of willing landowners interested in restoring Coho habitat.

We have provided general and specific comments which we feel will strengthen the Plan. Specific comments are listed by section and page.

General Comments
Overall, the draft represents a major improvement over previous drafts. The use of appendices makes it much easier to read and less redundant. This draft is also more complete.

Throughout the document, the Oregon Coast Coho Conservation Plan is referred to as both the "Plan" and the "Conservation Plan." We suggest only one abbreviated title be used.

The Plan is an awkward blend of science and political constraints. It appears overly optimistic in its attempt to support the primary premise upon which it is written- that the desired status of coho can be achieved without new regulations or additional funding

authorities. It essentially relies on greater agency coordination and public volunteerism as the means upon which recovery will be realized. While these are surly essential elements of any conservation plan, they should not be the only means available. Greater agency cooperation and public volunteerism are programs which have been in place for decades and have improved natural resources management. However, the record speaks for itself- they have not prevented the decline of Coho, nor are they, by themselves, likely to recover the Coho population in the future. New agency infrastructures, more inclusive incentives, and new funding authorities are required. We recommend these actions be developed and included in the final draft of the Plan.

The only limitations to recovery mentioned in the Plan are those which were dismissed as history, and therefore, not subject to the Plan. The Plan mentions the State has recently addressed two major threats to recovery – hatchery and harvest management. We agree the past management of these programs prevented recovery, but believe other existing and potential future threats remain that are not adequately acknowledged or addressed in the Plan. These include the constant harvesting of large riparian trees and woody debris from stream recruitment areas; draining and filling of stream connected wetlands; modifying and simplifying stream channels; and depleting stream flows. The threat concerning the continued reduction of beaver populations and their food sources is acknowledged, but solutions are constrained by the original premise discussed above.

The Plan makes several assertions based on unsubstantiated assumptions. The assumption that the existing levels of agency regulation, compliance and funding are adequate to protect and restore Coho habitat conditions over time needs evidence in the form of monitoring. If this information is available, it should be included. If it does not exist, a thorough qualitative discussion should be provided. In addition, more detail is needed to substantiate the assertions relating to the Plan's forecasted restoration costs in relation to expected revenue (see specific comments below).

Recent Conservation Planning for the Oregon Coast Coho ESU, pages 12 and 13
The Plan acknowledges that it is not a recovery plan, and need not be at this time. We agree. However, recovery plans contain many components that would strengthen this Plan. Specifically, the Plan should include a description of the following components:

- Biological and physical processes that form and sustain healthy Coho populations within the ESU
- Level to which these processes would need to be protected and restored in order to achieve the desired status
- How this protection and restoration of these processes would be accomplished
- Current and future threats to population recovery (*e.g.* continued degradation of riparian habitat, current practices of managing woody debris in streams, future water use, etc.)
- Level to which these threats would need to be remedied in order to achieve the desired status
- How this level of remedy would be accomplished

2005 Oregon Coastal Coho Assessment- Regulatory Programs, page 14

The Plan states "...the framework of existing regulatory programs is sufficient to maintain or slightly improve the viability of the ESU (2005 OCCA)." While this finding was accurately extracted from the 2005 Oregon Coast Coho Assessment, it remains unsubstantiated and not fully accepted by many of the Stakeholders and others. Because this finding is the primary premise of the Plan, greater supporting evidence or rationale is needed. For example, the Governor's Office requested a review of the Forest Practices Act by the Independent Multidisciplinary Science Team (IMST) and others. They found the existing rules do not fully conserve stream processes associated with riparian trees and large woody debris and provided several recommendations. These recommendations were not addressed in the Plan. Because the Forest Practices Act applies to a large percentage of lands within the ESU where restoration will be focused, this contradictory finding should not be ignored. This, and other conflicts associated with the on-going degradation of Coho habitats on private lands, should be addressed.

Goal, page 19
We support the desired status goal for the Coquille population, as described in Appendix 2.

ESU Conservation Practices, pages 23 and 24
The Plan states "...regulatory changes have...reduced the likelihood of future degradation and loss of habitat for coho salmon." Here again, this statement is consistent with the findings of the 2005 CCCA, but is not fully consistent with the findings and recommendations of the IMST report (see comments relating to page 14). Some State regulations do allow for future degradation and loss of Coho habitat on private lands. The Plan should provide a rationale as to how, in spite of this situation, recovery is likely when the majority of lands needing restoration are privately owned. Because the 2005 CCCA did not dispute the findings of the IMST report, it should not be cited as the sole source of information regarding this topic. If full protection of identified high quality Coho habitat is not required to meet the desired status, then it should be so stated, along with a rationale.

The Plan states "...the effectiveness of non-regulatory and incentive-based cooperative conservation efforts on private lands is extremely important to achieving Oregon's desired status goal." We completely agree. However, substantive evidence is needed to support the assumption that the status quo is adequate to ensure recovery of Coho habitats. The existing incentive-based cooperative efforts have been very limited, yet the Plan does not call for increasing economic incentives to attract more participation.

Limiting Factors for Coast Coho Populations, page 25
We concur with the assessment of limiting factors for the Coquille Coho population. The assessment conducted for development of the Coquille subbasin plan concurs with the findings of the Plan.

Population-based Habitat Restoration: Interim Goals and Fund Needs, page 28
The Plan provides a list of the key assumptions used to estimate funds needed to achieve the desired status habitat conditions. Based on work done in development of the Coquille

subbasin plan, we offer four recommendations that would improve the accuracy of the predictions used in the Plan:

- The assumption that "All instream habitat restoration projects create high quality habitat" should read "All instream habitat restoration projects, *completed within high intrinsic potential habitat*, create high quality habitat."

- The cost per mile estimate of $25,000 is outdated. In the Coquille subbasin, we found $90,000 per mile to be a more representative value. This includes the average costs associated with restoration work of varying project type, stream size, access, and transportation distance. Because implementation of the Plan would occur over 50-years, an inflation rate must be applied, as it alone will multiply the original cost estimate manifold over 50-years. We suggest using an inflation rate of 3-5%.

- Add the assumption: "All pre-existing (*i.e.* 2007) high quality habitat is sustained over time; there is no net loss of high quality habitat due to human disturbance or natural causes."

- Include all of the restoration costs. The Coquille subbasin plan includes the cost of project planning (*e.g.* solicitation of funds, coordination with landowners and others), design and layout, permits, implementation, and implementation monitoring.

Adaptive Management of the Conservation Plan, pages 46 and 47
We applaud the concept of applying an adaptive management approach. The use of annual status reports, the six-year status report, and the 12-year ESU report are sound planning techniques. However, the plan is silent on how serious problems would be resolved should they occur. A thorough list of "if-then" scenarios would add much needed accountability.

Implementation Funding, page 48
This section lacks necessary details. The Plan does not estimate the total projected cost of achieving the desired status for Coho (also see comments relating to page 28), nor does it provide the total projected revenue available for implementation. Simply assuming that additional funding authorizations will not be necessary to achieve the desired status is inadequate. Fifty years is a long time frame to rely on such an assumption. We believe the Plan's original predictions of restoration costs fall far short. If this is the case, what measures would be taken if actual costs exceed available revenue? Would the desired status or rate of implementation be adjusted downward, or would other funding sources be used to keep the Plan on schedule? An adaptive management strategy for dealing with this, and other financial scenarios, should be an integral part of this Plan.

Near- and Mid-term Implementation, page 48
The Plan specifies an implementation action to: "Evaluate effectiveness of oversight and accountability." We agree this is a critical implementation and accountability element.

However, few details are provided for this new Plan component. How would this be implemented? We recommend that Plan reviews be conducted by an independent entity such as the IMST.

Thank you for the consideration of these comments. If you have any questions regarding these comments, please contact Tim Vredenburg, Director of Lands, Resources and Environmental Services, or Jason Robison, Fish and Wildlife Biologist, at 541-756-0904. We look forward to working with you to implement the Plan in the near future.

Sincerely,

Edward Metcalf
Tribal Chairman

EM/tb

cc: Tim Vredenburg,
Jason Robison
George Smith

Dissenting Information Regarding the Oregon Conservation Plan for the Oregon Coast Coho ESU.

The following information came from AN EVALUATION OF THE COOS RIVER HATCHERY by Joe Wallis of the Oregon Fish Commission Research Laboratory in Clackamas, Oregon, March 1961. His data shows that coho salmon were introduced into the Coquille River. The Oregon Fish Commission (ODFW) removed 432,000 Winter Steelhead Eggs from the North Fork of the Coquille in 1909 and transferred these eggs to Coos River Hatchery. Not one mature coho was ever netted in the Coquille for the following programs. All coho eggs and fingerlings transfered to the Coquille were from other watersheds.

1910-----998,000 coho eggs transferred to NF Coquille.
1918---1,469,440 coho fingerlings transferred to NF Coquille
1923---1,994,020 coho fingerlings transferred to NF Coquille
1925---1,975,000 coho fingerlings transferred to NF Coquille
1926-----800,000 coho eggs transferred to NF Coquille
1927-----800,000 coho eggs transferred to NF Coquille
1928---1,000,025 coho eggs transferred to NF Coquille
1930---1,300,325 coho eggs transferred to NF Coquille
1931-----500,119 coho eggs transferred to NF Coquille
1932-----800,020 coho eggs transferred to NF Coquille
1936---1,060,020 coho eggs transferred to NF Coquille

Total Coho Eggs transferred to Coquille 8,274,267
Total Coho Fingerlings transferred to Coquille 6,448,339

The North Fork Hatchery operated from 1902 to 1925
The South Fork Hatchery operated from 1926 to 1945

Note: No records for the years of 1908,1909,1915,1916,1917,1919. (coho eggs)
Note: No records for the years of 1910,1912,1913,1916,1919. (Coho Fingerlings)

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Table 2. Fish Identified at Five Coastal Sites

Scientific Name	Common Name	Neptune 35LA3	Seal Rock 35LNC14	Yaquina Head 35LNC62	Bandon 35CS43	Chetco Lone Ranch Creek
Rhacochilus vacca	Pile seaperch		●	●		
Embiotoca lateralis	Striped seaperch		●	●	●	
Amphistichus sp.	Surfperch	●	●		●	●
Embiotocidae	Surfperch family	●	●	●	●	
Platichthys stellatus	Starry flounder	●	●	●	●	
Eopsetta jordani	Petrale sole		●		●	
Hippoglossus stenolepis	Halibut			●	●	
Pleuronectidae	Flatfish Family	●	●			
Leptocottus armatus	P. staghorn sculpin	●	●	●	●	
Enophrys bison	Buffalo sculpin	●	●	●		
Scorpaenichthys marmoratus	Cabezon	●	●			
Cottidae	Sculpin family	●	●			
Hexagrammos decagrammus	Kelp greenling	●	●	●	●	
Ophiodon elongatus	Ling cod	●	●	●	●	
Sebastes melanops	Black rockfish		●			
Sebastes sp.	Rockfish	●	●	●	●	
Oncorhynchus kisutch	Coho salmon	●	●			
Salmonidae	Salmon family	●	●	●	●	●
Merluccius productus	Hake		●			
Clupea pallasi	Pacific herring			●	●	
Microgadus proximus	Tomcod			●		
Hydrolagus colliei	Ratfish			●		

Data on the Neptune and Seal Rock sites are from Zontek (1983), the Yaquina Head site is reported in Greenspan and Wigen (1987), the Chetco site is reported in Berreman (1944), and the data on the Bandon site are from Lindsay and Keith (1986) and fish identifications done by Dan Tupper.

BOARD OF COMMISSIONERS

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JOHN GRIFFITH **NIKKI WHITTY** **BEV OWEN**

21 November 2006

Marla Rae, Chairwoman
Oregon Fish and Wildlife Commission
3406 Cherry Avenue N.E.
Salem, OR 97303-4924

Coos County Board of Commissioners' comment on Draft **State of Oregon Conservation Plan for the Oregon Coast Evolutionarily Significant Unit**

We organize our comment by numbered main topics, followed by corresponding numbering of discussion of each topic:

Main Topics

1. The Draft stresses continued, voluntary cooperation with landowners, but calls for increased regulation.

2. The Draft does not recommend control of salmon predators.

3. Despite the *Alsea Valley Alliance v Evans* decision, the Draft favors non-hatchery fish over hatchery coho.

4. The Draft seems to overlook the degree by which marine conditions affect coho abundance, instead placing too much emphasis on freshwater and brackish water habitat

5. The Draft's almost complete reliance on habitat improvement is a questionable strategy because there is currently little way to empirically measure its effectiveness.

6. The Draft outlines increased state agency personnel employment.

7. The Draft also relies on implementation of the Department of Environmental Quality, Total Maximum Daily Load strategy, which increasingly is being shown to have a weak foundation.

Discussion

1. **The Draft stresses continued, voluntary cooperation with landowners, but calls for increased regulation.**

Landowner and local government cooperation might have helped to improve coho freshwater and estuarine habitat. We hope cooperation continues. We also would hope that a plan that purportedly seeks to maintain and enhance cooperation would have incentives, rather than increased regulation.

Most landowners, resource managers and local governments do not complain of too few state and federal regulation of their activities. We have seen that most landowners are agreeable and often proud to sacrifice to assist salmon. We have heard many landowners testify that foregoing some profitability is the right thing to do for having a part in increasing salmon abundance if it leads to commercial fishermen being able someday to fish for coho again.

However, we suspect that this Draft will lead to less cooperation by landowners if Oregon Department of Fish and Wildlife (ODFW) does not delete all references to increases of regulations in its Draft and final plans.

Current Draft references to increased regulation do not appear to be too foreboding. However, other plans with seemingly innocuous wording have had hard results. For example, Oregon Department of Forestry's Northwest Oregon Forest Management Plan's reference to "anchor habitats" led to a very contentious Salmon Anchor Habitat scheme.

Less voluntary cooperation that could show itself in unpleasant ways: It could cause landowners to withhold permission for ODFW employees to work on their private property, could bring numerous Measure 37 claims against new regulations, public demonstrations against new regulations, and acrimonious testimony at Oregon Fish and Wildlife Commission or Oregon Legislative Assembly committee hearings giving rise to media reports that landowner cooperation is falling away.

We attach a list of some of the Draft's references to increased regulation.

2. The Draft does not recommend control of salmon predators.

We have yet to attend a salmon issues meeting where witnesses did not raise their concern that salmon predators must be regulated. We acknowledge that the federal government has assumed regulation of marine mammals and salmon avian predators. However, we believe that with this Draft, ODFW gives up too easily. ODFW should condition additional state action and more cooperation by private property owners on federal cooperation in meeting the state's requests to control problem seals and sea lions and birds.

3. Despite the *Alsea Valley Alliance v Evans* decision, the Draft favors non-hatchery fish over hatchery coho.

Simply stated, the heart of U.S. District Court Michael Hogan's opinion in *Alsea Valley Alliance v Evans* was that all or none of Oregon coastal coho be listed under the Endangered Species Act. After a few failed tries to step around compliance with that order, NOAA Fisheries this year proposed to remove the Oregon Coast coho ESU from its Threatened species list. The Draft plan nevertheless seems to treat non-hatchery spawning coho as better than hatchery-spawned fish.

This is also out of compliance with state law at ORS 496.171 (2) "Native means indigenous to Oregon, not introduced." A coho is a coho, according to state law, and the opinion of the U.S. District Court, Oregon, upheld by the Ninth Circuit Court of Appeals.

Based on years of comments by a majority of citizens, the public does not support reduced hatchery production. Hatchery coho are currently the only coho people may fish for. It is unrealistic to hope that a plan that calls almost entirely for non-hatchery coho production will achieve the goals stated in the Draft.

We suggest that the ODFW recommend increased hatchery production. In Coos County, the Salmon and Trout Enhancement Program and local chapter of Association of Northwest Steelheaders, under direction by our STEP biologist Tom Rumreich, have in place rigorous controls of hatchery stock selection. We have an enjoyable and lucrative Chinook fishery in Coos Bay as a result of their dedicated work over more than two decades. That fishery and the coho fishery would improve by the Oregon Fish and Wildlife Commission discarding anti-hatchery policies.

We believe that increased hatchery production should be a goal of any coho plan. This is not to say that we suggest going back to haphazard hatchery regimes of the Twentieth Century, but instead to recognize that hatcheries run like our STEP and Northwest Steelheaders can play a necessary part in salmon abundance, state and local economies, and our quality of life.

Farmers, foresters and fishermen in our part of Oregon have been moving toward closer cooperation and mutual respect. Klamath Basin farmers and Oregon trollers this summer have been meeting to work through their differences. We have a role in these efforts, and believe their results have been spectacular. Our fishermen want their counterparts in timber and agriculture to prosper and to keep their way of life. The farmers want the same for our fishermen. They know that hatcheries are necessary to meeting their goals.

4. The Draft seems to overlook the degree by which marine conditions affect coho abundance, instead placing too much emphasis on freshwater and brackish water habitat

"Wild coho" are called Oregon Coast Naturals (OCN). The OCN 1997 census was about 21,000. By 2002, it was more than 210,000. Habitat improvement cannot be responsible for a ten-fold increase in OCNs in just five years. The Draft notes that oceanic conditions are important, but we believe it does not state that forcefully enough. The ocean gives more in some years than others. The Draft speaks to a desired condition and measurable outcomes. A setback in favorable oceanic conditions will result in reduced numbers of coho, thereby failing to achieve a plan's goals.

The Draft also overstates the role of estuarine habitats. For example, all bottomland pastures and their dikes and ditches in Coos County were made before 1913 (county historian Gordon Ross). Coho numbers did not dip seriously until the 1990s. For a fish with only only three-year generations, that's a lot of generations of coho abundance between the major share of estuarine habitat modification and the souring of coho abundance in the 1990s.

5. The Draft's almost complete reliance on habitat improvement is a questionable strategy because there is currently little way to empirically measure its effectiveness.

Unless ODFW intends to place smolt traps on many more coho tributary streams, estimations of habitat projects' improvement to coho numbers is subjective. Hatchery managers can count how many juvenile salmon they release, and count how many adults return, unlike advocates of habitat manipulation.

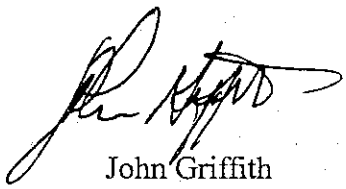
6. The Draft outlines increased state agency personnel employment.

As just one example, Draft pages 35-37 state a legislative proposal by the Department of Forestry for 31 new jobs. Oregon has trouble balancing its budget now. The Draft does not say how the state intends to pay for more personnel.

7. The Draft also relies on implementation of the Department of Environmental Quality, Total Maximum Daily Load strategy, which increasingly is being shown to have a weak foundation.

The current TMDL strategy is flawed, per the "Smith River Watershed Bacteria Source Tracking (BST) Study" for example.

Although DEQ criticized this study, it failed to refute that previous studies have underestimated natural, so-called background contributors of water pollution. The Draft notes that DEQ is moving forward with its TMDLs, in this context on behalf of coho. This, like the Draft's call for increased regulations, could lead to reduced land owner cooperation with coho habitat improvement projects. The Smith River study shows that native wildlife is by an order of magnitude the largest component of biological pollution. However, the DEQ intends to meet its TMDL with further reductions to agriculture and other beneficial land activities.



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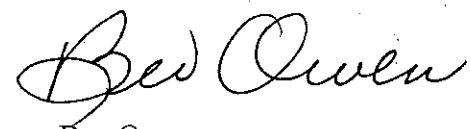
Chairman

Nikki Whitty
Vice Chair



Bev Owen
Commissioner

CC, Governor's natural resources staff

STATEMENTS IN THE OREGON COASTAL COHO PLAN THAT OPEN THE DOOR TO FURTHER REGULATE THE PRIVATE NATURAL RESOURCE LANDOWNER:

1. Regulatory programs: State and federal agencies will implement, monitor compliance with, and enforce their legislatively mandated regulatory programs. (pg. 6)

2. Desired status represents a level of population performance that exceeds the level at which an ESU is considered viable and is a goal that is based on a combination of legislative mandates, social values, and non-regulatory contributions. (Pg. 19)

3. Modified management and regulatory programs will be considered, as necessary, by the Oregon Legislature and the various governing boards and commissions as future monitoring data are available to track trends and rates of improvements in coho and habitat conditions across the ESU. (Pg. 26)

4. RME provides the basis for adaptive management based on future assessments of the ESU; its supporting habitat; and the management and regulatory programs that are intended to achieve desired status. (pg. 33)

5. Private Forest Regulatory Actions: At the direction of the BOF, ODF is developing new rule concepts for stream classification (rule concept 3), landslides (rule concept 4) and Riparian Function for fish bearing and non-fishbearing streams (rule concept 8 and 11). (Pg. 35)

6. Depending on the results of the pilot program, DSL may consider program changes to more effectively protect those areas. (Pg. 38)

7. These include work with coastal local governments to review and update comprehensive land use plans and ordinances to incorporate policies and standards aimed at reducing impacts to salmon habitat from effects of development. The Department will work with local governments and other entities such as Oregon Sea Grant to promote salmon-friendly development practices by extending current work with local governments to adopt or improve stormwater management

standards, identify and protect wetlands and riparian areas and promote education of local staff, appointed and elected officials as to voluntary techniques or practices. (Pg. 39)

8. Development and revision of the State water quality standards: (Pg. 41)

9. Results of data analysis are considered by a responsible agency, board, or commission regarding the need or appropriateness of changes to statutes, rules, or management policies. Occasionally the deliberation may involve a broader Legislative and public policy discussion. (Pg. 46)

10. Evaluate potential need for modified management or regulatory programs to conserve productive capacity of habitat. (Pg. 49)

11. Modified management and regulatory programs will be considered, as may be appropriate by Oregon and the various governing boards and commissions as future monitoring data are available to track trends and rates of improvement in coho and habitat conditions across the ESU. (Pg. 52)

Dec 4, 2006

ODF&W
3406 Cherry Ave NE
Salem, OR 97303

Re: Comments on Draft Coastal Coho Plan for Oregon

Dear Kevin Goodson:

1. This is a continuation of the Oregon Plan for Salmon and it should be presented that way. Many landowners are fearful of new names such as *New Private Lands Initiative.*
2. A lot of work has been completed to help fish, culvert replaces, fencing of waterways, tree planting, barbs, tidegate replacement and other improvements. This has continued in a voluntary way, please continue in this way as the Plan states.
3. Large wood or other in-stream work needs to be done in a way that it stays in place, securely anchored if need be. Land owners don't want large wood in their fields or on their fences.
4. We must begin to control predator populations of pinnipeds and birds. Land owners are *not* very willing to raise Salmon for predators.
5. There must be ample Coho from hatcheries for good fishing opportunities. The Plan indicates this is a 50-year plan. That's a long time, people cannot wait 50 years to fish.
6. If permits are required they must be streamlines and processed in a short time.
7. We have at least three completed projects that helped landowners with stream bank erosion and added stream complexity for fish. Landowners will be interested, I believe.
8. We need some other good demo projects, these were talked about for the summer 2006 but never got going.
9. Please keep all politics out of the program. Use it for what I believe it is – a conservation plan to help Coho
10. The Oregon CREP will not gain a lot of acres in livestock raising areas along the Oregon Coast, as rental rates are low. I have enclosed a letter and a publication from my OSU Extension Dairy Agent showing the value of our dairy pastureland compared to replacing lost production with good purchased hay. Page two of the letter uses hay at $140. Per ton. Dairy Alfalfa hay is coming to Tillamook dairy farms at about $180. per ton today.
11. I have often visited my local ODF&W folks about the Plan. They are good people and want the Plan to work for Coho just as I do. However, I am a retired Tillamook Dairy Farmer and also have landowner concerns.

Thank you for the opportunity to comment on the Draft Coho Plan.

Dale

Dale Buck
25590 Chinook Street
Cloverdale, OR 97112

Phone: 503/398-5191
FAX: 503/398-2882
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November 16, 2006

Dale Buck
25590 Chinook St.
Cloverdale, OR 97112
503-398-5191

Dear Dale,

Enclosed is a publication I helped write to help landowners determine the value of their forages. The main idea presented in this publication is that landowners producing forage for their own use need to keep good production records to determine their costs of production and compare their costs of production to alternatives in the marketplace. I think the example costs listed in the attached publication are costs that are reasonable, but I can guarantee most dairymen will say they do not spend that much harvesting feed. The ones that agree that my numbers are close are the ones that keep records.

The first part is designed to get landowners to evaluate and hopefully start keeping records on their costs. The second part is designed to help dairymen compare their costs for silage to the costs of good purchased hay. Table 4 in this publication is set up to adjust for protein and moisture. For example, suppose a dairyman grows grass silage that is 33% dry matter and 22% protein and usually harvests 7 tons of dry matter per acre. My numbers in table 2 suggest the total costs of production and storage are $324.80 per acre. If you deduct the value of the land as a cost and only look at cash expenses to produce the silage annually you get $174.80 per acre (324.80 – 150 for land = $174.80). The costs per ton of silage for 21 tons produced at 33% dry matter is $8.32 per ton.

If you compare this silage to the cost of purchased feed through the formulas in Table 4, you will find the value of this feed to the dairyman compared to the cost of the most common alternative is $34.80 ton. In this example I am comparing grass silage to alfalfa hay delivered into Tillamook at $150 ton. As prices change, the predicted value of this silage compared to the alternatives can easily be calculated.

If a dairyman were to take land out of production for riparian areas and we had to determine what the replacement feed would cost, this would be a way to calculate that. The example of seven tons of dry matter production per acre is common on dairies with good soil. Many exceed this production and many do not achieve this production. For example, the publication uses a production of 15 tons of silage wet, or 5 tons of dry matter per acre. In this example the cost per wet ton is 174.80/15 = $11.65 per ton.

I believe most dairymen should value their feed production from this perspective. Using this thought process I have done some calculations below. I know we can argue all day about the accuracies of these numbers, but this process is what I think is important. The grazing scenario below I have calculated a cost of $58.00 per year as a prorated establishment cost. No cost for harvest is made, because most dairymen have already made the investment in fence and lanes. Annual depreciation of this investment is real but difficult to account for.

GRAZING

7 tons DM per acre produced, compared to $140/ton hay (90%DM)	$1088 to buy 7 tons of DM
Prorated Establishment costs	- $58.00/acre/year
Net return per acre	**$ 1030**

SILAGE

7 tons DM per acre produced, compared to $140/ton hay (90%DM)	$1088 to buy 7 tons of DM
21 tons wet (7 tons DM)	-$174.80 harvest costs
Net return/acre	**$913.20**

Good luck with your discussions about this topic. Since this publication was written, fuel and hay prices have continued to go up. This will only increase the value of the productive land to local producers. Many will also argue the loss of ground actually costs the landowner more because it reduces the total available ground to spread manure on. Let me know if I can help with any discussions.

Sincerely,

Troy Downing
Oregon State University

PNW 259 / Revised April 1999

Valuing Forages Based on Moisture and Nutrient Content

T. Downing and M. Gamroth

Knowing the moisture content of forage assures the buyer of its nutritional value and the seller of its fair market value.

High-quality forages, such as alfalfa and grasses, are important for efficient milk production from dairy cows. Forages provide the effective fiber that is critical for good health and longevity. Inadequate effective fiber in the cow's diet is one reason for acidosis and milk fat depression.

Historically, when forage quality changed, dairy farmers adjusted the forage-to-concentrate ratio to compensate for reductions in energy and protein availability. As cows continue to produce more milk, this flexibility has been drastically reduced, further emphasizing the need to include only the highest quality forages in lactating cows' diets.

This need for high-quality forages places a premium value on these commodities in the marketplace. As with all markets, the rules of supply and demand drive the prices of high-quality forages.

The objectives of this publication are to calculate the cost of home-grown forages and to attempt to value these forages against the costs of purchasing high-quality forages.

Revised by Troy Downing, Extension dairy agent, and Mike Gamroth, Extension dairy specialist, Oregon State University. Originally prepared by Gary L. Schneider, Extension agent (dairy), Malheur County, and Michael J. Gamroth, Extension dairy specialist, Oregon State University. This publication prepared in cooperation with Extension specialists at the University of Idaho and Washington State University.

A Pacific Northwest Extension Publication
Oregon • Idaho • Washington

Determining forage production costs

Collecting the necessary data to make good decisions is critical when evaluating the costs and relative values of forages. You need data on planting costs, maintenance costs, harvest costs, and losses during storage and feeding. Tables 1 and 2 will help you work through these costs. At times, estimates are the best numbers available; use them until you have better numbers. The same approach can be used for valuing alfalfa.

Comparing your costs to alternative feeds

Only when you compare your forage production costs to alternatives can you make educated decisions on whether to grow or buy forages. Moisture content, crude protein, and fiber (acid detergent and neutral detergent fiber) content also are important when comparing home-grown forages to alternatives.

One easy comparison is between the cost of your home-grown forages and the cost of dry hay available to purchase in your area. Table 3 compares the dry matter content of various feeds to that of hay and converts each to a relative dry matter value. For example, if you direct cut green chop at 25 percent dry matter, multiply the current price of hay by 0.277 to get the value of your green chop. Example: Assume a stored hay price of $70.00 per ton and a 30 percent dry-matter silage, which has a relative value of 0.333.

$70.00/ton hay x 0.333 = $23.31/ton value of silage

Now you can compare values in two ways:

- If it costs more than $23.31/ton to produce your grass silage, you're better off buying the stored hay.
- If you can produce silage for $23.31 at 30 percent dry matter, you can afford to purchase hay only if it costs less than $70.00/ton.

Table 1.—Typical per-acre costs of establishing grass for silage.

Item	Price	Units	$/acre	Your farm
Planting				
—plowing	$40/hr	1 hr	40.00	
—discing 2x	$40/hr	1.5 hr	60.00	
—seeding	$30/hr	1 hr	30.00	
—fertilizer	$240/ton	250 lb	30.00	
—fert. application	$15/acre	1 acre	15.00	
—seed	$1.50/lb	25 lb	37.50	
—management	$10/acre	1 acre	10.00	
Establishment totals			**$222.50/acre**	
Prorated costs (5 years with 10% annual interest on $222.50 investment)			**$58.00/acre/yr**	

Table 2.—Typical per-acre annual production and harvest costs for grass silage.

Item	Price	Units	$/acre	Your farm
Prorated establishment (from Table 1)			58.00	
Land ownership cost	$150/acre	1 acre	150.00	
Mower	$30/hr	0.5 hr	15.00	
Chopper	$40/hr	0.75 hr	30.00	
Truck	$25/hr	0.75 hr	18.80	
Bagger	$25/hr	0.75 hr	18.80	
Bag storage site preparation	$100/bag	bag/12 acres	8.70	
Bag	$225/bag	bag/12 acres	25.50	
Total annual costs/acre			**$324.80**	
Total costs per ton bagged (15 tons silage @ 33% dry matter)			**$21.70/ton**	

Table 3.—Relative values of forages with different dry-matter contents.

Feed	% dry matter	Relative value (stored hay = 1)
Stored hay	90	1.000
Freshly baled hay	84	0.933
Wilted silage	40	0.444
	35	0.388
	30	0.333
Direct cut silage or green chop	25	0.277
	20	0.222

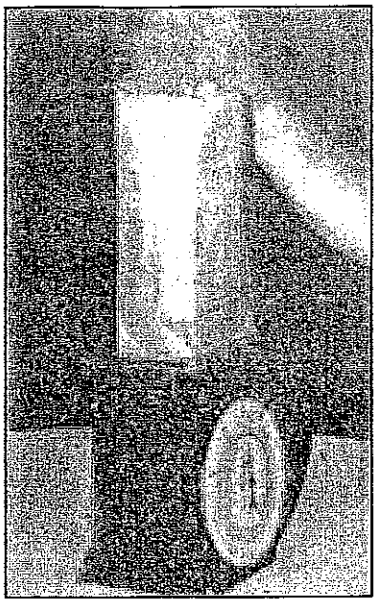

Figure 1.—After you place your forage in the bag, weigh it again.

Figure 2.—Dry your sample for 3 minutes, medium power setting.

Determining moisture content

It's important to test a sample of the crop you're pricing for dry matter. A little moist feed will improve animal intake, but don't pay for moisture you don't need. A few quick tests and calculations will keep forage producers and users happy with their farms' production.

Collect several samples to help overcome the variation in moisture within a truckload. Collect and transport samples in airtight plastic containers.

Buyer and seller should agree on the sampling, testing, and pricing methods. The two parties also should agree on who will pay for testing.

Many commercial feed-testing laboratories will rush the results of a moisture test if requested. They'll send nutritional analyses of the same samples later. Your Extension agent can provide a list of forage testing labs.

You can do quick moisture analyses with a good scale and a microwave oven. A small dietetic or kitchen scale that weighs in grams will serve your weighing needs. They sell for $25–$30.

For green chop, haylage, or silage, follow this procedure:

1. Weigh a paper bag large enough to hold 4 ounces of your forage. Write down the weight as value "A."
2. Place about 4 ounces, or 100 grams, of your forage in the paper bag and weigh again. Write this down as value "B."
3. Place a cup of water in the corner of the oven. Begin drying the sample with the medium power setting of the oven. Dry for 3 minutes, remove the sample, and stir gently. Dry for another 1½ minutes, stir, and dry for 1 minute.
4. The sample should be getting dry and crisp. Weigh the sample and bag, stir again gently, and dry for 30 seconds. Continue the 30-second drying and weighing until the weight doesn't change. If the sample begins to char, use the last weight. Record the final weight as "C."
5. Calculate the dry matter content using this formula:

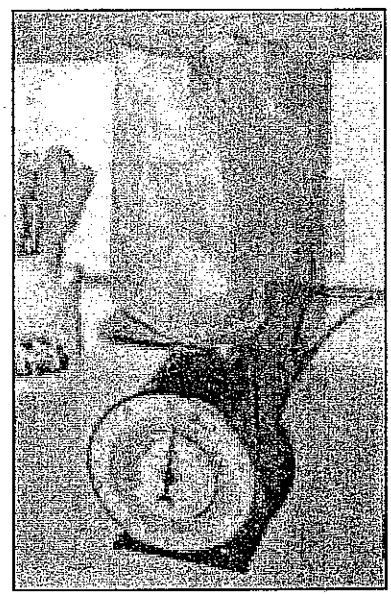

Figure 3.—Weigh your sample again. Repeat the drying and weighing until your sample's weight doesn't change.

$$\% \text{ Dry matter content} = \frac{\text{Total dry weight "C" minus bag weight "A"}}{\text{Total wet weight "B" minus bag weight "A"}} \times 100$$

Example: the container bag weighs 25 grams, the wet forage is 100 grams (total wet weight of 125 grams), and the final dry weight turns out to be 45 grams total with bag:

$$\% \text{ DM} = \frac{\text{45 grams (total dry weight "C") - 25 grams (bag weight "A")}}{\text{125 grams (total wet weight "B") - 25 grams (bag weight "A")}} \times 100$$

% DM = 20 grams (45 g - 25 g) divided by 100 grams (125 g - 25 g) x 100

% DM = 0.2 x 100 = 20%

Experiment with drying times before running an "official" sample. Some ovens don't heat uniformly. Dry the sample in different places in the oven. Some discoloration is normal, but blackened forage indicates you have burned off some of the dry matter.

Estimating storage losses

It also is important to consider storage losses when you price forages. Dry matter content at harvest directly affects dry matter losses during storage. Figure 4 illustrates that hay dried in the field undergoes large dry matter losses before baling, whereas forages with higher moisture content have higher losses during storage.

A final comparison

You can more accurately determine values of your forages by including crude protein as a quality measure and by adjusting for expected storage losses. Table 4 accounts for moisture, crude protein, and storage losses of silage.

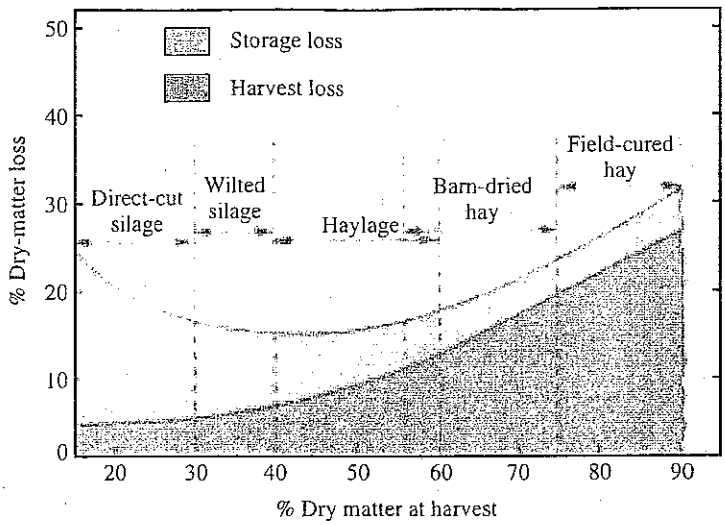

Figure 4.—Estimated total field and harvest loss and storage loss when legume-grass forages are harvested by varying methods and at varying moisture levels.

Table 4.—Comparing forage values.

	Example	Your farm
1. Market price of reference hay	$150.00	_____
2. Dry matter of reference hay	90%	_____
3. Crude protein of reference hay	22%	_____
4. Dry matter of forage you want to price	33%	_____
5. Crude protein of forage you want to price	16%	_____
6. Divide line 4 by line 2	0.4	_____
7. Divide line 5 by line 3	0.73	_____
8. Multiply line 7 times line 6	0.29	_____
9. Multiple line 8 times line 1	$43.50	_____
10. Estimated loss in storage	20%	_____
11. Subtract line 10 from 100%	80%	_____
12. Multiply line 9 times line 11	$34.80	_____

Line 12 represents the value of your forage compared to commercially available forage. It is important to remember we adjusted for only moisture, crude protein, and storage loss.

Pacific Northwest Extension publications are jointly produced by the three Pacific Northwest states—Oregon, Washington, and Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses state lines. Since 1949 the PNW program has published more than 500 titles. Joint writing, editing, and production have prevented duplication of effort, broadened the availability of faculty specialists, and substantially reduced the costs for participating states.

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Wednesday, October 25, 2006

Governor Kulongoski
160 State Capitol
900 Court Street
Salem, Oregon 97301-4047

and

ODFW Commission Chairperson Marla Rae
The Rae Group
333 High Street NE, Suite 202
Salem, OR 97301

Subject: Oregon's October 6, 2006 Draft of its Conservation Plan for the Oregon Coast Coho

Dear Governor Kulongoski and ODFW Commission Chairperson Rae:

According to a Friday, Oct. 6, 2006 **NEWS RELEASE** (located on the internet at http://www.oregon-plan.org/OPSW/cohoproject/coho_proj.shtml), ODFW is seeking input on a draft (of that same date) of a plan titled "Coast Coho Conservation Plan."

The following is my "input":

Question, one may ask: "So what's the problem -- i.e., what's the necessity, and therefore, the reason for the plan?"

Answer (according to the plan, **at the bottom of** its **page 18** under the heading of "**Uncertainty Regarding ESU Viability**"):

> "... evaluation ... *based on current and recent past conditions* [by NOAA Fisheries Service (a.k.a., National Marine Fisheries Service)] *shows a high degree of uncertainty with respect to the statement that the* [Oregon Coastal Coho] *ESU is sustainable.*"

Dictionary definitions of "viability" and "sustainable":

> **Viability** (i.e., the ability to be viable), and therefore, **the definition of "viable"** is: "**1.** capable of living. **2.** *Physiol.* physically fitted to live. **3.** *Bot.* able to live and grow."
>
> **Sustainable** (i.e., the ability to be sustained), and therefore, **the definition of "sustain"**: "**5.** to keep up or keep going."

More succinctly, the ability of the Oregon Coastal Coho to continue "to live" and to "keep going" is in

doubt. In other words, they "**are in trouble!**" (No surprise there, to almost anybody -- that is, unless that anybody has been living under a rock for the past several years.)

Another question: So what's the basic purpose, intent, and goal of the plan?

Answers:

- **Purpose** of the plan (according to the plan document itself): "**... to ensure the continued viability of the Oregon Coast Coho ... .**" (the capability to continue to live, i.e., exists).

[Locations of that stated purpose are:
1. First sentence, top of page 3, under the heading of "**Executive Summary**";

2. First sentence near the top of page 9, under the heading of "**Introduction**";
and finally,
3. First sentence, second complete paragraph, under the heading of "**11. Assessment of the Conservation Plan.**"]

- **Intent** of the plan (again, according to the plan document itself): "**... to support efforts to improve habitat for coho salmon and other native fish and wildlife species through on-the-ground, non-regulatory work by community-based entities and individuals.**"

[The only location of the stated intent of the plan is the second sentence of first complete paragraph on page 4.]

- **Goal** of the plan (as stated by the plan itself) is: "**... to improve the productivity of the fish and their supporting habitat to a level where desired status classification is achieved.**"

There are 84 instances of where either the word "goal" or "goals" appear in the text of the document -- usually in the phrase "***desired status goal***." **And, it isn't until, finally, one reaches the 24th instance of the word "goal," that he/she finds <u>that</u> stated goal of the plan.** That's also when one gets extremely aggravated and concludes that the document is terribly convoluted, and that reading it is excessively burdensome and difficult to merely get to the "nuts and bolts" of the document.

The phrase "***desired status goal***" is first used in the Executive Summary, (at the end of the next-to-last line of page 3) **without a definition**. And, it is not specifically defined in the document **until page 6** as:

"Populations of naturally produced coho salmon [which] *are sufficiently abundant, productive, and diverse (in terms of life histories and geographic distribution) that the ESU as a whole 1) will be self-sustaining into the foreseeable future, and 2) will provide significant ecological, cultural, and economic benefits."*

That situation (of delayed definitions -- particularly of the term "desired status goal") renders the document so burdensome to read that it becomes virtually useless and therefore unacceptable. In other words, it doesn't "cut to the chase!" As a document intended for guidance, it is just too wordy and voluminous to be practical and therefore useful. (My question is: 'Who writes this junk, anyway?")

The word "recovery" is used in the plan. What does that imply? It implies that whatever is to be

"recovered" is either lost or in decline and is in danger of being lost. Otherwise, if that is not the case, then why is the word used? The plan also declares the Oregon Coastal coho as being "viable." Well, if that is the case, why should the plan use the word "recovery?" Answer: Because, as the document itself states, NOAA Fisheries says,

> "*Our evaluation of biological sustainability (relevant to Threatened status) based on current and recent past conditions shows a high degree of uncertainty with respect to the statement that the* [Oregon coastal coho salmon] *ESU* [Ecological Significant Unit] *is sustainable.*"

That's why. Yet, the Fisheries Service declares the ESU "viable" Again, there is an incongruity and disconnect (an ***irrationality***, or denial, if you will) between the idea of the ESU's sustainability being "uncertain" and it being "viable." The ESU's sustainability cannot be both "uncertain" while at the same time be "viable." That addled thinking is an example of irrationality, and it is just a whole lot of nonsense!

As a "stand-alone" document (i.e., without the appendices to explain why the document is written the way it is written), the plan appears to be written by a schizophrenic person -- that is by one who has a difficult time making up his mind about what he ultimately wants to do. It appears that way because the document is characterized by "the coexistence of contradictory or incompatible elements" -- specifically the use of words like "recovery" and "viable." The Oregon coastal coho ESU (Evolutionary Significant Unit) is either viable, or it isn't viable. And if it is not viable, then (and only then) is the word "recovery" appropriate for use in the plan. This obvious stance of "straddling of the fence" that subconsciously characterizes the document needs to be eliminated.

But, if in the final analysis the word "recovery" is appropriate for the plan:

> - Stop the confusion of words,
> - Scrap all the excess verbosity and state the substance of the plan (the purpose, intent, and goal -- the "recovery" of the coho) right away -- up front, in the very beginning of the plan, instead of mealy mouthing all around it.

In this case, what does "recovery" mean? It means what the plan says it means -- i.e., a "recovery" to the "**Desired status**" in Table 2., on page 17, which is defined as:

> **"Populations of naturally produced fish comprising the ESU are sufficiently abundant, productive, and diverse (in terms of life histories and geographic distribution) that the ESU as a whole will: a) be self-sustaining, and b) provide environmental, cultural, and economic benefits."**

That definition is **EXCELLENT!** -- just as it should be.

But the difference between the definitions (in Table 2., on page 17) of "desired status" and definition of "Viable," which is:

> **Populations of naturally produced fish comprising the ESU are sufficiently abundant, productive, and diverse (in terms of life histories and geographic distribution) that the ESU as a whole is sustainable into the foreseeable future.**

is significant and therefore important. It is significant and important because, after all, who are the

producers of the plan trying to fool, besides themselves? What is **real and actual** purpose, intent, and goal of the plan, even though it is not specifically stated? Answer: It is the "wild" (the "naturally produced") fish runs which are trying to be "recovered" -- **NOT** the hatchery fish.

The definition of the "**Desired status**" uses the words "naturally produced fish" and does **NOT** use the words "hatchery fish," even though the plan also schizophrenically defines (in the second complete paragraph on page 4) "native fish" as "indigenous to Oregon and include both naturally and hatchery produced fish." Again, the use of the phrase "naturally produced fish" is correct, because (as almost everybody who is knowledgeable about salmonids knows) HATCHERY FISH ARE GENETICALLY **INFERIOR** to "naturally" produced (i.e., "wild") fish, and they compete with the wild fish for both food and habitat.

SUBSEQUENTLY:

Oregon's "Conservation" plan for the Oregon coast coho is **inadequate** and therefore is **unacceptable**, because... it actually is not a "recovery" plan. It is not (a recovery plan) because it:

- Fails to cite specific actions for salmon recovery. The plan's goal is measurable recovery, but does not set out how this will get done;
- Relies heavily on Oregon's current land use policies to restore the coho, when it was these same rules that messed up coho habitat in the first place;
- Wrongly asserts that right now coho are currently sustainable, when that (as the plan itself acknowledges) is highly uncertain;
- Overly relies on voluntary efforts, eliminating oversight by state fish and wildlife agencies; and
- Fails to set standards for enrichment of streams for salmonid productivity.

Immediate efforts to restore Oregon coast coho populations in all their streams and their habitats are needed. "Now" is the time, **NOT** later.

To really be a recovery plan (instead of merely a "conservation" plan), the plan must include:

- **Mandatory** protections both for coho and their habitat. Voluntary efforts are an important part of long-term recovery, but right now enforceable habitat protections are necessary to bring coho back from the brink of extinction.

- **Guaranteed funding** to support the state's efforts to **recover** wild coho. Without adequate funding, effective **recovery** cannot be accomplished.

I want my **strong** support for the protection of coho salmon and their habitats to be known by our Oregon government officials. That's why I have not only sent this message to the "comment" e-mail address of cohoplan@state.or.us, but also to both of you.

Sincerely,

Fredric L. Fleetwood

Fredric L. Fleetwood

Ed Bowles
Director Fisheries
Oregon Department of Fish and Wildlife
3406 Cherry Ave. NE
Salem, OR. 97303

Dear Mr. Bowles,

The Oregon Farm Bureau Natural Resources Committee appreciates the continuation of voluntary participation in the new Coho Conservation plan; however we do have several concerns about certain aspects of this draft. Our main issue is with the reduction of hatchery production that currently contributes to a viable ocean harvest. Oregon Farm Bureau policy promotes the use of hatcheries to produce fish. This plan, however, seems to insinuate that hatchery production is a major factor that has resulted in the decline of the current salmon fisheries. Our belief is reinforced by the ODFW listing of basins as, "failing" in natural Coho production, which correspond to streams with Coho producing hatcheries. We find it unlikely that habitat in these basins is significantly different from other non-hatchery dominated streams so we can only conclude that ODFW used proximity to Coho hatcheries as a measure to determine failure. This seems to be in contradiction of the Alsea decision that mandated that the federal government included hatchery fish in the population estimates. Additionally, these hatchery-influenced streams are usually full of salmon, however they do not appear to be counted as spawners due to the ODFW Native Fish Conservation Plan. We fear that this is a major cause for the listing of these basins as "failing" and therefore may be used in the future to further dismantle hatchery programs.

The proposed discontinuation of Coho production at Salmon River and Rock Creek (North Umpqua) hatcheries also causes concern for our committee. These hatcheries produce many of the finclipped salmon that are the only harvestable fish allowed under the current ocean fishing regulations. The proposed reduction in Coho smolt plantings from the current 700,000 down to 250,000 will further reduce the number of harvestable fish. Since a mixed stock harvest of non-finclipped Coho is at minimum several years away and could cause greater harm to naturally producing basins, we believe that the current hatchery programs should increase smolt production to allow a maximum harvestable surplus of finclipped fish. Combined with increased survival due to better ocean conditions, this option could restore Oregon's commercial and ocean sport fisheries and provide a needed economic boost to Oregon's coastal residents.

Our committee also feels that this draft plan does not address the need for intensive research into the effect of ocean conditions on salmon stocks. Based on recent returns to several basins, ocean conditions appear to play as significant a role in salmon returns as does instream habitat. We believe that ocean conditions and not stream complexity, as indicated in this plan, may be the major limiting factor in Coho survival. The best evidence for this is the millions of dollars spent on instream habitat restoration with very little result and the fact that hatchery and wild fish annual returns appear to mirror each other, indicating that fresh water residence may not be the main limiting factor. A better understanding of the Coho ocean life history and the effects of natural ocean conditions need intensive research. Development of ocean condition predictors that better forecast spawner populations and allowable harvest should be a main component of this plan.

Respectfully

Jack Southworth
Chairman OFB Natural Resources Committee

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
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December 14, 2005

Reply To
Attn Of: ETPA-088

Kevin Goodson
Conservation Planning Coordinator
Oregon Department of Fish and Wildlife
3406 Cherry Avenue N.E.
Salem, Oregon 97303

Dear Mr. Goodson:

The U.S. Environmental Protection Agency (EPA) appreciates the opportunity to provide comments on the October 6, 2006 draft of the "State of Oregon Conservation Plan for the Oregon Coast Coho Evolutionarily Significant Unit" (CCP). Our comments focus primarily on elements of the CCP relative to EPA's program roles and responsibilities as described in Appendix 3, "Description of Oregon and Federal Commitments." We've also included past comment letters related to State programs that are critical to Coho recovery and water quality improvements.

EPA recognizes that the CCP is a major undertaking and commends the Oregon Department of Fish and Wildlife (ODFW) for its leadership in the developing the draft CCP. ODFW has played a major role in salmonid recovery efforts in Oregon particularly with respect to hatcheries, fish harvest, and landowner restoration efforts. We strongly support the significant improvements that have been made in these areas in Oregon. A successful CCP will also need to address key stressors and limiting factors for salmonids including water quality impairment. EPA believes that addressing issues identified below will enhance the CCP and increase its utility in both recovering Coho populations and addressing water quality problems in the State.

General Comments

Water Quality as a Limiting Factor

The CCP does not address the significance and role of water quality in Coastal Coho viability. Water quality is identified as one of the two primary Population Limiting Factors for most of the Coastal Coho populations. While water quality is identified as the secondary limiting factor for 15 of the 21 independent populations (Table 4, Page 25), impacts from primary sources of impairment, such as forest and agriculture practices, are not adequately addressed.

EPA has the overall national responsibility to implement the Clean Water Act, in partnership with states and tribes. These responsibilities include approving state Water Quality Standards, overseeing delegated state point-source permit programs, approving Total Maximum Daily

Loads (TMDLs) and states' 303(d) list of water quality impaired waters, and approving state non-point source and coastal zone management programs.

EPA works closely with the Oregon Department of Environmental Quality (DEQ) which has delegated authority for implementing the provisions of the Clean Water Act. The DEQ has established a variety of programs to prevent water quality degradation, improve degraded water quality, and protect high quality waters in the Coastal Coho ESU. Water quality is an inextricable component of habitat for Coastal Coho. Actions and measures to support DEQ's programs are often similar to or supportive of actions which enhance stream complexity or high habitat quality, the primary limiting factor identified in the CCP. DEQ programs and supportive actions are well defined, often site specific, and clearly support salmonid populations. For example, in 2004, the Oregon Department of Environmental Quality (DEQ) revised existing temperature standards and standards for inter-gravel dissolved oxygen. These standards set a new benchmark for how water quality can help protect salmon, and serve as a national model for identification of critical information on salmon and steelhead life stages and temperature needs in those life stages.

DEQ uses these standards to determine where water quality exceedances exist and where beneficial uses, such as salmonid spawning or rearing, are not being supported. As part of its 2004-06 303(d) listing process, DEQ identified several thousand reaches of rivers and streams in the Coastal Coho ESU that are not meeting state water quality standards including waters not meeting temperature, sediment, dissolved oxygen, and bacteria criteria relevant to salmonid conservation.

For waters identified on the 303(d) list, DEQ develops plans which reduce the pollutant loading to those waters. The plans, or Total Maximum Daily Loads (TMDLs), define pollutant loads to the listed waters and allocate portions of the pollutant loading to the contributing point and non-point sources. In response to the TMDLs, the entities responsible for the sources of pollutants, must develop and implement plans to ensure compliance with their load reduction requirements. TMDLs have been or are being developed for many of the listed waters in the Coastal Coho ESU along with implementation plans to address identified water quality problems. EPA has reviewed and provided comments on TMDLs and associated implementation plans. EPA documents identifying issues and problems with implementation plans are attached.

The aforementioned programs are examples of tangible "tools" used to improve and protect water quality and support beneficial uses, i.e., salmonid life stages, of the waters in the Coastal Coho ESU. While DEQ's programs are presented in Appendix 3 as an agency's support of the CCP, the value of these programs is understated and under utilized in defining existing water quality and habitat problems and achieving the goals and objectives of the CCP. These programs/tools should be strategically integrated into the CCP to solidify its foundation.

Lack of Implementation Detail

The CCP lacks detail on how the specific goals and objectives will be achieved but does state that CCP goals and objectives will be achieved using existing regulatory programs and land-use laws, and enhanced support of non-regulatory cooperative conservation and voluntary efforts.

While we strongly support non-regulatory cooperative conservation and voluntary efforts in Oregon there is a significant body of science demonstrating that regulatory programs in Oregon do not adequately protect water quality and associated beneficial uses (e.g., salmonid spawning and rearing, public water supply). In addition, although Oregon has an outstanding network of local groups such as watershed councils and soil and water conservation districts working with State and Federal agencies on voluntary habitat restoration efforts, it is not clear that financial support for these local groups and the projects they are undertaking is being increased commensurate with CCP goals.

While the CCP establishes some specific goals there is very little detail on how 1) each goal will be attained; 2) who will be responsible for meeting that specific goal; 3) where the associated funding will be obtained; 4) the geographic locations where actions will be needed to support achieving that goal; and 5) the anticipated timeframe for reaching that goal. For example, one goal listed in Appendix II is to increase the existing high quality habitat river miles by approximately 2500 miles, the targeted miles needed to support Coastal Coho viability. While the goal is commendable there are no site specific management actions defined, specific timeframes established, or associated costs defined for meeting this goal. There is also inadequate discussion on how development, land conversion, forestry practices, gravel mining, and agricultural practices affect the ability to meet high quality habitat goals.

The lack of implementation detail and the CCP's reliance on existing programs and enhanced support of cooperative conservation or voluntary efforts seems to embrace a "status-quo" strategy leaving little certainty that goals and objectives will be achieved. Greater detail on how specific goals and objectives will be achieved must be included in the CCP.

Use of Enhanced Voluntary Measures and Existing Regulatory Programs

EPA does not believe the CCP's use of the existing Oregon Forest Practice Act regulations (FPA) will achieve the desired status goal for the Coastal Coho ESU. We are also concerned that SB 1010 plans fall short of Coastal Coho conservation and recovery. Measure 37 and development pressure along the Oregon coast add to the uncertainty of the existing regulatory measures. To achieve the desired status goal for the Coast Coho ESU, the CCP proposes to use enhanced voluntary measures and non-regulatory cooperative conservation along with existing land use regulations and other regulatory programs. EPA fully supports the CCP's objective of enhancing non-regulatory and voluntary programs. EPA strives to implement environmental and public health protection by engaging both the regulated and non-regulated communities in collaborative and cooperative processes. However, EPA believes the existing FPA and SB 1010 plans do not adequately support the desired CCP goals for Coastal Coho habitat.

EPA has consistently noted in testimony to the Oregon Board of Forestry that there is a substantial body of science demonstrating that Oregon's existing forest practice rules and best management practices do not consistently meet water quality standards or fully provide riparian functions important to water quality, public water supplies and fish. Expert reviews and research have identified the need for increased protection of riparian management areas and landslide prone slopes in Oregon for both fish and non-fish streams to provide functions important for fish and water quality. While the most recent revisions to the FPA rules are improvements, EPA

continues to believe that additional revisions to the rules are needed to ensure water quality standards will be met and that beneficial uses such as salmonid spawning and rearing will be fully protected.

The agricultural water quality management plans and associated rules prepared pursuant to SB 1010 are not linked to salmonid conservation and restoration. While EPA supports the general SB 1010 planning framework and believes that the dialogue the agricultural water quality management planning process generates can be beneficial, we have not seen an established, clear commitment to salmonid recovery or meeting TMDL targets on agricultural lands.

EPA wants to reemphasize that we strongly support Oregon's voluntary and cooperative efforts and believe they are an important element of an overall approach for achieving the CCP goals. However, we believe that continued implementation of the existing regulatory framework in Oregon does not adequately address widespread water quality problems and will not meet the goals in the CCP.

Specific Comments

p. 3, first paragraph under Introduction: A sentence in the first paragraph provides that "A key element of this Plan is to provide a higher and more effective level of support to local conservation groups and private landowners…". It is not clear what is meant by a "higher and more effective level of support", where that support will be directed, or how the CCP anticipates obtaining the resources for the support. Please explain.

p. 6, second paragraph under Oregon's Coho Conservation Strategy: This paragraph seems to infer that the need to develop conservation and restoration strategies at scales within populations will rest with watershed level entities. EPA agrees that it is often at the watershed scale where some of the most effective and targeted restoration occurs. However, facilitating the establishment of strategies, priorities, and schedules for implementing strategies in mixed ownership watersheds can be extremely difficult where differing positions and agendas exist. How does the CCP propose to facilitate the discussion on developing and implementing these strategies at the finer resolution?

P 6. third bullet, *Accountability*, under Key Conservation Commitments: The last sentence states that an Oregon Plan Regional Implementation Team will be responsible for the tracking and preparation of reports described as part of Oregon's adaptive management commitment to this Plan. It is not clear if a Team currently exists or if there is support for a team, what reports will be required, and what is meant by "Oregon's adaptive management commitment to this Plan". Please explain.

P 7. second paragraph under Implementation: There is an inference that the plan will be implemented by adding more effective financial and technical support into the existing voluntary initiatives. It is not clear how or where more "effective financial support" will be attained or how priorities will be set to ensure key projects are implemented. Please explain.

p. 17. the second sentence under Conservation Plan Considers the ESU as Viable: The sentence indicates that populations demonstrate sufficient abundance, productivity, distribution, and diversity to be sustained under a current and foreseeable range of environmental conditions. The bases for this statement are not clear when one considers that 1) the greatest amount stream reaches for highest potential Coho production are on private forest, agricultural and urban lands, which are the dominate sources of non-point pollution; 2) Several thousand stream reaches in the ESU are included on the State's 303(d) list with the majority of the listings caused by temperature violations; and 3) a body of information shows that the Oregon Forest Practice Regulations do not support Oregon water quality standards. Please explain the bases for this statement.

p. 18 Table 3: Table 3 lists conclusions from the 2005 OCCA viability analysis for Oregon Coast Coho at the population, strata and ESU level. While EPA is not providing comments on each geographic stratum, population, or population criteria conclusion, it would appreciate information on how the population criteria conclusion of "PASS" was reached for Tenmile Lake in light of the following information.

DEQ issued the draft Tenmile Lake Watershed TMDL and Water Quality Management Plan for public review. Monitoring has shown that water quality in the Tenmile Watershed does not meet water quality standards and is on the State's 303(d) list for nuisance aquatic weeds and algae problems. The TMDL proposes to address this issue by reducing sources of phosphorus to the lake by reducing sediment inputs.

As part of this study, DEQ also reported that lake productivity is affected not only by inputs from the watershed, but also by biological activity within the lake. Specifically, the altering of fish populations in the lake can promote major changes in the zooplankton community which can in turn alter the grazing rate of phytoplankton. Planktivorous fish such as bluegill feed by sight. Size-selective predation occurs with planktivorous fish preferentially removing the largest zooplankton species. The reduction of large zooplankton, in turn, reduces grazing on phytoplankton which allows phytoplankton biomass to increase. (Page 24, TMDL).

DEQ reported that the current fishery at Tenmile Watershed is dominated by exotic species such as largemouth bass, bluegill, yellow perch and crappie which are all highly planktivorous. Largemouth bass are also very efficient at consuming juvenile Coho salmon which feed on phytoplankton. In addition to preferential grazing impacts, populations of introduced fish can further stimulate phytoplankton growth by increasing nutrient availability via increases in biomass.

This problem has been illustrated most recently in another Oregon lake. To quote from page 25 of the Tenmile Watershed TMDL, "Excessive zooplankton grazing following introduction of the exotic tui chub into Diamond Lake has been identified as the primary mechanism for the deterioration of water quality in Diamond Lake. This recent assessment conducted on Diamond Lake implicates the biomass of exotic fish species as the primary driver of nuisance algae blooms even in the absence of significantly increased upland nutrient loading. (Eilers et. Al., 2001 and 2004)."

Given the above water quality concerns, the CCP should include measures that address the issues that are both troublesome to sustaining Coho salmon and contribute to water quality degradation. The draft plan only identifies predation on Coho from birds and marine mammals as in need of further investigation. It fails to address the issues associated with stocking lakes with predatory fish such as largemouth bass. Tenmile watershed was a significant producer of Coho salmon until the introduction of largemouth bass.

EPA recognizes this is a controversial issue since largemouth bass are a popular sport fish. However, the challenge of restoring the water quality to Tenmile Watershed may not be achievable without a more balanced and cooperative approach between all interests.

p. 20 – the second paragraph under Oregon's Vision for ESU Desired Status: The paragraph lists some characteristics of the ESU, the watersheds, the fish, and the communities that should be observable when the desired status goal is achieved. There is no mention of the water quality conditions, achieving water quality standards, or protecting existing high quality water. Failure to mention water quality seems to infer that the desired status goal can be achieved in the absence water quality conditions that meet water quality standards and support beneficial uses. As stated in our general comments, water quality is a critical component of fish habitat. It is one of the barometers of watershed health. At a minimum, improved water quality should be listed as an observable condition when the desired status goal is achieved.

p. 23, the fourth sentence in the second full paragraph: The fourth sentence states that "These regulatory changes did not completely remediate conditions created by historical practices but have reduced the threat of future impacts". With the existing body of science showing that Oregon Forest Practice Regulations do not support water quality standards, it is not clear to EPA how implementing the FPA reduces the threat of future impacts. (See EPA's general comments). Please explain the basis for this statement.

p. 25, Limiting Factors for Coastal Coho Populations: Water quality is identified as the secondary limiting factor for 15 of the 21 independent populations in the Oregon Coast Coho ESU (Table 4, page 25). However, the importance of water quality is not addressed in this section. Please explain.

p. 26, the first paragraph: This paragraph repeats the CCP's stated position that Oregon will be relying on the existing regulatory programs and non-regulatory cooperative conservation work to achieve the desired status goal for this ESU. While EPA fully supports non-regulatory and voluntary efforts for implementing public health and environmental protection programs, it is concerned that reliance on some of the existing regulatory programs will fall short of attaining the desired status goals. See EPA's General Comment on Use of Enhanced Voluntary Measures and Existing Regulatory Programs for a detailed explanation.
ppgs. 26&27, Prioritizing Conservation Investments in Coast Coho ESU: This paragraph lists many factors to consider in prioritizing conservation investments related to the CCP and achieving the desired status goal for the ESU. The paragraph states that the listed factors would tend to indicate conservation investments that particularly merit funding. The factors are

described in terms of "Work to be done", i.e., "work that will improve viability status of a coho population…". There is no mention of "work" to improve and protect water quality, or "work" to attain water quality standards and support beneficial uses. This seems especially limited since both EPA and DEQ implement a number of grant programs which provide funds to non-regulatory and voluntary entities for watershed restoration projects. These projects are typically water quality focused, but often offer the dual benefit of restoring and improving fish habitat. "Work" on water quality/watershed restoration projects in the Coastal Coho ESU should be mentioned in this section. Please see EPA's General Comment on Water Quality as a Limiting Factor.

Again, we appreciate the opportunity to comment on the draft CCP and would welcome further discussion on our comments with you and others in your agency. If you have questions please feel free to contact EPA representative Alan Henning (541-687-7364).

Sincerely,

M. Socorro Rodriguez, Director
Oregon Operations Office

Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECO-087

Ann Hanus
Assistant State Forester
Oregon Department of Forestry
2600 State Street
Salem, OR 97310

Dear Ms. Hanus:

Thank you for the opportunity to review the draft Riparian Function Issue Paper. An earlier draft of the comments was provided to Jim Paul last week by Dave Powers. Enclosed is a copy of our completed comments. A few additional comments were added to the earlier draft.

Questions on EPA comments should be directed to Dave Powers in our Portland office at(503)326-5874.

Sincerely,

Kenneth D. Feigner
Manager, Forest Team

cc: Jim Paul, w/ enclosure (e-mailed on 11/03/99)

EPA Comments -- Riparian Function Issue Paper
October 29, 1999

Introduction: The EPA appreciates the opportunity to comment on the Riparian Function Issue Paper developed for the Forest Practices Advisory Committee (FPAC). We realize that the Issue Paper is a work in progress and offer our comments to help provide the FPAC with science-based information that can be considered in its deliberations on the Issue Paper and the Oregon Forest Practices Act (OFPA).

General Observations: The Riparian Function Issue Paper bibliography includes a significant number of sources but appears to reach conclusions and make statements which are not consistent with the full body of that literature and other available literature. Additionally, there are several major forestry related reports that are relevant to the Issue Paper that were either not completed in time to include in the Issue Paper or that the authors of the paper may not have had access to. Three reports in particular should be used to develop the next version of the Riparian Function Issue Paper. These reports are extremely important to include because they are: 1) developed by individuals with forestry, riparian, water quality, and fisheries expertise; 2) based on a review of a broad range of the available scientific literature; and 3) directly relevant to forest practices on state and private lands. The three reports are: The September 1999 Independent Multidisciplinary Science Team (IMST) Technical Report 1999-1 "Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and Measures in the Oregon Plan for Salmon and Watersheds"; the June 1999 "Report of the Scientific Review Panel on California forest Practice Rules and Salmonid Habitat" prepared by the Scientific Review Panel; and the April 1999 "Forests and Fish Report" prepared by federal and state agencies, the timber industry, tribes (some) and the Association of Counties in Washington.

Based on the collective body of the best available science, the above reports make specific recommendations regarding riparian protection and landscape scale needs for the respective states' forest practices. The recommendations relevant to riparian and wetland functions in the IMST report are discussed in more detail below. However, all three papers identify the need for a landscape scale or cumulative effects framework, wider riparian management areas (RMAs) and/or higher post-harvest levels of shade and wood within the RMAs, and the need to better address road-related and fish passage issues.

The Riparian Function Issue Paper is misleading in that it may leave the FPAC with the impression that there really is not "conclusive" evidence regarding whether the current OFPA fully protects and restores riparian functions and wetland functions. It is not uncommon for there to be divergent points of view within the body of scientific literature. And rarely, even in controlled laboratory studies, can one measure or make findings with 100% assurance. However, the preponderance of scientific knowledge and evidence indicates that changes to both the OFPA framework (to address landscape scale issues) and individual OFPA provisions (such as RMA, road restoration, and basal area

measures) are needed to protect and restore fisheries and water quality. Oregon's state forest practices are not unique in this respect...Washington and California have either formally proposed or have recommended changes to their respective state forest practices that would better protect and restore riparian functions than either of those states' or Oregon's current forest practices. Also, current forest management requirements on Oregon's federal forestlands, based on the 1993 Forest Ecosystem Management Assessment Team (FEMAT) Report and on PACFISH and INFISH, provide a significantly greater degree of riparian, wetland, and landscape level protection for water quality and fisheries than the OFPA, in large part to meet Clean Water Act (CWA) and Endangered Species Act (ESA) requirements.

The IMST Report (Technical Report 1999-1), which evaluated how well the OFPA is meeting the goals of the Oregon Plan for Salmon and Watersheds, recommends a number of changes to the OFPA as necessary to ensure salmonid recovery. These and other major State and Federal efforts related to forestry in the Pacific Northwest clearly demonstrate that measures, beyond those provided by the OFPA, are needed to fully maintain and restore riparian and wetland functions, meet water quality standards (WQS), and restore fisheries and aquatic habitat. We are encouraged that the Board of Forestry (BOF) is undertaking a review of current forest practices in Oregon and look forward to working with the State as the OFPA is revised to meet Oregon Plan goals and CWA requirements.

Wetlands and other Issue Papers: The full spectrum of silvicultural activities, including activities not covered in the Issue Paper, can affect riparian and wetland functions. Accordingly, the EPA comments on the Riparian Function issue paper apply, where relevant, to the collective set of Forest Practices Act Committee (FPAC) issue papers. Also, the Riparian Function Issue Paper does not expressly address wetland functions. Given the importance of wetlands to water quality, hydrology, and fisheries, EPA recommends that the next version of the Riparian Function Issue Paper also address wetlands. EPA's comments regarding riparian functions in this letter also apply to wetland functions.

"Historic" Conditions of Riparian Buffers: The Riparian Issue Paper estimates that mature forests (older than 100 years of age) covered 50-70% of the region between 1850 and 1940 and that on average 15-25% of the forest in the Central Oregon Coast Range would have been in early successional stages due to fire disturbance. Currently there are 27.5 million acres of forestland in Oregon with almost 40% in private ownership (Oregon Forest Resources Inst. 1999). Mature and old growth forests on private lands in Oregon have been largely cut over so federal lands contain most of the existing mature and old growth forests today (FEMAT 1993). Today there are approximately 4.9 million acres of old growth on forestlands in Oregon and 7.4 million acres of federal forestlands with stands over 100 years in age in Oregon (Oregon Forest Resources Inst. 1999). These estimated totals represent about 18% (old growth) and 27% (mature) of Oregon's 27.5 million acres of forestland, respectively. Since private forestlands contain a far lower proportion of mature and old growth forests than federal forestlands these percentages would be even lower for private forestlands.

Given natural disturbances within the system and the range of conditions that existed historically, the Issue Paper recommends caution in determining the types of buffers that are effective or ideal. We agree that natural disturbance across the region played a role in shaping forest structure, seral class distribution, and the species composition of riparian and upslope stands. However, at the landscape scale forest practices have substantially modified species and age class composition, including within riparian areas (Bisson et. al 1987). As indicated above the amount of mature forest across the State is far lower than it was historically, especially on private lands. The riparian functions provided by mature forests (e.g., large wood inputs, shade, food inputs) are clearly important to salmonid fishery health and water quality (Bisson et. al. 1987, FEMAT 1993, PACFISH 1995, INFISH 1995, Spence et.al. 1996, Eastside DEIS 1997). Habitat degradation has been associated with over 90% of the documented extinctions or declines of Pacific salmon species (Nehlsen 1991). While the "ideal" or most "effective" type of riparian buffer will vary depending on site-potential and landscape scale conditions, this variation does not preclude the need for OFPA measures to limit departure from mature forest stand conditions within riparian areas and other upslope areas that contribute to riparian functions.

Riparian and Wetlands Management Areas: The stated purpose of the ODF's Water Protection Rules at OAR 629-635-100(3) is protecting, maintaining, and where appropriate improving the functions and values of streams, lakes, wetlands, and riparian management areas. Although the timing, location, and intensity of forestry-related activities throughout a watershed can significantly affect water quality, protection of zones adjacent to riparian and wetland areas is a critical component of any legitimate framework for maintaining and restoring water quality and fisheries. In addition, best management practices (BMPs) within riparian zones, along with the full provisions of the OFPA and the CWA, are the legal mechanism for meeting State WQS and fully maintaining beneficial uses (e.g., salmonid spawning, public water supply, shellfish propagation). When monitoring, research, assessments or other information demonstrate that BMPs are not meeting WQS or fully maintaining (or restoring) beneficial uses, BMPs need to be adjusted. The FPAC process provides and important opportunity to adjust the OFPA BMPs. The existing OFPA rules also include a provision for basin specific rule changes that, if used, could enable riparian and wetland function issues relevant to a particular watershed, subbasin, or georegion to be addressed.

Riparian and Wetland Functions: Based on the full body of studies and assessments relevant to forest practices and water quality, the level of wetlands and riparian management area (RMA) protection under the OFPA is not adequate for maintaining riparian and wetland functions (IMST Report 1999, Ligon et. al. 1999, NMFS 1998, Eastside Draft EIS 1997, Spence et. al. 1996, FEMAT 1993). There is a well-established body of science supporting the use of RMAs around streams, lakes, and wetlands to maintain primary and secondary processes and functions related to water quality and fisheries health. These processes or functions include shade for regulating water and air temperatures, large wood delivery, sediment filtering, organic matter inputs, nutrient and mineral cycling, bank stability, flood attenuation, seasonal ground water inputs, and

provision of habitat for riparian, wetland, and aquatic species. Because of the significant influence of vegetation to riparian and wetland functions, there is a solid rationale for using RMA widths equal to site-potential tree heights as an option to or in conjunction with predetermined linear RMA widths (FEMAT 1993, Eastside DEIS 1997). If linear RMA widths are used, they need to be of sufficient size to provide for the above riparian functions. Depending on the size of the water body this distance would need to approach or exceed the height of a site-potential tree to fully provide for many of the above functions. Site potential tree heights for Eastern Oregon range from 90' in high elevation cold forest to 150' in moist forest (Eastside DEIS 1997). In Western Oregon site-potential tree heights exceed those for Eastern Oregon (FEMAT 1993).

In addition to height, riparian vegetation density is also important. Multi-strata vegetation that provides groundcover for sediment trapping and nutrient uptake (both from overland flow sources and overbank flooding), and shading from multiple layers of vegetation (e.g., canopy, understory, and shrub layers) can have a greater effect on the temperature of the air column above the stream and hence, the heat exchange dynamics affecting stream temperature.

The current OFPA RMA widths are substantially narrower than the height of site-potential trees for most size classes of streams and OFPA BMPs do not require retention of overstory trees (except unmerchantable conifers < 6" dbh in three georegions) within RMAs around small non-fish bearing streams. In addition, the removal of a substantial portion of the basal area is allowed within RMAs for all size classes of streams (up to 20' from streams) if basal area targets are met. The OFPA basal area targets for regeneration harvest within RMAs allow the removal of approximately two thirds of the basal area that is estimated for fully stocked mature stands. This seriously compromises riparian and wetland functions and does not ensure that water quality standards will be met. Sensitive beneficial uses, such as salmonid spawning and rearing and domestic water supply are not fully maintained in many areas under the current OFPA rules.

IMST Recommendations: The IMST found that the current OFPA in Oregon "is not sufficient to accomplish the recovery of wild salmonids". Beneficial uses, such as salmonid spawning and rearing, are also part of the State's WQS. We assume that the IMST Report will be used in determining the sufficiency of the current OFPA in meeting CWA requirements. The September 1999 IMST report titled "Recovery of wild Salmonids in Western Oregon Forests: Oregon forest Practices Act rules and the Measures in the Oregon Plan for Salmon and Watersheds" contains a number of recommendations related to Riparian Buffers. Board of Forestry adoption of the IMST recommendations would provide both a higher level of riparian protection and a much higher likelihood that salmonid recovery will occur and that WQS would be met. The IMST recommendations specifically related to riparian and wetland RMAs that can be accommodated within the existing OFPA framework include: 1) treat all classes of non-fish-bearing streams the same as fish-bearing streams with respect to determining buffer-width protection; 2) provide increased protection for 100-year floodplains and islands; 3) increase the conifer basal area requirement and the number-of-trees requirement for

RMAs, with increases in these requirements for both fish and non-fish-bearing streams; 4) complete the study of the effectiveness of rules in providing large wood for the short- and long-term; 5) provide enhanced certainty of protection for "core areas"; 6) retain trees on high risk slopes and in likely debris torrent tracks to increase the potential for large wood transport to streams; and 7) apply current BMPs for forest lands with landslide potential and develop a case history for BMP effectiveness in this area.

Two additional IMST recommendations that could help address current OFPA inadequacies with respect to RMAs, but that may require shifts in the policy framework include: 1) explicitly incorporate the policy objective of the Oregon Plan and Executive Order 99-01 into the OFPA and 2) include landscape scale goals, assessment, monitoring, adaptive management, and coordination in the OFPA's policy framework.

All of the road related IMST recommendations could directly and/or indirectly benefit riparian functions. Two of these recommendations in particular are relevant to riparian functions and, because they are specifically focused on stream/riparian/wetland crossings, have CWA legal implications. The two recommendations are: 1) modify culverts and other structures to permit the passage of juvenile and adult salmonids upstream and downstream at forest road crossings and 2) develop forest road-stream crossing strategies that facilitate the passage of wood downstream. These recommendation clearly have a nexus with riparian functions. In addition, the Clean Water Act, Section 404(f)(1)(E) requires that the discharge of dredge or fill material associated with forest road construction or maintenance: a) not impair flow and circulation patterns and chemical and biological characteristics of navigable waters and b) not reduce the reach of navigable waters. This Section states that in addition to the above two provisions, any adverse effect on the aquatic environment will be otherwise minimized and provides for BMPs including the following baseline provision: "The design, construction and maintenance of the road crossing shall not disrupt the migration or other movement of those species of aquatic life inhabiting the water body." Given this specific CWA requirement and the widespread distribution of anadromous fishes in Oregon it is important to modify the OFPA to ensure that both the intent and substance of the Section 404 provision are met. This includes the need for provisions that protecting wetlands and their associated riparian areas.

Large Wood, Shade, and Temperature: As noted in the Riparian Function Issue Paper large wood (LW) is an important component of salmonid habitat. In addition to providing cover, food substrate, energy conservation and other biological needs of salmonids, LW strongly influences stream morphology and therefore temperature. Water temperature within a stream system is a function of both external factors, such as solar radiation, air temperature, and precipitation/flow and internal factors such as width to depth ratios, connection to ground water, and hyporheic flow (Bilby 1991, Bilby 1998, Ward 1998, Poole and Berman 1999). Forest practices within RMAs affect external factors such as the solar radiation inputs (e.g., by removing shade) as well as internal factors such as width to depth ratios (e.g., by adding or removing LW which affects pool formation and sediment distribution).

The influence of forest practices on some of the external factors such as solar radiation inputs are extensively documented in a large number studies. It is not clear why the Issue Paper indicates that only Caldwell et. al. 1991, Robison et. al. 1995, and Dent and Walsh 1997 are directly or indirectly applicable to the performance of current forest practices and possible temperature effects. A number of additional studies and assessments completed over the last three decades have both direct and indirect relevance to the possible temperature effects of the current forest practices (Lantz 1971, Summers 1982, Hall et. al. 1987, Beschta et. al. 1995, Sucker Grayback TMDL 1999). These studies and assessments document increases in stream temperatures of up to 30 degrees F following regeneration harvest (and burning) in RMAs (Hall et. al. 1987). The timeline for returning to preharvest shade levels varies by zone and forest type with recovery of riparian areas to old-growth shading levels taking from 10 to more than 40 years (Beschta et. al. 1995). It should be noted that recovery of shade around some small streams can be provided by understory vegetation within a few years following harvest. While shade provided by understory vegetation would limit the amount of solar radiation entering a stream, it would not provide other riparian functions, such as delivery of large wood, which also affect stream temperature and habitat quality.

Under the OFPA rules regeneration harvest can occur directly up to a stream's edge on small non-fish bearing streams, and the removal of trees within RMAs can substantially reduce shade and large wood, especially along small and medium streams. The Riparian Function Issue Paper indicates that LW levels in 60% of surveyed streams (2,000miles) on industrial forestland are rated as poor and that large conifer stocking levels in RMAs are poor on 94% of these streams. While factors other than the current forest practices have significantly contributed to these current and future LW deficiencies, some of the current OFPA's RMA widths and basal area targets perpetuate LW deficiencies.

The Riparian Function Issue Paper references studies which indicate that 80% to 99% of on-site LW input potential originates within 100' of streams. The OFPA includes RMA widths for non-fish bearing streams that range from 0 to 70 feet and RMA widths for fish bearing streams ranging from 50 to 100 feet. For all of these stream types the removal of LW can occur within the RMA up to 20 feet (up to 0 feet for small non-fish-bearing streams) from streams provided active management targets are met. About two thirds of the basal area that could be expected in mature stands can be removed from RMAs under the OFPA rules and there are no basal area requirements for small non-fish bearing streams. The retention of additional basal and shade levels within wider RMAs to provide riparian functions is supported by the existing literature (Ligon et. al. 1999, IMST 1999, Forests and Fish Report 1999).

The active management targets under the OFPA, as noted above, would provide substantially less LW than the normal yields from mature stands. For example, small fish-bearing streams have an active management target of 20 square feet of basal area per 1000 linear feet of stream, each side. This equates to retention of about 9 conifers that are 20"dbh (or 2 plus 40"dbh conifers) within a 50 foot wide RMA over a 1000' reach of stream, each side. This number of conifers could be further reduced if specific hardwood basal area and snag conditions are met. Additionally, the OFPA does not provide

measures to ensure that LW upslope of RMAs and adjacent to intermittent streams is retained.

Large Wood Sources: The Riparian Function Issue Paper mentions that McGarry (1994) found about a 50/50 split between transported and non-transported LW in Cummins Creek. While this is important by itself, the next version of the Issue Paper should include the additional significant conclusions from McGarry's study. McGarry found that hillslope processes were important to the creation and persistence of quality habitat along the majority of a stream's mainstem. For example, although fluvially delivered LW (transported) constituted a significant volume of total LW within a system, the majority of that transported volume occurs in aggregations at a few locations. The presence of distributed LW over most of the mainstem was a function of hillslope delivered (non-transported) wood (McGarry 1994). In addition, McGarry found that outside of the few locations that had large aggregations of LW, non-transported wood occurred 87% of the time within Zone 4 (outside of the bankfull width on adjacent hillslopes and floodplains). Large wood within Zone 4 is more likely to persist within the system. It provides an important function of anchoring the portion of LW within the active channel and bankfull width (Robison and Beschta, 1990).

The Riparian Function Issue Paper section on LW sources needs to discuss the implications of riparian and upslope management on sources of LW regardless of whether each source can be specifically quantified. Currently the RMAs for small and intermittent streams, and upslope areas with a high potential for landslide or debris flow, have limited or no requirements for LW retention. This, combined with the lack of a landscape scale analysis requirement in the OFPA, precludes the ability to effectively ensure that adequate LW will be delivered to streams with a resultant effect on both water temperature and the other biological and physical needs of salmonids. The IMST report recommendations described above could help address upslope wood delivery.

Temperature Hypotheses: The Riparian Function Issue Paper states that there are two general hypotheses on stream temperature. While we did not have access to the unpublished consultant's report (Smith 1999) which appears to be source of the two hypothesis theory, EPA and the state water quality agencies have undertaken extensive stream temperature monitoring, modeling, and analyses. These water quality efforts have gone beyond theory, providing actual stream temperature data for many miles of stream systems. The results of these efforts demonstrate major flaws with both of the theories as described in the Riparian Function Issue Paper. Rather than characterizing two "opposing" theories, the Stream Temperature section of the Riparian Function Issue Paper could better inform the FPAC on stream temperature issues by providing a discussion on actual temperature dynamics and how riparian management might affect temperature dynamics.

Temperature Dynamics: The ultimate source of heat energy is solar radiation, both diffuse and direct. Secondary sources of heat energy include long-wave radiation, from the atmosphere and streamside vegetation, streambed conduction and groundwater exchange at the water-stream bed interface. Several processes, such as evaporation, convection and

back radiation, dissipate heat energy at the air-water interface. Stream temperatures increase when the amount of heat energy entering the stream is greater than the amount of heat energy leaving the stream. Cooler ground water inputs and hyporheic flow can reduce stream temperature. Stream temperature is a function of the total heat energy contained in a given volume and can be described in terms of energy per unit volume. This means that high flow streams are less responsive to energy inputs than low flow streams. Because water has a relatively high heat capacity it acts as a heat sink. Heat energy that is quickly gained by a stream is retained and then gradually released back to the surrounding environment. Recent temperature studies indicate that temperatures are quite variable and do not follow either of the two theories described in the Riparian Function Issue Paper (Torgersen et. al. 1999). This variability should not be confused with uncertainty. There are over three decades of research on temperature dynamics that support the fundamental relationships presented below. In addition, recent advances in temperature assessment tools (e.g., forward looking infrared radiation–FLIR) provide continuous spatial coverages of temperatures across large watersheds and subbasins. FLIR data, which is accurate to half a degree F and can be correlated with instream monitors, graphically demonstrates the variability in stream temperatures associated with fluctuations of energy inputs throughout a stream system. The inclusion of FLIR data in the Riparian Function Issue Paper would clearly explain the temperature dynamics of streams to the FPAC.

In general, the net energy flux experienced by all stream/river systems follows two cycles: a seasonal cycle and a diurnal cycle. In the Pacific Northwest, the seasonal net energy cycle experiences a maximum positive flux during summer months (July and August), while the minimum seasonal flux occurs in winter months (December and January). Cloud cover and precipitation can seriously alter the energy relationship between the stream and its environment.

Net Heat Energy can be expressed by the following:

$$\Phi_{total} = \Phi_{solar} + \Phi_{longwave} + \Phi_{convection} + \Phi_{evaporation} + \Phi_{streambed} + \Phi_{groundwater}$$

The heat transfer processes that control stream temperature include solar radiation, longwave radiation, convection, evaporation and bed conduction (Wunderlich, 1972; Jobson and Keefer, 1979; Beschta and Weatherred, 1984; Sinokrot and Stefan, 1993; Boyd, 1996). With the exception of solar radiation, which only delivers heat energy, these processes are capable of both introducing and removing heat from a stream. When a stream surface is exposed to midday solar radiation, large quantities of heat will be delivered to the stream system (Brown 1969, Beschta et al. 1987). Removal of riparian vegetation, and the shade it provides, contributes to elevated stream temperatures (Rishel et al., 1982; Brown, 1983; Beschta et al., 1987). The principal source of heat energy delivered to the water column is solar energy striking the stream surface directly (Brown 1970). Exposure to direct solar radiation will often cause a dramatic increase in stream temperatures. The ability of riparian vegetation to shade the stream throughout the day depends on vegetation height, width, density (both percent closure and layering), and position relative to the stream, as well as stream aspect.

Both the atmosphere and vegetation along stream banks emit longwave radiation that can heat the stream surface. Longwave radiation has a cooling influence when emitted from the stream surface. The net transfer of heat via longwave radiation usually balances so that the amount of heat entering is similar to the rate of heat leaving the stream (Beschta and Weatherred, 1984; Boyd, 1996).

Evaporation occurs in response to internal energy of the stream (molecular motion) that randomly expels water molecules into the overlying air mass. Evaporation is the most effective method of dissipating heat from water (Parker and Krenkel, 1969). As stream temperatures increase, so does the rate of evaporation. Air movement (wind) and low vapor pressures increase the rate of evaporation and accelerate stream cooling (Harbeck and Meyers, 1970).

Convection transfers heat between the stream and the air via molecular and turbulent conduction (Beschta and Weatherred, 1984). Heat is transferred in the direction of warmer to cooler. Air can have a warming influence on the stream when the stream is cooler. The opposite is also true. The amount of convective heat transfer between the stream and air is low (Parker and Krenkel, 1969; Brown, 1983). Nevertheless, this should not be interpretted to mean that air temperatures do not affect stream temperature.

Depending on streambed composition, shallow streams (less than 20 cm) may allow solar radiation to warm the streambed (Brown, 1969). Large cobble (> 25 cm diameter) dominated streambeds in shallow streams may store and conduct heat as long as the bed is warmer than the stream. Bed conduction may cause maximum stream temperatures to occur later in the day, possibly into the evening hours.

The Issue Paper should discuss the implications of the OFPA provisions that affect riparian and upland management to the above processes. Given the physics of stream heating, the focus should be on solar radiation and channel characteristics influenced by large wood. In addition to the discussion on large wood above, the implications of OFPA to reductions in shade levels should be provided. The data and analysis from the CWA Section 319 funded riparian shade study and the results of shade analyses from DEQ TMDL efforts should also be provided in the Issue Paper. A riparian shade calculation effort currently underway in Washington State could also provide information relevant to an Issue Paper discussion on the OFPA and shade levels.

Landscape Scale and Cumulative Effects: The absence of a landscape scale/cumulative effects framework in the OFPA does not ensure consideration of critical broader-scale water quality and fisheries effects related to the timing, location, and intensity of harvest and road related activities. The Oregon Board of Forestry and ODF's 1995 Forestry Program Report for Oregon states that "[T]imber management policy has often been considered on a site-specific basis, without making links to the effects of such management on the forest as a whole—without a "big-picture" or landscape view...Truly "fixing the problem," however, requires a broader approach—an approach that considers

forests as ecosystems that can be carefully managed to achieve a variety of objectives, rather than a collection of resources that can be managed in isolation." (OBF & ODF 1995 pp. 21 and 22). The Board and ODF conclusion is reinforced by numerous other studies (FEMAT 1993, Spence 1996, Eastside EIS 1997, IMST Report 1999, Ligon 1999.)

Because of the proximity to streams riparian activities within RMAs have the greatest potential to adversely affect salmonids. Additionally, upslope activities affect surface erosion, mass wasting, hydrologic processes, and nutrient dynamics and therefore need to be considered (Spence et. al. 1996). "Since streams are tightly linked to the terrestrial landscape they flow through, when reivewing land use practices and their effects on salmonid habitat, it is necessary to analyze impacts on both adjacent and distant components of the landscape. Analysis and adjustment of management practices in riparian forests has received a lot of attention. However, considering the interrelated components of the entire landscape, a similar analysis and adjustment in management practices must occur in upslope forests throughout the watershed." (IMST 1999, p.13).

Adoption of the IMST recommendations detailed earlier in these comments would help address landscape scale issues providing a big-picture or landscape view. Landscape scale approaches, such as the approach used for Augusta Creek (described in FEMAT) and the approach used for the Umpqua Land Exchange analysis, would help ensure that the full range of riparian functions are maintained over time and across the landscape.

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February 28, 2001

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Department of Environmental Quality
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Ted Lorensen
Forest Practices Program Director
Department of Forestry
2600 State Street
Salem, OR 97310

Dear Mr. Pedersen and Mr. Lorensen:

The Environmental Protection Agency (EPA), and the National Marine Fisheries Service and U.S. Fish and Wildlife Service (Services) appreciate the opportunity to review and comment on the December 2000 draft report titled *ODF/DEQ Sufficiency Analysis: Stream Temperature* (SAST) by the Oregon Departments of Forestry and Environmental Quality (ODF and DEQ). The agencies have completed this review (Attachment 1) in order to provide technical assistance to the state of Oregon, and to provide guidance about the adequacy of the state's Forest Practices Act (FPA) for meeting the goals of the Clean Water Act (CWA) with respect to water temperature, particularly as they relate to providing functional freshwater habitat for salmonid fishes listed under the Endangered Species Act (ESA).

The SAST is an "[e]valuation of the adequacy of ...[Oregon's] forest practices act in the achievement and maintenance of water quality standards." The SAST is clearly the product of a great deal of work and presents a significant amount of data. Determining whether the FPA is sufficient to meet the Oregon water quality standards (WQS) for temperature requires examination of the effects of forest practices on stream temperatures to determine if numeric and narrative criteria are being attained, designated beneficial uses (e.g., salmonid spawning and

rearing) are being protected, and antidegradation provisions are being met. Since the "best management practices" under the FPA are used as the legal mechanism for meeting all three components of WQS (attainment of criteria, protection of designated beneficial uses, and antidegradation), our review looks at the SAST data and conclusions within the context of these three components.

Our review of the SAST and the body of scientific literature related to forestry effects on factors affecting water temperature (see Attachment 1) confirms, with a high degree of confidence, that practices under the FPA adversely affect temperature-related factors such as shade levels, surface erosion, landslide rates, stream morphology and substrate, and landscape-scale conditions. Therefore, we concur with ODF and DEQ that "there are water quality impairments due to forest management activities even with FPA rules and BMPs" (SAST, p. 58 and Table 9). Scientific research and temperature assessments completed in Oregon and the Pacific Northwest also indicate that these adverse effects affect water quality and fisheries on small, medium and large streams.

While it is not clear how the stream temperature effects determinations for forest practices were made in the SAST (Tables 5, 6, 7, 8, and 9), shade appears to be the only factor considered. We agree that shade is an important factor for stream temperature, and that the FPA will result in reduced shade and increased stream temperatures in Oregon's streams. However, the SAST also needs to consider the cumulative effects of other temperature-related factors in determining whether the FPA meets the three components of WQS. The SAST also needs to clearly describe the rule set, criteria, or logic used to arrive at the effects determinations in Tables 5, 6, 7, 8, and 9. For example, the determination that FPA basal area targets in riparian areas, which range from zero to less than one third of the basal area found in mature forest, pose a very low to moderate risk of not meeting temperature standards (SAST Table 8) needs to be better explained. Our submittal includes a comparison of riparian protection strategies proposed or in effect under several categories of land ownership in Oregon (see Attachment 2).

The sections related to equilibrium temperature would significantly benefit from a re-examination of the two studies that appear to form the basis for the SAST conclusions regarding forest activity effects on downstream temperature. In addition, the importance of cold water refugia to salmonids and the existing impaired conditions of watersheds should be factored in to any conclusions reached about the significance of downstream effects from forestry activities. The SAST discounts the importance of both site-specific and cumulative effects from forest practices, which is contrary to the scientific literature and extensive temperature assessment efforts completed as part of DEQ's total maximum daily loads (TMDLs) (see Attachment 3).

We realize that it is not possible to determine the exact magnitude of forest practice effects to stream temperature for specific stream reaches in a statewide sufficiency analysis. The evidence is, however, overwhelming that forest practices on private lands in Oregon contribute to widespread stream temperature problems and degraded salmonid habitat conditions. These effects of forest practices do not meet the goals of the CWA or ESA. EPA and the Services are committed to working with ODF and DEQ to ensure that the best available science is used to support the changes to forest practices that are necessary to protect water quality and fisheries. To this end, we would welcome an opportunity to work with you during the Board of Forestry's review of the proposals from the Forest Practices Advisory Committee. Also, the FPA rules

include a provision for basin-specific rule changes that can address water quality issues in a particular watershed, subbasin, or georegion. Based on the substantial body of scientific literature demonstrating that Oregon forest practices likely adversely affect water quality and threatened species of salmonids, we recommend initiation of the basin-specific rule change process.

Please feel free to contact us if you have questions regarding our comments or would like to set up a meeting. We would appreciate your sending us the final version of the SAST.

Sincerely,

Dan Opalski, Director
Environmental Protection Agency
Oregon Operations Office

Kemper McMaster, State Supervisor
U.S. Fish and Wildlife Service
Oregon Fish and Wildlife Office

Michael Tehan, Chief
National Marine Fisheries Service
Oregon Branch, Habitat Conservation Division

Attachments:
Attachment 1: Review of the December 2001 Draft Sufficiency Analysis
Attachment 2: Comparison of Riparian Protection Measures
Attachment 3: TMDL Shade Comparison
cc:
Stephanie Hallock, Director, Oregon Department of Environmental Quality
Melinda Eden, Chair, Environmental Quality Commission
James E. Brown, State Forester
David E. Gilbert, Chair, Oregon Board of Forestry
Peter Green, Governor's Natural Resources Office
Chuck Findley, Acting Regional Administrator, Environmental Protection Agency, Region X
Donna Darm, Acting Regional Administrator, National Marine Fisheries Service, Northwest Region
Anne Badgley, Regional Director, U.S. Fish and Wildlife Service, Region 1

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Attachment 1

Review of the December 2001 Draft Sufficiency Analysis: Stream Temperature (Oregon Departments of Forestry and Environmental Quality)

by the

Environmental Protection Agency, National Marine Fisheries Service, and U.S. Fish and Wildlife Service

February 2001

GENERAL COMMENTS

Introduction

The Environmental Protection Agency (EPA) and the National Marine Fisheries Service and U.S. Fish and Wildlife Service (Services) have reviewed the December, 2000 draft report titled *ODF/DEQ Sufficiency Analysis: Stream Temperature* (SAST) by the Oregon Departments of Forestry and Environmental Quality (ODF and DEQ). The SAST is an "[e]valuation of the adequacy of ...[Oregon's] forest practices act in the achievement and maintenance of water quality standards." Under the Federal Clean Water Act (CWA), state water quality standards (WQS) define the water quality goals of a waterbody by designating the beneficial use or uses to be made of the water, by setting numeric or narrative criteria necessary to protect the uses, and by preventing or limiting degradation of water quality through antidegradation provisions. Determining whether the Forest Practices Act (FPA) is sufficient to meet the Oregon WQS for temperature requires examination of the effects of forest practices on stream temperatures to determine if numeric and narrative criteria are being attained, designated beneficial uses (e.g., salmonid spawning and rearing, and public water supply) are being protected, and the antidegradation provisions are being met. Since the "best management practices" under the FPA are used as the legal mechanism in Oregon for meeting all three components of WQS (attainment of criteria, protection of designated beneficial uses, and antidegradation), our review looks at the SAST data and conclusions within the context of these three components. The agencies have completed this review in order to provide technical assistance to the state of Oregon, and to provide guidance about the adequacy of the FPA for meeting the goals of the Clean Water Act and Endangered Species Act (ESA) related to water temperature.

Portions of the draft are well written and provide useful information related to stream temperature. However, many conclusions and statements in the SAST are not consistent with the general background information provided, related supporting literature, or other available literature. The SAST analysis contains conflicting statements and findings regarding the relative importance of shade and other potential factors (such as erosion and sedimentation, channel widening, loss of large wood, reduction in upwelling, disturbance or alteration of groundwater, and microclimate). Throughout most of this analysis, shade appears to be generally assumed as the only important factor concerning stream temperatures and attaining WQS. The SAST considered only shade, stream temperatures, and attainment of numeric, fixed temperature targets, rather than how forest practices affect the suite of temperature-related factors relevant to riparian and stream channel functions that are critical to supporting designated beneficial uses such as salmonid spawning and rearing. While several sections in the SAST recognize

the importance of factors other than shade, these sections do not appear to be considered in the final findings and effects determinations. For example, shade alone is analyzed with respect to basal area and is the only temperature-related factor substantively discussed in the context of FPA buffer widths. Therefore, it appears that many of the SAST conclusions regarding risk of temperature changes from forest practices for all stream designations may be understated, due to this analytical approach.

It is very difficult to interpret some of the data and figures in the SAST (e.g., p. 38 - 53). The conclusions and risk ratings (p. 57-58) do not appear to flow directly from the data that are presented in the draft analysis (Figures 14-18). For example, there are no data presented in the analysis to support the contention that large streams would not experience temperature increases or that large streams are "likely to be influenced only by legacy effects" from past management practices. However, based on the full body of science we reviewed, we concur with the SAST finding that there are water quality impairments due to forest management activities, even with FPA rules and best management practices (SAST Table 9, p. 58). We also support ODF and DEQ use of the basin rule change process to create watershed specific protection rules to ensure that forest management activities do not impair water quality (SAST Table 9, p. 58).

Statewide Forest Practice Analyses

The SAST appears to rely almost exclusively on data from 28 monitoring sites along 7 streams in western Oregon in its sufficiency findings. While data from these sites do confirm that forestry activities increase stream temperatures, the FPA sufficiency determinations should also utilize other scientific reports that evaluate the adequacy of forest practices in Oregon and California. These reports: 1) were developed by individuals with forestry, riparian, water quality, and fisheries expertise; 2) are based on a review of a broad range of several hundred research and monitoring efforts; and 3) are directly relevant to forest practices on private lands. Relevant reports include IMST (1999), Ligon et al. (1999), Beschta et al. (1995), Botkin et al. (1995), and Murphy (1995).

Based on the collective body of the best available science, the above reports make specific recommendations regarding riparian protection and landscape scale needs for the respective states' forest practices. These reports identify the need for increased riparian management area protection for salmon and water quality. The IMST report (IMST 1999), which evaluated how well the FPA is meeting the goals of the Oregon Plan for Salmon and Watersheds, specifically looked at FPA adequacy for salmon recovery. It recommended a number of changes to the FPA as necessary to ensure salmonid recovery. The Oregon Forest Practices Advisory Committee (FPAC) developed recommendations that, while not based on meeting CWA and ESA requirements, would improve water quality and fishery protection through voluntary measures and FPA rule changes. The State of Washington recently adopted forest practice rules that increase protection for water quality and fisheries substantially beyond the level provided by the FPA.

Some of the SAST determinations are misleading, leaving the reviewer with the impression that there really is not "conclusive" evidence regarding whether the FPA rules and BMPs increase stream temperatures or fully protect designated beneficial uses at the statewide level. Part of the problem is the SAST's reliance on incomplete data from a limited number of specific monitoring sites to make a statewide determination. Data from individual sites may or may not show significant shade and temperature changes from forestry activities. This is especially true where factors such as changes in ground water inputs, yearly temperature variation, forest conditions in the upper watershed, changed channel morphology, and various other site-specific conditions are not considered in the studies. Questionable site-specific measurements may also be misleading (e.g., short-term shade level increases after harvesting, Figure 19). At the broad scale, the preponderance of existing scientific knowledge and evidence indicates that forest practices under the FPA are likely to adversely affect the factors that elevate stream temperatures, contributing to WQS violations and adverse effects to beneficial uses such as salmonid spawning and rearing.

Landscape Scale and Cumulative Effects

The FPA lacks a landscape scale/cumulative effects framework that would ensure consideration of critical broader-scale water quality and fisheries effects related to the timing, location, and intensity of harvest and road related activities. The Oregon Board of Forestry (OBF) and Oregon Department of Forestry (ODF) 1995 Forestry Program Report for Oregon states that "[T]imber management policy has often been considered on a site-specific basis, without making links to the effects of such management on the forest as a whole—without a "big-picture" or landscape view... Truly "fixing the problem," however, requires a broader approach—an approach that considers forests as ecosystems that can be carefully managed to achieve a variety of objectives, rather than a collection of resources that can be managed in isolation" (OBF & ODF 1995). This conclusion is reinforced by numerous other studies and assessments (FEMAT 1993, Botkin et al. 1995, Murphy 1995, National Research Council 1996, Spence et al. 1996, Quigley and Arbelbide 1997, IMST 1999, Ligon et al. 1999.)

Because of their proximity to streams, riparian activities have a high potential to adversely affect salmonids and water quality. However, upslope forestry activities affect surface erosion, mass wasting, hydrologic processes, and nutrient dynamics and therefore need to be considered in determining fish habitat and water quality effects (Spence et. al. 1996). Further, the IMST (1999) pointed out that:

> Since streams are tightly linked to the terrestrial landscape they flow through, when reviewing land use practices and their effects on salmonid habitat, it is necessary to analyze impacts on both adjacent and distant components of the landscape. Analysis and adjustment of management practices in riparian forests has received a lot of attention. However, considering the interrelated components of the entire landscape, a similar analysis and adjustment in management practices must occur in upslope forests throughout the watershed (p.13).

The IMST report also states that "[t]he historic range of ecological conditions in the Pacific Northwest, both of habitat and salmonid stocks, is important because it provides a framework for developing policy and management plans for the future." The IMST report concludes "that the goal of management and policy should be to emulate (not duplicate) natural processes within their historic range." The SAST (p. 28) suggests that riparian buffers designed to maintain physical habitat may result in average shade levels that exceed historic shade levels and result in less productive salmon habitat. While this could be true for a single or several specific sites, the SAST discussion on disturbance is misleading if the landscape scale is considered. Natural disturbance across the region played a significant role in shaping forest structure, seral class distribution, and the species composition of riparian and upslope stands. However, at the landscape scale, forest practices have substantially modified vegetation species and age class composition, including within riparian areas (Bisson et al. 1987, Botkin et al. 1995, National Research Council 1996, Oregon Coastal Salmon Restoration Initiative [OCSRI] 1997, Quigley and Arbelbide 1997).

The Riparian Issue Paper developed as part of the FPAC process estimated that mature forests (older than 100 years of age) covered 50-70% of the region between 1850 and 1940, and that on average 15-25% of the forest in the Central Oregon Coast Range would have been in early successional stages due to fire disturbance. Private lands where the FPA is applied have been largely cut over, resulting in many watersheds having a very small component of mature forest (Lorensen et al. 1994, FEMAT 1993). The FPA tree retention requirements within riparian management areas (RMAs) represent the only substantial opportunity for mature forest regeneration on private lands at the landscape scale. Depending on stream density and fish presence, RMAs under the FPA constitute approximately 2% to 9% of the total acreage within a watershed. Depending on the stream type and size, the FPA rules for regeneration harvest allow the removal of two-thirds to essentially all of the existing mature riparian forest (basal area) within RMAs, provided minimal tree retention requirements are met. The basal area retention targets are far

below the level expected in mature forest. In the Coast Range, for example, 100 $ft^2 ac^{-1}$ is the standard basal area target for large fish bearing streams while mature forest would generally contain at least 332 $ft^2 ac^{-1}$. Standard basal area targets are substantially lower for medium and small stream RMAs, ranging from zero to 75 $ft^2 ac^{-1}$. Outside of RMAs (> 90% of the total acreage in a typical watershed) even lower amounts of mature forest would be retained under the FPA.

A 1995 temperature study on the Olympic Peninsula looked at the relationship between landscape-scale forest conditions and stream temperatures (Hatten and Conrad 1995). Temperatures of 11 streams in unmanaged sub-basins (less than 15% of the mature forest in the sub-basin logged and no harvest within the riparian corridor) and 15 streams in managed sub-basins (more than 15% of forest logged, or harvest had occurred within riparian corridor) were monitored continuously during the summer of 1992. Water temperatures in the managed group were significantly warmer than in the unmanaged group. The difference was not explained statistically by elevation or the amount of shade in the monitored reach. Among sites with similar shade levels, those in managed sub-basins had warmer temperatures than those in unmanaged sub-basins. The most important predictor of temperature was the proportion of the sub-basin in late seral stage forest, regardless of whether the basin was managed or unmanaged. This indicates that the proportion of late-seral stage forest in a sub-basin could represent a surrogate for the cumulative effects of logging activities within a sub-basin. The study concludes that stream temperatures cannot be successfully managed at the reach level unless basin-wide harvest activities are carefully considered.

Shade

The influence of forest practices on shade and stream temperatures is extensively documented in a large number of studies. The SAST appears to rely heavily on studies by Caldwell et. al. (1991) and Dent and Walsh (1997) in reaching conclusions about the effects of the FPA on shade and stream temperature. These studies provide some insights, but, as discussed below, have some significant problems. The SAST conclusions and sufficiency determinations should consider a number of additional studies and assessments completed over the last three decades that address shade and stream temperature (Lantz 1971, Summer 1982, Hall et. al. 1987, Beschta et. al. 1995, DEQ 2000, DEQ 2001a, DEQ 2001b, §319 ODF-DEQ shade study). Some of these studies document increases in stream temperatures of up to 30 degrees F following regeneration harvest (and burning) in RMAs (Hall et. al. 1987). The timeline for returning to pre-harvest shade levels varies by zone and forest type with recovery of riparian areas to old-growth shading levels taking from 10 to more than 40 years (Beschta et. al. 1995). While shade around some small streams can be provided by understory vegetation within a few years following harvest, understory vegetation does not provide large wood, or attenuate landslides, sedimentation rates, hydrologic regimes, and air temperature in a manner similar to mature forest. These factors are relevant to stream temperatures and protection of beneficial uses (e.g. salmonid spawning and rearing) as discussed in the next section.

The CWA §319-funded Shade Study (discussed in Appendix E of the SAST) was expressly designed to "[m]onitor the effectiveness of the Forest Practices in providing a range of shade conditions that are predicted to meet DEQ Standards for water quality" (§319 Shade Study Statement of Work). The ODF application for the §319 grant specifically focused on the need to 1) provide data to test the validity of shade targets developed in total maximum daily loads (TMDLs) and 2) determine the effectiveness of FPA basal area requirements in maintaining shade levels that meet TMDL shade targets. ODF took extensive shade and basal area measurements from 122 riparian management areas within recently harvested and "other" (not recently harvested) sites. Sites could not be randomly selected due to harvest timing, land owner willingness, and other factors. Basal area levels retained on recently harvested sites were in many cases significantly higher than FPA rule requirements. In spite of this, the quality of data from the 319 shade study is very sound and the data strongly validate the site-potential shade targets in DEQ TMDLs. Shade levels from the study track very closely with TMDL site potential shade targets (Attachment 3).

The shade study also demonstrates a significant difference between harvested sites and "other" sites both in terms of shade levels and the variability of shade levels for the two populations of sites. Median shade levels for harvested sites were 6.5% to 21.5% lower than shade levels on "other" sites when stratified by stream size (large, medium, small). For each of the stratified stream size data sets, 70% to 100% of the "other" sites had shade levels that were higher than the median shade level of the harvested sites. Pre-harvest basal area and shade measurements would have been necessary to determine exactly how much FPA harvest reduced basal area and shade. Harvest down to the standard FPA basal area targets would also be needed to test the full effects of applying the FPA requirements. Regardless, the shade study clearly demonstrates that there is high likelihood that the FPA requirements will reduce shade significantly below site-potential shade levels. Meeting the site-potential shade targets in TMDLs is necessary to meet the WQS for temperature in Oregon. This should be factored into the SAST sufficiency determinations.

Downstream Effects - Re-equilibrium

DEQ has completed subbasin-scale temperature analyses for several TMDLs. The TMDL temperature analyses incorporate extensive temperature, stream channel morphology, vegetation and shade information for entire subbasins. Forward looking infrared radiation technology accurate to within 0.5° C, dozens to several hundred instream temperature monitors per subbasin, 1-m resolution digital orthophotos, and hundreds of shade measurements taken with solar pathfinders are used in the DEQ temperature analyses. The DEQ analyses clearly demonstrate that stream temperature changes within a subbasin are cumulative in nature and that a number of factors such as shade, stream channel morphology, flows, and tributary/groundwater inputs cause changes in stream temperatures. The SAST (p. 26) provides the temperature profiles for the Grande Ronde, Umatilla and Tualatin rivers. These profiles clearly demonstrate the cumulative effects of stream heating and cooling at the subbasin scale. As noted above, under the FPA over 90% of private forest lands in a watershed receive very minimal protection. Shade, slope and bank stability, erosion levels, air temperatures, and large wood levels can also be adversely affected on the remaining 2% to 9% of the watershed with RMAs under the FPA. The DEQ TMDLs clearly demonstrate that the impacts of forestry and other land and water use practices can overwhelm stream heating and cooling processes throughout a watershed.

The SAST relies heavily on Caldwell et al. (1991) to dismiss the risk of cumulative downstream temperature impacts. This study states that "As long as there is at least a 150-m shaded reach between these streams where the canopy has been removed, there is minimal risk of cumulative downstream temperature impact (Caldwell et al. 1991)." The authors indicated that the re-equilibration of stream temperature would occur over a 150-m reach, which would represent one hour's travel time. This is approximately 0.14 ft sec^{-1}. A reasonable stream flow velocity during a low flow period would be 1.0 to 2.0 ft sec^{-1} with a resultant one-hour distance of 1,100 to 2,200 m. This is ten times the estimation by Caldwell et al. (1991). Even if their assumption were correct, further assumptions that there are sufficient groundwater inputs and substantial hyporheic interactions would be necessary to bring down the water temperature.

Just as importantly, Caldwell et al. (1991) looked at water temperatures downstream of unshaded reaches which entered reaches whose riparian zones were already degraded. The downstream comparison to a mature forest that contained some conifers was only done in one case. Measurements of re-equilibration were made along "control" reaches having artificially high stream and air temperatures. Heat energy that is quickly gained by a stream is retained and then gradually released back to the surrounding environment because water has a relatively high heat capacity. Given the forest conditions and flawed assumptions described above, Caldwell et al. (1991) provides little insight into the temperature regimes and dynamics provided by undisturbed forests.

The SAST also appears to rely heavily on data from one or more ODF monitoring efforts and technical reports. While the ODF monitoring efforts clearly show overall decreased shade levels and increased stream temperatures, there are significant questions about the methods and outcomes of these efforts (see page-specific comments below). For example, shade levels increased on two small streams, two large streams, and three medium streams after harvest in the riparian zone. It is not clear how this would be possible, especially over the short term. The SAST provides no clear statement of the sampling design, comparability or representativeness of selected field sites, or details of the particular field methods they used for gathering information on the characteristics of temperature in various streams. It is not clear whether the BMP effectiveness determinations are relying on the broad body of science related to forestry and stream temperature, a small number of studies, or whether the data cited is solely from the 1997 study by Dent and Walsh. The sample size apparently used seems small (n = 7 different streams) for extrapolating results broadly, and the sites are not necessarily comparable given the absence of geomorphic stratification for the sites, either before or after selection. It is not clear whether climatic factors such as seasonal temperatures, summer-time precipitation, snowpack and snowmelt influences, or others factors affected observed outcomes.

There are also questions about comparability among treatments in the different treated sites and whether they actually reflect the "maximum" riparian harvest allowed under the FPA. It not clear whether the condition of "untreated" downstream riparian areas as well as riparian areas upstream of the treatment sites were mature forest. If mature forest conditions were not present above and below treated (harvested) riparian areas, stream temperatures entering treated sites may be warmer than "normal" and the benefits of riparian areas to stream temperatures below treated sites may be less than expected for riparian areas in mature forest condition. The above factors could cause a substantial under representation of the adverse effects of harvest in riparian zones to stream temperatures.

Other Factors Affecting Temperature

Water temperature within a stream system is a function of both external factors, such as solar radiation, air temperature, and precipitation/flow, and internal factors such as width to depth ratios, connection to ground water, and hyporheic flow (Bilby 1991, Bilby 1998, Ward 1998, Poole and Berman 2000). Forest practices can affect external factors (e.g., by removing shade) as well as internal factors (e.g., by adding or removing large wood, which affects sediment routing and pool formation).

The riparian and upland functions provided by mature forests are clearly important influences on habitat structure (particularly provision of key pieces of large wood; Ralph et al. 1994, Abbe and Montgomery 1996, Bilby and Bisson 1998), water quality, and salmonid fishes (Bisson et. al. 1987, FEMAT 1993, Spence et al. 1996, Quigley and Arbelbide 1997). Habitat degradation has been associated with many of the documented extinctions or declines of anadromous and resident salmonid fishes in the Pacific Northwest, including Oregon (Nehlsen et al. 1991, FEMAT 1993, Henjum et al. 1994, Botkin et al. 1995, Independent Scientific Group 1996, National Research Council 1996, OCSRI 1997, Quigley and Arbelbide 1997). As noted above, the distribution of mature forest on private lands is extremely limited and significantly departs from historic levels. This condition impacts numerous factors related to stream temperature. As the draft SAST indicates, stream channel morphology is an important determinant of water temperature. As streams become wider and shallower, with fewer and shallower pools and fewer connections to floodplains and groundwater, they become more susceptible to warming. The SAST includes only a brief mention of bank stability (p. 30) and sediment dynamics (p. 31), and does not relate bank stability or sediment to forest practices. As described below, forest practices that affect large wood recruitment, sediment yield, storage, and routing also affect channel morphology. This needs to be considered in evaluating the adequacy of the FPA in achieving and maintaining water temperature standards.

Sedimentation and lack of current and potential large wood are key factors degrading fish habitat in western Oregon (FEMAT 1993, OCSRI 1997). Thom et al. (1999) describe results of a survey of

randomly-selected sites in western Oregon in 1998. Survey sites were compared with reference reaches located mainly in unmanaged watersheds and wilderness areas, primarily in the upper portions of watersheds and on Federal lands. The areal extent of silt and sand on the surface of low gradient riffles was selected to typify potential accumulation of fine sediments in a stream. All of the areas had higher fine sediment levels than the reference reaches. Over 70% of the sites surveyed in the North Coast area had over 20% fine sediments in low gradient riffle units. The number of riparian conifers observed also differed markedly from the reference reaches. All of the areas showed low conifer numbers compared to reference reaches, with over 30% of the stream lengths surveyed having no large conifers in the riparian zone. The numbers of pieces of wood in the stream in survey reaches were similar to those in reference reaches. However, the number of key pieces of wood (over 10 m length, 60 or more cm diameter) in survey reaches was lower than reference reaches, with 50% of the stream length surveyed in each basin having less than 1 key piece per 100 m of stream channel (compared with the median value for reference reaches of 1.8 key pieces per 100 m of stream channel).

Large Wood

As noted in the SAST, large wood is an important component of salmonid habitat. In addition to providing cover and structural complexity, large wood strongly influences sediment storage, pool frequency, and pool volume (Bisson et al. 1987, Bilby and Bisson 1998). Large wood in streams has been reduced through a variety of human activities that include past timber harvest practices and associated activities, as well as the mandated cleanup activities that removed wood from streams throughout the region from the 1950s through the 1970s (FEMAT 1993, Botkin et al. 1995, Bilby and Bisson 1998). On forested lands in the Oregon Coast Range, non-random surveys conducted by the Oregon Forest Industries Council indicate that only 17% of the area's stream miles are at "desirable" levels (as defined by ODFW) for large wood pieces/mile, and that only 23% are in a "desirable" condition for large wood volume (OCSRI 1997). Large riparian conifers are at desirable levels along less than 1% of the streams on industrial and non-industrial private forest lands (OCSRI 1997).

Forest management activities within a distance equal to one site-potential tree height of streams (approximately 170 to 240 feet for mature conifer trees west of the Cascades, FEMAT 1993) have the potential to change the distribution, size, and abundance of large wood available for recruitment into streams (Hicks et al. 1991, Ralph et al. 1994, Murphy 1995, Spence et al. 1996). Because large wood recruitment potential declines rapidly moving away from the stream, a buffer of 100 feet includes about 80-98% of streamside large wood recruitment potential, depending on stand age and other factors (McDade et al. 1990, Van Sickle and Gregory 1990). The FPA includes RMA widths for non-fish bearing streams that range from 0 to 70 feet, and RMA widths for fish-bearing streams that range from 50 to 100 feet. For all of these stream types the removal of riparian treees can occur within the RMA to within 20 feet of streams (or within 0 feet for small non-fish-bearing streams). About two thirds of the basal area that could be expected in mature stands can be removed from RMAs under the FPA rules, and there are no basal area requirements for small non-fish bearing streams in the Coast Range and western Cascades.

Additionally, the FPA does not provide measures to ensure that potential large wood from unstable areas upslope of RMAs and adjacent to small non-fish streams is retained. Landslides and debris flows traveling down small steam channels can be important sources of large wood for fish-bearing streams in the Oregon Coast Range (McGarry 1994). McGarry (1994) found that about half of the large wood in Cummins Creek had been fluvially-delivered (transported), and determined that hillslope processes were important to the creation and persistence of quality habitat along the majority of a stream's mainstem. In addition, McGarry (1994) found that outside of the few locations that had large aggregations of large wood, non-transported wood occurred 87% of the time outside of the bankfull width on adjacent hillslopes and floodplains. Large wood within this area is more likely to persist within the system, and provides an important function of anchoring the portion of large wood within the active channel and bankfull width (Robison and Beschta 1990). Other studies examining riparian zone wood recruitment

have purposely avoided stream reaches recently affected by landslides, or acknowledged the inability to account for the origin of about half the wood found in small stream channels (Van Sickle and Gregory 1990, McDade et al. 1990).

The SAST section on large wood sources needs to discuss the implications of riparian and upslope management on sources of large wood, regardless of whether each source can be specifically quantified, and the attendant effects on stream temperature and salmonid habitat. The FPA rules and practices do not ensure adequate recruitment of large wood from RMAs, unstable areas, or debris flow paths (Botkin et al. 1995, Murphy 1995, IMST 1999).

Sediment and Landslides

Log yarding and subsequent prescribed burning activities can increase soil exposure, runoff, and surface erosion, particularly when soils are compacted (Sullivan et al. 1987, Chamberlin et al. 1991). Removal of riparian trees can reduce bank stability, thereby increasing sediment delivery (Sullivan et al. 1987, Gregory et al. 1991). Large wood in small headwater streams retains sediment by forming depositional areas and dissipating energy (Bisson et al. 1987, Sullivan et al. 1987, Bisson and Bilby 1998). Sediment yields from headwater channels were greatly influenced by channel storage provided by large wood (Swanson and Fredriksen 1982). Without abundant channel storage elements, virtually all of the sediment entering a channel was routed downstream, while a channel with many storage sites from large wood only routed about 10% of the delivered sediments annually. Large in-channel wood also delays surface water passage, allowing it to be cooled by mixing with ground water (Bisson et al. 1987).

Clearcut logging on unstable landforms increases landslide frequency (Swanston and Swanson 1976, Sidle 1985, Swanston 1991, Robison et al. 1999). Based on an investigation of three streams in the Oregon Coast Range, Reeves et al. (1995) concluded that under a natural disturbance regime, periodic inputs of coarse sediment (boulders, cobble and gravel) and large wood in landslides may help create productive salmonid habitat, as these materials can be depleted in stream channels over long periods of time. However, landslides originating from harvested hillslopes, and debris flows that travel along stream channels where trees have been removed by harvesting, will deliver primarily sediment rather than large wood to streams (Hicks et al. 1991, Reeves et al. 1995). The FPA rules and practices do not preclude road construction or logging on unstable slopes or along debris flow paths, except where human life and property are at risk. The SAST sufficiency determinations should address the effects of the FPA on landslide rate and composition, sediment delivery, stream morphology, and temperature.

Road Effects

Construction of a road network can greatly accelerate erosion rates and sediment yield in a watershed (Haupt 1959, Swanson and Dyrness 1975, Swanston and Swanson 1976, Beschta 1978, Gardner 1979, Furniss et al. 1991, FEMAT 1993). Cederholm et al. (1981) reported that the percentage of fine sediments in spawning gravels increased above natural levels when more than 2.5% of a basin area was covered by roads.

On unstable slopes, road construction or improper maintenance can greatly increase landslide rates relative to undisturbed forest (Swanson and Dryness 1975, Swanston and Swanson 1976, Furniss et al. 1991, Robison et al. 1999), delivering large pulses of sediment to streams. Unpaved road surfaces continually erode fine sediments (Reid and Dunne 1984, Swanston 1991). Road networks can intercept, divert, and concentrate surface and subsurface water flows, providing a direct conduit for sediment into streams (Hauge et al. 1979, Furniss et al. 1991, Wemple et al. 1996). Stream crossing fills can also be a source of sedimentation, especially if culverts fail or become plugged with debris (Furniss 1991, Murphy 1995). Roads built near streams often eliminate part of the riparian vegetation (Furniss 1991), reducing large wood recruitment and shade, and may disconnect streams from floodplains and groundwater sources of cold water.

Reduction in large wood recruitment, increased landslide rates and sediment yield, more efficient sediment routing, and reduced bank and channel stability from logging, road construction, and road use can combine to make streams wider and shallower, with fewer and shallower pools (Sullivan et al. 1987, Swanston 1991, Furniss 1991, Gregory et al. 1987, Hicks et al. 1991). Such streams are more susceptible to warming. The FPA rules do not provide adequate measures to address the above sediment-related factors. The SAST sufficiency determinations should address these factors given their relationship to stream temperature.

Water Quality Standards and FPA Goals and Purpose

The stated purpose of ODF's Water Protection Rules at OAR 629-635-100(3) is protecting, maintaining, and where appropriate improving the functions and values of streams, lakes, wetlands, and RMAs. Protection, maintenance, and improvement of these functions and values is largely dependent on the total acreage within RMAs and the types, intensities and frequencies of forest management activities, both inside and outside of the RMAs. RMA width and tree retention requirements are key determinants of riparian functions that can affect stream temperature, such as shade, large wood recruitment, erosion control, and moderation of microclimate. The RMAs are, therefore, critical to meeting water quality standards. Based on an analysis of RMAs required under Federal, state, private, and tribal forest practices, the FPA provides inadequate protection of RMAs and the attendant functions and values they provide for Oregon's streams, lakes, and wetlands (see Attachment 2). The SAST validates the findings of the IMST that the FPA "is not sufficient to accomplish the recovery of wild salmonids" (IMST 1999).

The SAST and other studies and assessments indicate that forest practices under the FPA rules likely contribute to violations of Oregon's numeric water temperature criteria, and of the criteria at 340-041-0205(2)(b)(A) that are intended to implement the state's antidegradation policy and to protect threatened salmonids in Oregon[1]. When monitoring, research, assessments or other information demonstrate that practices under the FPA rules do not meet WQS, the rules need to be revised. The rules could be revised so that practices fully meet WQS and provide functional habitat for ESA-listed fishes during the BOF's consideration of the FPAC proposals. Also, the FPA rules include a provision for basin-specific rule changes that can address water quality issues in a particular watershed, subbasin, or georegion. Based on the substantial body of scientific literature demonstrating that Oregon forest practices likely adversely affect water quality and threatened species of salmonids, we recommend initiation of the basin-specific rule change process.

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[1]To accomplish the goals identified in OAR 340-041-0120 (11), unless specifically allowed under a Department-approved surface water temperature management plan as required under OAR 340-041-0026(3)(a)(D), no measurable surface water temperature increase resulting from anthropogenic activities is allowed:

(i) In a basin for which salmonid fish rearing is a designated beneficial use, and in which surface water temperatures exceed 64° F (17.8 ° C);

(iii) In waters and periods of the year determined by the Department to support native salmonid spawning, egg incubation, and fry emergence from the egg and from the gravels in a basin which exceeds 55° F (12.8° C);

(iv) In waters determined by the Department to support or be necessary to maintain the viability of native Oregon bull trout, when surface temperatures exceed 50° F (10.0° C);

(vi) In stream segments containing federally listed Threatened and Endangered species if the increase would impair the biological integrity of the Threatened and Endangered population.

PAGE-SPECIFIC COMMENTS

The location of the referenced text in the specific comments is by page number and paragraph from the SAST.

Page 4, Paragraph 5

Last sentence, add timing of rearing of bull trout and cutthroat trout. Bull trout may rear in stream gravels for 220+ days out of 365.

5, 3 Sentence 3. Last sentence should read: "Riparian buffers of roughly 30 m (100 ft) are generally acknowledged in the scientific literature as minimum for protection of many riparian functions."

5, 4 The second sentence should identify the "various results" being referred to.

P. 6-10 This section of the Executive Summary is based on the main text of the document. Comments on the main text provided below also apply to the Executive Summary as appropriate.

13, Chart 1. The analysis decision tree in Chart 1 (left arm, third tier down) is flawed in cases where the current effects of BMPs are masked by past practices (legacy effects). This approach will fail if the legacy effects mask the new effects enough so that statistically significant findings can not be reached.

14 In general, this section should rely on a broader range of literature, and should more thoroughly describe the potential sublethal effects of water temperature on salmonids, since those effects likely are more prevalent than lethal effects in forested landscapes. Also, we disagree with the implication that only summer maximum temperatures are of concern. Stream temperatures in late summer or early fall, while occurring after the summer maximum, may be warm enough in managed landscapes to adversely affect salmonids that hold and spawn at that time (such as spring chinook in the Grande Ronde, Imnaha, John Day, Willamette, and Rogue River basins; Lichatowich et al. 1993, Myers et al. 1998). Another consideration outside of the summer maximum period is temperatures during out-migration and smoltification. Temperatures must be cooler than the Oregon rearing standard to fully support the outmigration of steelhead, spring chinook, and coho salmon, which occurs in spring and summer (Bell 1991, DEQ 1995, Weitkamp et al. 1995, Spence et al. 1996). Spring chinook require temperatures of 3.3-12.2°C for smoltification and outmigration (DEQ 1995). The preferred smoltification temperature range for coho salmon is 12.0-15.5°C (Brett et al. 1958). The upper limit for parr-smolt transformation and out-migration of steelhead trout is in the range of 11.3 to13.0°C (Zaugg and McClain 1972, Adams et al. 1975, Zaugg and Wagner 1973, Zaugg 1981, McCullough 1999). DEQ (1995(b)) states "It is recommended for all salmonids that temperature not exceed 54°F (12.2°C) to maintain the migratory response and seawater adaptation in juveniles..." If spring temperatures are too high, salmon smolts will revert to a pre-smolt physiology and remain in fresh water (Spence et al. 1996, McCullough 1999).

14, 1-2 Information for steelhead and cutthroat trout needs to be included in this discussion. Summer steelhead in Oregon enter freshwater from spring to summer and hold until spawning in late winter or spring in the following year (Busby et al. 1996). Incubation of eggs and fry may extend into summer for a number of steelhead stocks including Lower Columbia River steelhead, Middle Columbia River steelhead, and Snake River steelhead (Howell et al. 1985, Busby et al. 1996). The rearing period for all of these stocks, as well as other steelhead populations, includes the summer.

14 Footnote 3. We would appreciate an opportunity to review a draft of Dr. Danehy's work on thermal requirements of bull trout.

15, 3 Some important sublethal effects are not mentioned in this section. Temperatures above 15.6-17.8°C (60-64°F) can contribute to increased pre-spawning mortality; out-migration from unsuitable areas; increased disease virulence; reduced disease resistance; and delay, prevention or reversal of smoltification (Berman 1990, Marine 1992, DEQ 1995, McCullough 1999).

15, 4 If there is a direct connection between the lethal limits in Table 2 and the State's temperature standard, this connection should be made clearer.

20, 5 Stream channel widening can also be an important heating factor. This should be discussed and integrated into the final analysis.

23, Figure 5. It is not clear what the black boxes with arrows to the lines refer to.

23, 3 The last paragraph should be used to summarize the data provided in Figure 5 (e.g., what is happening to both curves at width=100 ft.), rather than to present a hypothetical example of something that is not shown in the Figure.

25, Figure 7. Note that the state water quality standard for bull trout (from Table 1, p. 14) is considerably below the recorded temperature values in both stream segments. Thus, neither of these stream segments would support bull trout spawning, egg incubation, or emergence. It would be helpful if the figures were summarized or interpreted, and related to something that is biologically meaningful if possible.

25,3 The SAST lists five primary factors controlling stream temperature, then appears to only consider shade in the SAST determinations.

26, The x-axis of figures 8 and 9 is not readable.

27, 2 Suggest modification of sentence 4 to "Floodplain roughness is increased by riparian vegetation which slows stream velocities and increases retention time of water on the floodplain while reducing local shear stresses and bank erosion."

28, 3 Sentence 2. The SAST should avoid sentence constructions/phrases such as "some argue" or "various results". A valid analysis needs citations and actual presentation of findings for the reader to compare. Also, when using or referencing findings, a summary of those findings should be provided. The paragraph as a whole leaves the reader uncertain of the foundation for the argument being presented.

29, 5 In contrast to the "conclusion" of Caldwell, Beschta's statement (above paragraph 4) is presented as an hypothesis. The contrast in information provided or analyzed by both Caldwell and Beschta should be a bit clearer.

29-31 In discussing factors that control temperature, the role of basin hydrology is understated and the relationship of channel form to its valley form is not addressed. The TMDL prepared for Simpson forest lands in Washington included analysis which demonstrated that lithology and topography, which ultimately defined the character of the valley through which streams flow, was paramount in defining the range of channel conditions found within a given area. This landscape stratification scheme, with refinements in channel type based on basin area, relative channel confinement and gradient, allowed for a much more tailored means to observe and predict how streams would respond to differing levels of shade and sediment input. The data on

temperature from > 400 mi^2 area suggests that shade is not always the most important determinant of stream temperatures everywhere, and that streams and their characteristic temperature signatures can differ significantly in their response to riparian timber harvests. Other studies suggest that factors such as total basin area harvested within a short period may be a more important determinant of stream temperatures than riparian zone stand conditions alone (Hatten and Conrad 1995). The SAST discussion should be broadened to include the above valley form and landscape scale factors relevant to stream temperature.

30, 1 Add to paragraph 1 "Greater vertical variability exists in streams with a well defined pool/riffle sequence, which causes more water to be forced into the hyporheic zone due to hydraulic pressure."

30, 3 Second sentence should not limit the known occurrence of hyporheic zones to the downstream end of riffles. Hyporheic zones can occur almost anywhere along a stream gradient, depending on factors that are not fully understood.

30, 3 Last sentence also should indicate that we cannot currently predict where hyporheic zones are to be found. Interruption or alteration of hyporheic flows is a possible side effect of ground disturbance; ground disturbance is not evaluated in final risk determinations when comparing the likelihood of attaining temperature standards.

30, 4 Stream Bank Stability/Instability. This section should be more inclusive of various stream bank failure mechanisms. The discussion of stream bank erosion is limited to one failure mechanism and is too simplistic to be of use. The statement "Stream bank erosion reflects looseness of bank soil, rock and organic particles. The opposite condition is cohesion of stream bank soil, rock and organic particles" implies that cohesive banks are more stable. While it is true that cohesive banks are less likely to erode due to single particle detachment, they are more likely to erode because of mass failure from saturation, over-steepening, or undercutting.

According to Thorne (1990) "mass failure of non-cohesive banks occurs by shearing along shallow, planar or slightly curved surfaces. The motivating force is shear stress on the potential failure plane due to the downslope component of weight..." He continues that "most mass failures of cohesive banks occur following rather than during high flows in the channel. This is because the switch from submerged to saturated conditions that accompanies drawdown in the channel approximately doubles the bulk unit weight of the bank material, increasing the motivating force on the potential failure surface in about the same proportion." Later in the same paragraph, the statement "vegetation strengthens particle cohesion by increasing rooting strength that helps bind the soil and add structure to the stream bank" is unclear. It implies that vegetation merely increases a rooting strength that the soil already contains – the vegetation provides rooting strength. Again from Thorne (1990): "Soil is strong in compression, but weak in tension. Plant roots are weak in compression, but strong in tension. When combined, the soil-root matrix produces a type of reinforced earth which is much stronger than the soil or roots separately.....roots are effective in both adding tensile strength to the soil and, through their elasticity, distributing stresses through the soil, so avoiding local stress build-ups and progressive failures."

31, 2 Stream bed roughness is more important than bank roughness in determining Manning's N values. The SAST discusses only bank stability.

31, 4 Modify sentence 2 to include: "The degree of sinuosity is related to **landscape position**, channel dimensions, sediment load, stream flow, and the bed and bank materials."

32, 1 The discussion of riparian characteristics and hyporheic flow should expanded to include a more detailed discussion regarding in-flow (upwelling) and out-flow (downwelling) that is associated with functional hyporheic/surface flow interactions.

32-33 The information on these pages suggests that other factors besides shade— i.e. groundwater, floodplain connectivity, microclimate, etc., can affect stream temperatures. This information should be included in making risk evaluations.

33, 2 Add to "Energy lost through evaporative heat transfer can result in a decrease in stream temperatures if heat losses are greater than heat gains (Benner & Beschta 2000)" ...which is important during winter months when streams lacking riparian cover are exposed to severe cold.

34, 1 Add "fire, wind, insects, pathogens" etc. to "wildlife, etc," (list of disturbances), and consider other references besides Swanston (1991) as necessary. Perhaps "wildfire" was intended instead of "wildlife"?

34, 3 Need to introduce the definitions of Type F, N, small, large, etc. here or prior to regional summaries. The RCR terminology also should be defined and explained.

34,3 There is no clear statement of the sampling design, comparability or representativeness of selected field sites, or details of the particular field methods used for gathering information on the characteristics of temperature in various streams. It is not clear whether the BMP effectiveness determinations are relying on a number of studies or whether the data cited is from the 1997 study by Dent and Walsh. This is especially problematic if the determinations are being made based on one or a few studies that provide very limited data and the determinations are then extrapolated to the wider universe of streams in Oregon. The sample size apparently used seems too small (n = 7 different streams, with sampling sites distributed within them), and the sites are not necessarily comparable given there is no geomorphic stratification for the sites, either before or after selection. For example, if as described for Dent and Walsh (1997) on p. 36-37, there were eight "sampling sites", all on one stream, and all within one year (1995), what conclusions may be drawn? This will depend on whether 1995 was a typical or atypical year with respect to climatic factors such as seasonal temperatures, summer-time precipitation, snowpack and snowmelt influences, or others factors that could affect the observed outcome. The sufficiency determination should consider a range of conditions including a worst case scenario (i.e., a year with low snowpack, and warmer than usual spring and summer temperatures). It is not clear what features of the study streams are universally applicable to the myriad of other stream types subjected to the general treatments afforded by the BMP's. The sensitivities of all streams would likely vary depending on channel condition, ground water inputs, orientation, substrate composition, and a host of other factors.

35, 2 List of reports. Identify how can they be obtained, which are most relevant, and what parts of each is relevant. Some of the ODF Technical Reports do not seem to be in the "References" section at end, while Caldwell (1991), which is Washington Department of Forestry "grey" literature, is in the references section. For the first report, the parenthetical statement (Small Type N Streams) conflicts with the statement in the following paragraph that the monitoring sites included in this study are mostly medium and large streams.

35, 3 It would be helpful if this paragraph ("A review of...") established a context for the discussion that follows. For example, how does it relate to the questions on p. 13? The usage "pre-post" should be explained.

35, 5 Sentence 3 ("For each reach...") should state how far downstream of the harvest unit the temperature probes were placed.

36, 1 Unclear presentation of findings, compared to tables. Using the ANOVA method, did temperatures actually decrease in treated streams that were located higher in the basin? Was this a reliable finding, or could it have been due to sampling error, or lack of adequate control for time? The reader needs to understand what types of streams these findings are specific to. Do the ANOVA and Wilcoxon non-parametric tests agree on these specific findings? The text suggests that additional sampling locations downstream of the treatments may have been used. The data for these additional downstream reaches do not appear to be included in Table 4, which includes only T (treated) and U (upstream controls?) reaches.

36, 3 Table 3 should read "Table 4". Also, the question as originally posed is related to the analysis framework on p. 13 (not p. 6 as referenced). The approach in the chart and with respect to this question is flawed (see comment on p. 13, Chart 1).

37, 1 Last two sentences: The described approach to determining if a change in temperature is due to a treatment effect or to a temporal shift in climate is not exactly appropriate, given that it seems there was considerable overlap (as described on the previous page and as shown at least in Figures 11 and 13) in time between the pre- and post- samples. Only if there was poor overlap or if the pre- or post- samples could not be compared (in time) would this be important. It is unclear whether, for each category of stream tested, controls for time effects were adequate. It appears that controls for time were adequate, at least for the small stream category. Figure 16-1 (small streams upstream; upstream controls) showed no change in temperature with time. Therefore there is a clear test of the null hypothesis for small streams.

38 Table 4 displays summary information about the sites at which the data were collected. There is no explanation to decipher the meaning of various column headings, e.g. rate type—is this the rate of change in temperature? What do the letter codes mean? Although the "post harvest year" is given, there is no information on when the "treatment" actually occurred. Also, since no information is given on years in which pre-harvest data were collected it appears that there were different periods of time between the "treatment" or harvest and the post-harvest field data collection. If this is the case, it brings into question some of the apparent conclusions reflected in Figure 19. The bar graph in Figure 19 shows a net increase in shade shortly following harvesting in 2 of 9 small streams, 3 of 7 medium streams, and 2 of 7 large streams. These results are counterintuitive. Since the SAST does not describe how "shade" was measured, it is not clear if the methods used have sufficient inherent inaccuracy to explain this result or if those particular sites had more time to recover before they were measured post-harvest.

38 It is not clear how treatments applied to the selected sites were standardized. Evidently, there were 3 riparian treatment types, CC = clearcut, TH = thinning, and hardwood conversion, here described as RCR = riparian conifer restoration. According to Table 4, some treatment sites had both sides of the native riparian zone subject to the treatment, while other sites had only one side (which side and its aspect are important) harvested. Also, it is unclear what the "upstream" sites represent, since they too appeared to have some sort of pre- and post-harvest data collection. Were the riparian areas in the upstream sites in mature forest condition? Was this meant to illustrate changes *not* attributable to treatments, or were upstream sites subjected to treatments? The graphical displays of the analysis results (Figures 16 - 17) don't explain how much time lapsed between pre- and post- sampling, and whether there was inter-annual variability in weather patterns that might explain differences. Additional narrative explanation for the figures should be provided.

39 It appears that the bulk of the sample analysis involved data from seven streams, with 28 sites distributed among these seven streams. It is incorrect to represent 6,740 individual measurements as the sample number. Figures 11-13 are intended to show how these "samples" are distributed over time at each site, for pre- and post-harvest, and for both "upstream" and treatment sites. The

graphs are very unclear—there is no legend to explain what information the reader is expected to glean from them.

54,3-5 The fact that elevated temperatures in small streams still remained below temperature standards does not reduce the potential cumulative effects of such temperature increases, or address the antidegradation standard.

55 The effects determinations appear to be derived through an analytical approach that considered only shade and stream temperatures and attainment of numeric, fixed temperature targets, rather than how the whole suite of forestry BMPs affects riparian and stream channel functions and support of beneficial uses. There may be some evidence to suggest that a given riparian harvest provides adequate shade along a stream, in some years. That falls short of demonstrating that a designated beneficial use, such as salmonid spawning, is protected. Shade is just one factor affecting temperature and temperature is but one criterion set to ensure beneficial use support. Other in-channel and riparian features may provide compensatory factors that ameliorate less-than-ideal temperatures. Industrial-scale timber harvesting has and will likely continue to impose a multitude of effects that change the overall, long-term suitability of instream habitats required for recovery of salmonids (see Ralph et al. 1994, and others referred to in General Comments). These include the input and routing of organic matter (small and large wood, detrital organic materials), water, and sediment (from yarding, roads and landslides).

The determinations should specifically identify the data that they are based on. As noted below, the statements in the determinations do not seem to be fully justified by the data presented. The determinations should consider factors other than shade and should be based on the full body of science rather than a single or several limited studies.

55, 2 Based on the data, sentence 1 should read "it is likely..." or "it is very likely" not "has the potential to...result in some increases in stream temperatures."

55, 2 Last sentence: the last sentence should simply say "stream temperature increases are likely..." , not "it is likely...[that] increases are also possible..." Based on the data, and the true (and highly significant) test which discounted the null hypothesis, "likely" also fits the data better than "also possible."

55,2 Need to explain the "Mixed" finding for Medium Streams in Table 5 (see Figures 16-3 and 16-6 for medium streams).

55,3 What is the likelihood that the downstream reach will not have also been harvested, or be harvested within a reasonably short period of time?

55,3 Cumulative effects have not been addressed. If ten of these "small type N" streams drain into a larger stream, the combined total of their input could be nearly equal to the flow of the larger stream. This **would** have a significant impact on stream temperature. Accordingly, the last sentence: should read: "...10 percent of the receiving stream are unlikely to **individually** influence temperatures..." (add the word "individually").

55, 4 The statement that the current BMPs are likely to be effective in minimizing temperature increases seems to overstate the case based on the variable nature of the data presented.

55 Footnote 7: We disagree that stream flow and/or channel width are not likely to be affected. An alteration in watershed cover may affect hydrology. Typical changes in hydrology due to watershed changes, especially where there are roads, will be an increase in the frequency and

magnitude of high flow events. This increase may lead to channel widening, and channel widening is acknowledged in this document to lead to stream temperature increases.

56. Table 5 is premised only on shade, i.e., on relatively short-term responses of streams to changes in shade alone, using no information about any other mechanism for temperature increase (see General Comments). Also, it appears that some of the entries (e.g., Large streams) are based on opinion, not on data provided here.

57. Therefore, Tables 6 and 7 may be invalid. Table 6 appears questionable, especially in the Large (all treatments) category.

58. The risk findings in Table 8 are not all supported by data presented in the draft, or else supporting data were not readily evident.

58 Based on the full body of the best available science we agree with the conclusion in Table 9 that small and medium sized streams (both F & N types) are not adequately protected when the "treatment" involves clearcut and hardwood conversions. The full body of science supports the same conclusion for large type F and N streams under the FPA rules. While the ODF monitoring study did show a decrease in shade levels and an increase in stream temperatures for most of the sites monitored, the shortcomings of the overall sampling design and methods used by ODF need to be addressed.

58 Tables 8 and 9, while seeming reasonable in some cases, may be invalid in others, because they are premised on Tables 5, 6, and 7. There is no basis or rationale presented for Tables 7 and 8. For example, for small type N streams under Clear Cut management, it is hard to understand how to get from Table 5 (Is forest harvesting under current BMPs a potential cause of stream temperature increases...Very Likely) to Table 8 (What is the level of risk that current BMPs are the cause of temperature standards not being met... Low to Moderate). These do not seem to be consistent responses, and no explanation is provided. These qualitative conclusions should be backed up with and related to the box and whisker plots presented earlier.

59, 1 Last sentence. This interpretation implies that if grazing and water withdrawal adversely affect stream temperatures, then contributing increases due to timber management practices do not need to be assessed. This is not consistent with the CWA or ESA. Under these laws forest practices need ensure that WQS are met and that harvest activities avoid "take" of ESA-listed species.

59, 7 The discussion of coldwater refugia in four above paragraphs is fine. However, if a specific definition for coldwater refugia is lacking, how can the standard to protect these be met?

60, 1 First 2 sentences: As stated previously, these conclusions are not well supported in the document. Sentence 3, "Relative to other streams...": This sentence seems to run counter to the regulatory requirement. A more important question to address is: will streams of various types and sizes, and with various beneficial uses, meet the temperature requirements under current BMPs?

60, 4 The third sentence in this paragraph is an example of the mis-use of the assumption that shade is the only factor affecting stream temperature, despite the fact that elsewhere in the draft it is acknowledged that there are other important factors.

APPENDICES

- Some of the key information on important disturbance processes (in Appendix D) need to be brought up front, or at least summarized better in the main body of the analysis.

- There is not enough information on other mechanisms besides shade for thermal changes—especially the relationship between streamflow and temperature, increased sedimentation, potential channel changes, and disruption or reduction in groundwater inflows from ground disturbance (see general and specific comments above). Also, large wood has been known to sort and build gravels and lead to increased local upwelling (areas of upwelling can be important low temperature refugia for bull trout and other cold-water species.

- See the Antidegradation Policy for Surface Waters and High Quality Waters Policy (p. 79). How are these going to be implemented?

- The BMPs and underlying assumptions are not consistent with a "holistic approach" and clearly do not achieve a desired future conditions similar to that of a mature forest. As noted in the comments above, shade, large wood inputs, and sediment filtration are significantly compromised functions under the FPA rules and BMPS.

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Attachment 2

Comparison of Riparian Protection Measures in Oregon

Forest management practices for private, State, Tribal, and Federal forest lands in Oregon include riparian protection measures to provide water quality, fish and wildlife protection. Riparian areas, given their proximity to streams, lakes, and wetlands, are critical for large wood recruitment, shade, stream bank and slope stability, sediment retention, and air temperature moderation. As discussed in detail in Attachment 1, there is extensive scientific research and analysis that documents the importance of riparian functions to water quality and fisheries. The areal extent and configuration of riparian management areas (RMAs) and the management requirements applied within those RMAs are the primary determinants of RMA functionality.

Figure 1 provides a relative comparison of the acreage designated as RMA under the "rules" for private, State, Tribal, and Federal forest lands in Oregon. The RMAs from the forestry rules for westside Federal forest lands (NWFP), forest lands managed by the Confederated Tribes of the Warm Springs (Warm Springs), forest lands under the proposed habitat conservation plan (HCP) for the Northcoast State Forests, and private forest lands under the Oregon Forest Practices Act (FPA) are compared for the North Fork Kilches watershed. The forestry rules for the NWFP would designate the largest amount of acreage as RMA (100%) of the forest practice rules in Oregon. In Figure 1, the RMA acreage required under rules for private, State, and Tribal forest lands is expressed as a percentage of the RMA acreage for the NWFP. For example, RMA acreage required under the FPA would constitute approximately 7% of the acreage required under the rules for NWFP RMAs for the stream network in the North Fork Kilches watershed. The percentage number above each bar in the figure represents the comparative RMA acreage for each of the four sets of forestry rules.

The Figure 2 provides a relative comparison of tree retention requirements within RMAs under the forestry rules for private, State, Tribal, and Federal forest lands in Oregon. In Figure 2, tree retention is expressed as basal area to allow comparison of the various rules. The forestry rules for the NWFP would require retention of the largest number of trees or basal area within RMAs (100%) of the forest practice rules in Oregon. Under the NWFP the entire RMA is managed specifically for aquatic conservation and other late-successional and old-growth associated species. In Figure 2, the basal area retained within RMAs under rules for private, State, and Tribal forest lands is expressed as a percentage of the basal area that would be retained under the NWFP rules. For example, the basal area retention requirements within RMAs under the FPA would constitute approximately 3% of the basal area that would be retained under the NWFP rules in RMAs within the stream network in the North Fork Kilches watershed. The percentage number above each bar in the figure represents the comparative basal area retained within RMAs for each of the four sets of forestry rules. As shown in Figures 1 and 2, the FPA designates substantially less area as RMA and require retention of substantially fewer trees (basal area) within those RMAs than do the forestry rules for State, Federal, and Tribal lands in Oregon. The resultant reduced riparian function adversely affects both water quality and salmonid fisheries as described in Attachment 1.

Figure 1.

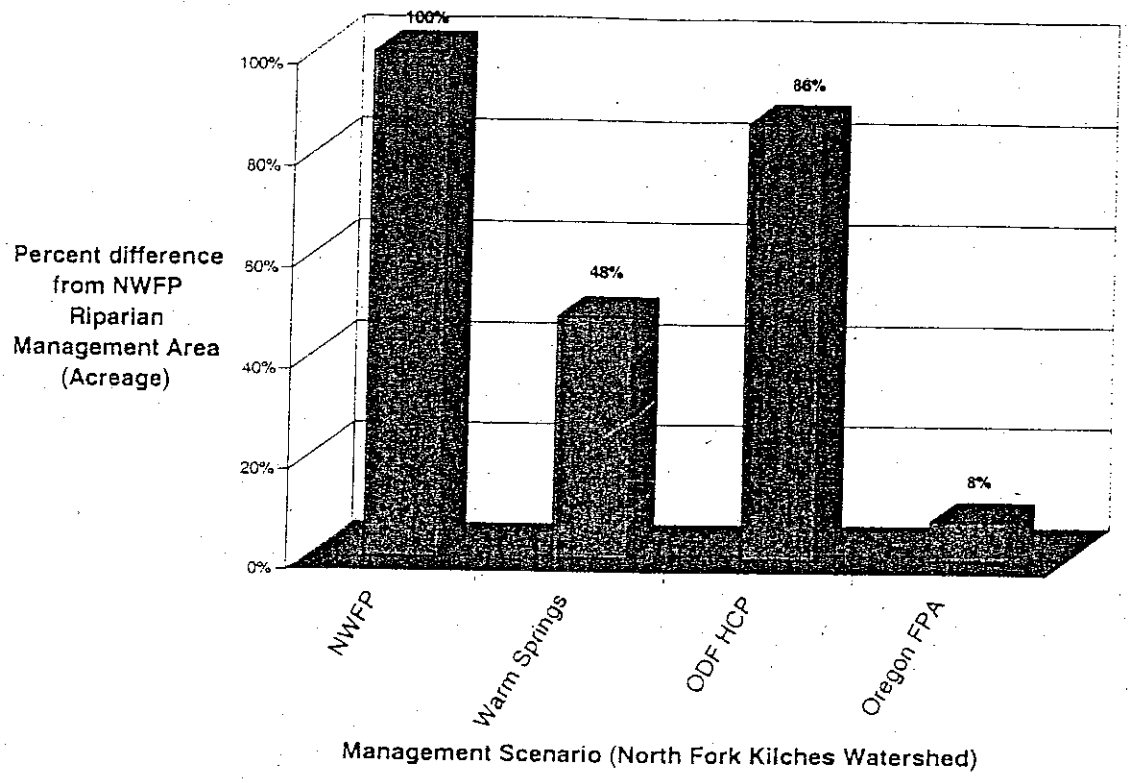
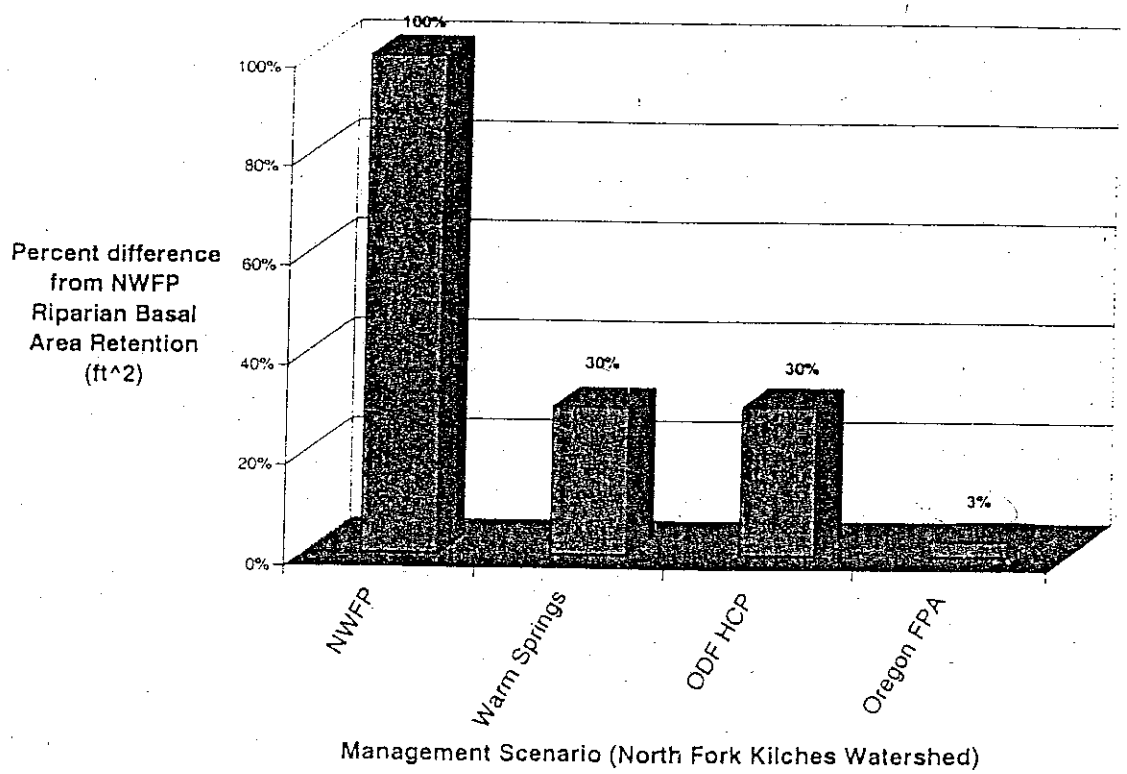


Figure 2.



Attachment 3

Total Maximum Daily Load (TMDL) Shade Comparison

Figures 1 and 2 compare the site-potential shade targets from the Upper Grande Ronde River and Tualatin River subbasin TMDLs with the shade data from an Oregon Department of Forestry 1999/2000 shade study funded under Clean Water Act Section 319. The shade study measured shade on recently harvested sites (FPA Treatment) in riparian areas and other riparian sites which had not been harvested recently, including sites with late-seral forest (Control). The numbers along the left margin of the first two figures in Attachment 3 denote shade levels (% Effective Shade). The numbers along the bottom margin of the figures approximate the active stream channel width (Near-Stream Disturbance Zone Width). The "shade curve" (descending line in the upper portion of the figures) shows the site-potential effective shade levels for varying near-stream disturbance zone widths. The potential shade level gets lower as the near-stream disturbance zone gets wider. The vertical bars along the site-potential shade curve indicate the differences in effective shade levels that occur due to stream aspect (e.g., stream running north to south, east to west). The control sites (shaded diamond symbols) in both the Grande Ronde and Tualatin River Subbasin figures correlate very well with the TMDL site-potential shade curves. The FPA Treatment sites (circle and triangle symbols) provide lower effective shade levels, falling below the site-potential shade curves. The basic relationship between shade levels at Control sites and lower median shade levels at FPA Treatment sites holds true for the full body of data sets (122 sites) from the shade study.

Figure 3 demonstrates how far shade levels at FPA Treatment sites and Control sites deviate from site-potential shade targets in the Tualatin River Subbasin TMDL. The numbers along the left margin of the figure indicate the deviation from the TMDL site-potential shade levels (both above and below potential). On the left margin 0% correlates with the TMDL site-potential shade target as does the horizontal line to the right of 0%. The bottom margin of the figure shows specific FPA Treatment sites and Control sites that match up with the bars in the figure. All of the unshaded bars matched with the FPA Treatment sites show shade levels below the TMDL shade target. The average deviation of FPA Treatment sites from TMDL shade targets is -23.8%. The shaded bars, which align with the Control sites, fall both above and below the TMDL shade targets and have an average deviation of 0.2% above the TMDL shade targets.

The data from the 122 sites in shade study consistently show higher median shade levels at Control sites than at FPA Treatment sites for all the data sets for all stream sizes. The data from the FPA Treatment sites also consistently have a higher deviation from median shade levels than do Control sites. The lack of preharvest basal area and shade measurements at FPA Treatment sites precludes a precise analysis of how much harvest affected basal area and shade levels. In addition, the basal area levels at many of the FPA Treatment sites are higher than the current Oregon FPA basal area requirements potentially understating the shade reduction that would result from meeting the FPA requirements. On some of the sites grazing, disease, and other natural disturbance may also have affected shade levels, particularly on some Eastern Oregon sites. These non-harvest disturbances would not likely be significant on most Western Oregon sites given the absence of grazing in the Coast Range and the longer disturbance return intervals.

Figure 1. Tualatin River Subbasin TMDL Effective Shade Surrogate Measures (DEQ Data) and Measured Effective Shade Data (ODF Data, 1999)

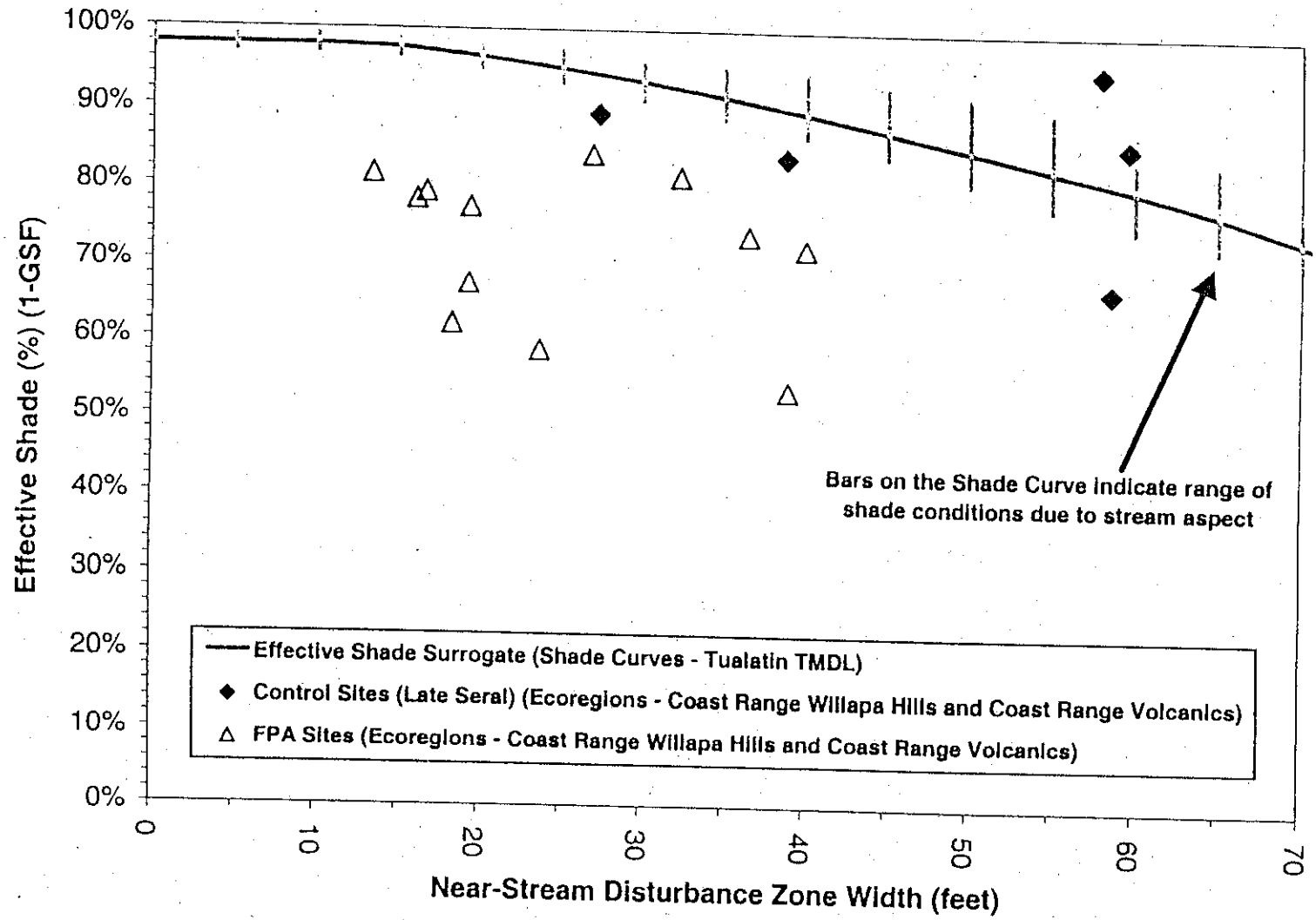


Figure 2. Grande Ronde River Subbasin TMDL Effective Shade Surrogate Measures (DEQ Data) and Measured Effective Shade Data (ODF Data, 1999)

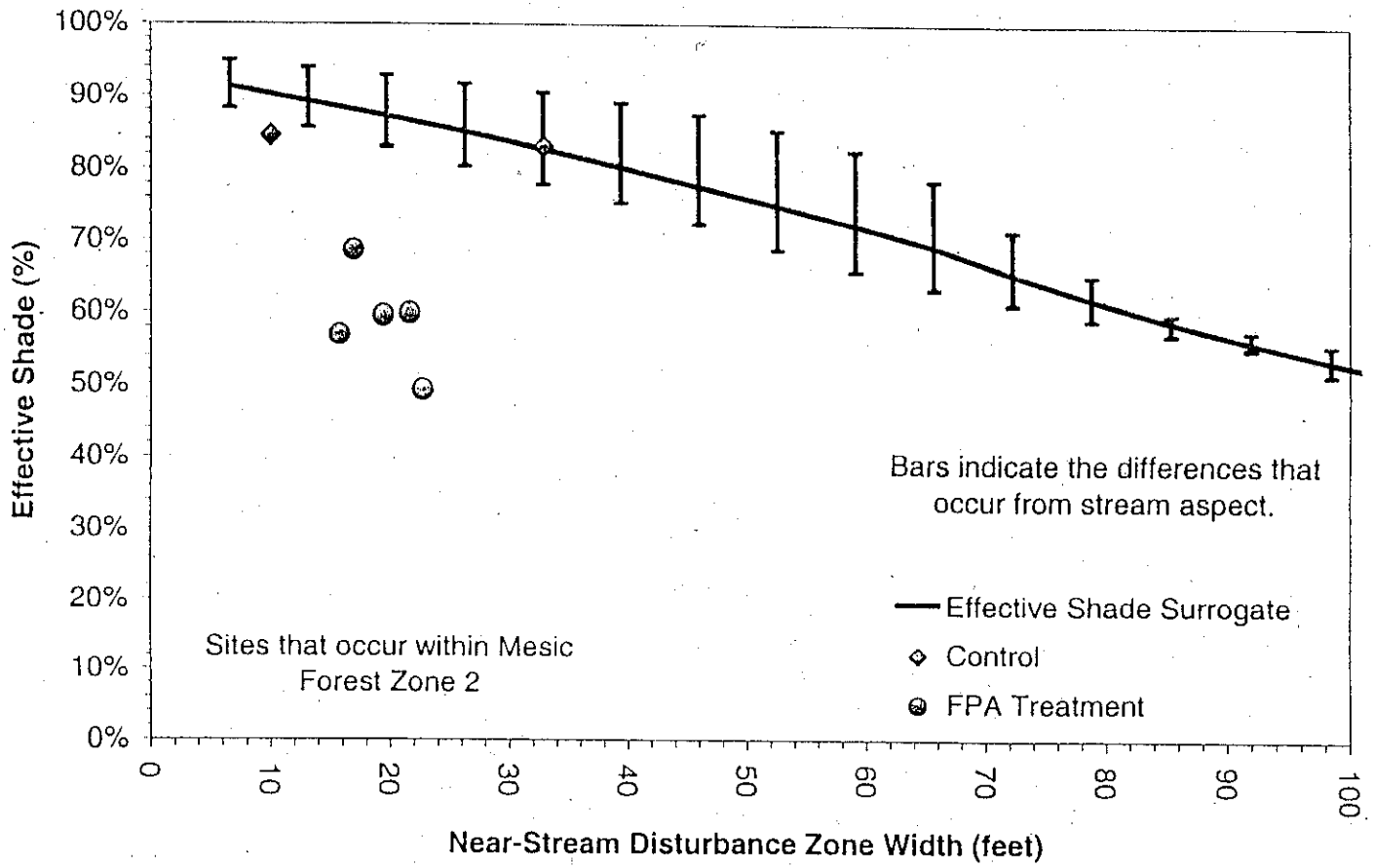
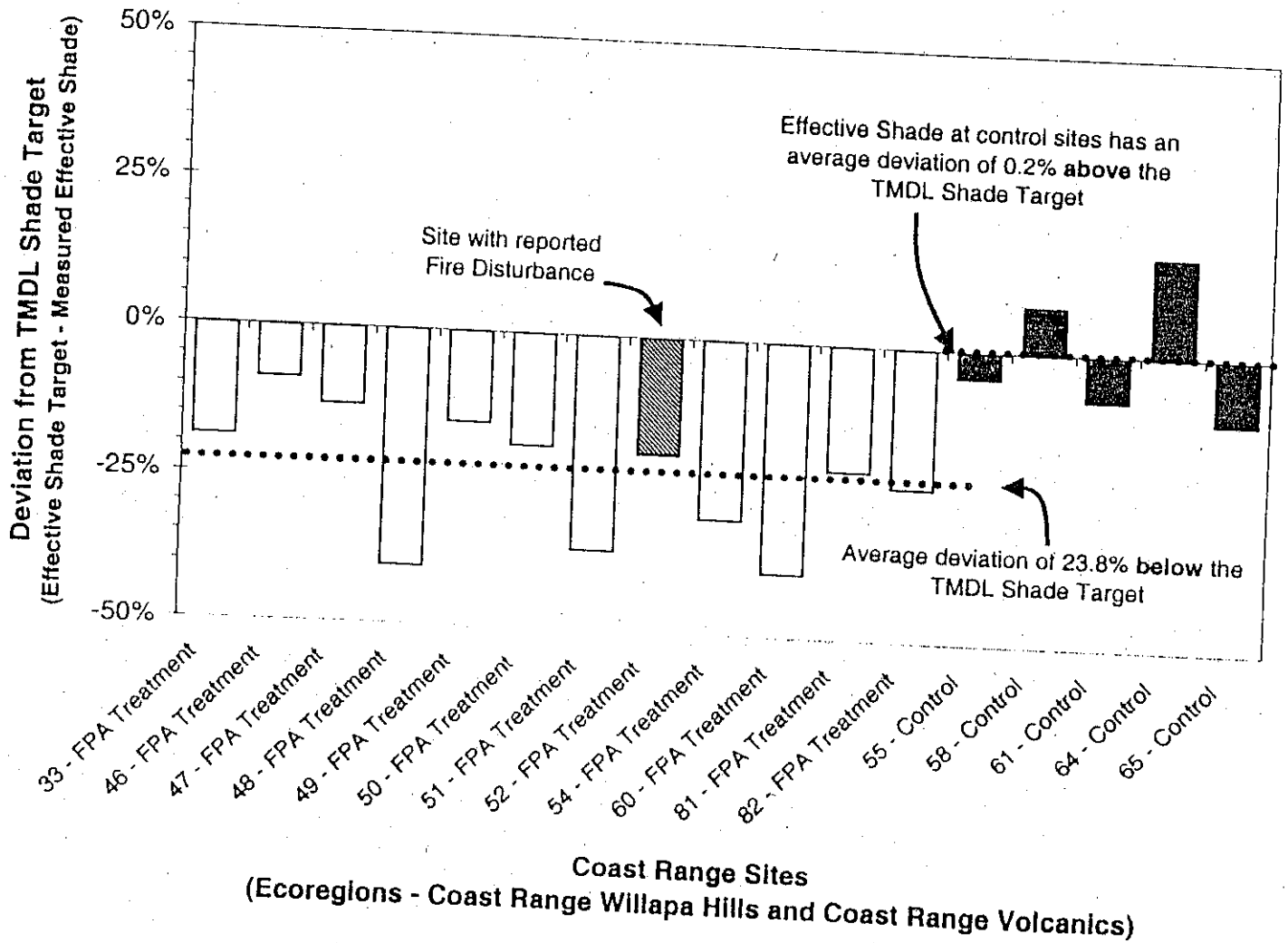


Figure 3. Deviation of Measured Effective Shade Data (ODF Data, 1999) from Tualatin River Subbasin TMDL Effective Shade Surrogate Measures (DEQ Data)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

AUG 20 2003

Reply To
Attn Of: OW-134

Stephanie Hallock, Director
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390

Re: Approval of Temperature and Bacteria TMDLs for the North Coast Subbasins

Dear Ms. Hallock:

The U.S. Environmental Protection Agency (EPA) is pleased to approve the 50 temperature and 6 bacteria Total Maximum Daily Load (TMDLs) for the North Coast Subbasins as submitted on June 28, 2003, and received by EPA on June 30, 2003. An additional letter from Eric Nigg, North Coast Basin coordinator, ODEQ to Helen Rueda, TMDL manager at EPA dated July 19, 2003, provides further clarification to the North Coast Subbasins TMDL submittal. A list of TMDLs approved by this action are attached.

This approval includes all waste load and load allocations assigned to heat and bacteria sources on listed waters and their tributaries since all of these allocations are required to attain applicable water quality criteria in the listed waters within the North Coast Subbasins (fourth field hydrologic unit codes 17100202, 17100201, 17080006 and 17080003). Our analysis indicates that these allocations have been established at a level that, when fully implemented, will lead to the attainment of the criteria addressed by the TMDL in all perennial streams in the North Coast Subbasins, the exception being bacteria in the Lower Columbia/Youngs River Subbasin which was not addressed. Therefore, if any additional waters in the areas addressed by these TMDLs are found to be water quality limited for temperature or bacteria, the state need not include these waters on its next Section 303(d) list. However, if in the future, new sources are to be introduced into the subbasins, the TMDL may need to be revised.

The temperature TMDL addresses anthropogenic sources of thermal gain from riparian vegetation removal, reduction in shade from logging and extensive fires, forest and road management activities, and point sources including treated industrial and municipal waste water discharges. The TMDL addresses heat inputs to all perennial streams from the headwaters to the bay. This approach recognizes that the effects of stream heating are cumulative over a waterbody and watershed and that sources in the upper portion of the watershed need to be addressed if water quality standards are to be attained.

The bacteria TMDL addresses bacteria loading from both point and nonpoint sources associated with a variety of urban, agricultural and rural/forested land uses. The TMDLs address seasonal variation and the most sensitive of the beneficial uses which is the marine and shellfish growing areas. Significant reductions in bacteria loadings (up to 95%) are called for by these TMDLs.

On June 30, 2003, EPA also received, from DEQ, a TMDL for biocriteria. The South Fork of Goble Creek is listed on Oregon's 2002 303(d) List for biocriteria. EPA is required to approve or disapprove TMDLs for pollutants. However, biocriteria is not identified as a pollutant under Section 304(a)(2)(D) of the Clean Water Act. Therefore, EPA is taking no action to approve or disapprove the TMDL submitted for biocriteria.

While we are not taking a 303(d) approval action on biocriteria, we recognize the importance of addressing all water quality impairments and encourage DEQ to continue to address all sources of impairments. We believe that addressing the factors leading to the biocriteria listing are critical to the restoration of beneficial uses in waterbodies in the Northwest and encourage DEQ to continue to pursue actions which will address these impairments.

The June 30, 2003, submittal also included the North Coast Subbasins Water Quality Management Plan (WQMP, Appendix D). This plan was developed and submitted as an update to the State's WQMP pursuant to 40 CFR 130.6(e) and the February 1, 2000, Memorandum of Agreement between EPA and the Oregon Department of Environmental Quality (DEQ). EPA currently has no duty to approve or disapprove implementation plans under Section 303(d) of the Clean Water Act (CWA) and therefore, EPA is not taking action on the WQMP. Nonetheless, we believe implementation is the critical next step for realizing improvements in water quality called for in the TMDL. Implementation plans should rely on management practices that are effective and sufficient to achieve load reductions called for in the TMDL.

The Water Quality Management Plan (WQMP) is the key to getting measures on the ground where needed in order to meet specific targets and goals laid out in the TMDL. We are pleased that development of WQMPs is an integral part of Oregon's TMDL process. We recognize that while the Water Quality Management Plan is developed by DEQ as part of the TMDL process, the WQMP builds on components developed by groups and agencies who have related management responsibilities and authorities (designated management agencies, DMAs). Therefore, the following comments on this Plan are directed not only to ODEQ, but also toward the applicable DMAs.

We are pleased that DEQ and the DMAs will work cooperatively in the development of the TMDL Implementation Plans and that DEQ intends to regularly review progress on the Implementation Plans. The WQMP indicates that DMA-developed implementation and monitoring plans will be submitted by the end of 2004. With this in mind, we offer the following thoughts regarding agriculture and forestry for consideration as these plans are being developed:

As the Agriculture plan is being done it would seem an opportune time to revise the North Coast Basin Agricultural Water Quality Management Area Plan to incorporate explicit reference to the site potential shade surrogate measures and bacteria load allocations of this TMDL. This Plan was first completed in July 2000 and was to be assessed for progress every two years and modifications made as appropriate; July 2004 would be its four year anniversary.

Any revision of the Agriculture Plan should also strengthen aspects related to measures under Section 6217 of the Coastal Zone Re-authorization Act Amendments of 1990 (CZARA 6217) mentioned in the memo of September 2002 from EPA and NOAA to Amanda Punton, Oregon Coastal Management Program, and Don Yon, Oregon Department of Environmental Quality.

The North Coast Subbasin TMDL covers lands within Oregon's Coastal Nonpoint Management Area under CZARA 6217. EPA and NOAA made a determination that additional management measures are needed to strengthen Oregon's forest practices with respect to several areas critical to water quality protection. These areas include harvest in high risk, landslide prone areas, riparian protection, and cumulative effects. Our concerns about harvest in landslide prone areas have been further exacerbated by a recent Board of Forestry rule that removes the Board's requirement to review and approve timber sales in these areas.

The preponderance of monitoring, assessment, and research efforts demonstrate that Oregon's existing forest practice rules will not adequately protect water quality or recover fisheries. The December 2000 DEQ/Oregon Department of Forestry (ODF) Temperature Sufficiency Analysis found that there are water quality impairments due to forest management activities even with Forest Practice Act (FPA) rules and BMPs in place. An October 2002 DEQ/ODF Temperature Sufficiency Analysis indicates that for some medium and small streams current riparian management area prescriptions for western Oregon may result in short-term temperature increases. In addition, data from the DEQ/ODF CWA Section 319 shade study demonstrates that harvest allowed under the FPA in RMAs can significantly reduce shade below the levels necessary to achieve the North Coast Subbasins temperature TMDL load allocations.

Since the WQMP for the North Coast Subbasins TMDL does not currently provide additional management measures or recommendations that address the above concerns, we encourage DEQ to work with ODF to initiate North Coast Subbasin-specific forest practice rule changes (under OAR 629-635-0120 Watershed Specific Practices for Water Quality Limited Watersheds and Threatened or Endangered Aquatic Species), or begin state-wide rule revisions to ensure that forest management practices in Oregon will meet TMDL targets and WQS.

EPA commends Eric Nigg for preparing a very well articulated document that clearly illustrates the research and data that went into the TMDLs. We look forward to the receipt of future TMDLs covering the remaining listings in these subbasins.

By EPA's approval, these TMDL's are now incorporated into the State Water Quality management Plan under Section 303(e) of the Clean Water Act. If you have any questions or comments, please feel free to contact me at (206) 553-1261, or Helen Rueda of my staff at 503) 326-3280.

Sincerely,

for Robert Q. Reichert

Randall F. Smith
Director
Office of Water

Enclosure
cc: Greg Aldrich, ODEQ
Andy Schaedel, ODEQ
Eric Nigg, ODEQ

TESTIMONY OF MICHAEL GEARHEARD,
DIRECTOR, OFFICE OF WATER & WATERSHEDS,
ENVIRONMENTAL PROTECTION AGENCY, REGION 10

BEFORE THE OREGON BOARD OF FORESTRY/ENVIRONMENTAL QUALITY COMMISSION
OCTOBER 21, 2004

Good afternoon Chairs Reeve and Hobbs and Commission and Board members. My name is Mike Gearheard. I'm the Director for the Office of Water and Watersheds for the Environmental Protection Agency's Region 10 office. Thank you for the opportunity to share our thoughts with Commission and Board members.

Today I intend to discuss the EPA's role in Oregon water quality issues, our general support of the proposed forestry rule changes under consideration by the Board of Forestry, as well as some areas where we believe additional rule changes are important to assure adequate protection for water quality and fish.

EPA's role. The EPA has the overall national responsibility to implement the Clean Water Act, in partnership with states and tribes. Important responsibilities include approving state Water Quality Standards, overseeing delegated state point-source permit programs, approving Total Maximum Daily Loads (TMDLs) and TMDL listings, and approving state non-point source and coastal zone management programs. We work very closely with the Oregon Department of Environmental Quality (DEQ) on these efforts.

In addition, EPA provides technical and financial support to states and tribes. Where states and tribes fail to carry out Clean Water Act responsibilities, or when directed by the Courts, EPA is required to take the actions needed to meet national water quality goals.

Finally, EPA is responsible for overall implementation of the Safe Drinking Water Act, in partnership with the Oregon Department of Human Services and DEQ.

Relationship of ESA and CWA. Due to the extensive Endangered Species Act (ESA) listings of fish throughout much of Oregon, EPA must consult with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service on a wide range of EPA actions under the Clean Water Act and other federal regulatory laws. Much of our review and approval work in Oregon (e.g., State water quality standards and non-point source control programs) is done in close coordination with NOAA Fisheries and the U.S. Fish and Wildlife Service. We place significant importance on the needs of the ESA listed species and use the best available science and detailed peer review to support EPA's approval actions.

Legal and Other Constraints. There are other constraints on EPA besides the ESA. For example, EPA's review of proposed water quality standards and TMDLs takes place in the context of a national program subject to headquarters guidance and legal precedent. EPA also needs to meet trust responsibilities to tribes. Moreover, Oregon is well known for its environmental advocacy and related litigation. Many of the decisions made by regulatory agencies have been subject to legal challenge. Recent court decisions here in the Ninth Circuit may have the effect of blurring the distinction between how point sources and nonpoint sources, including activities such as forestry, are regulated. I fully expect legal challenges will continue.

Forestry and Water Quality. EPA recognizes that Oregon has been a pioneer in developing forest practice rules and regulations. We also understand that Oregon's forest practices and the riparian protection rules are key to ensuring that drinking water sources, water quality standards, and aquatic habitat are protected on 12 million acres of non-federal forest land in Oregon. Because forest practices have such a direct and important affect on water quality and salmonid spawning and rearing habitat, the proposed forest practices rule changes have significant implications for the EPA. We have closely tracked the long and complex effort to review and amend forest practices regulations in Oregon.

Studies conducted in Oregon of current forest practices indicate that existing forestry rule best management practices (BMPs) do not consistently meet water quality standards or fully provide riparian functions important to water quality and fish. EPA has also independently assessed the Oregon Department of Forestry's Shade Study data, TMDLs, and the broader body of science related to forestry in the Pacific Northwest and concluded that water quality is not fully protected under Oregon's existing forest practices.

It is our position that protecting water quality and meeting salmon recovery goals on private forest lands in Oregon will require changes to State Forest Practices. The EPA believes that the effort currently underway provides the Board and EQC the opportunity to revise forest practice rules in a way that can make a significant positive difference in protecting Oregon's water quality, for its uses as a drinking water source and habitat for salmon and trout .

EPA strongly supports the Oregon Plan and the proposed Forest Practices Act (FPA) improvements - but with important caveats. We recognize voluntary efforts on the part of forest landowners, watershed councils, soil and water conservation districts, and others are an important part of the water quality, salmon, and watershed restoration program. But adequate agency programs, including the Forest Practice Rules, are also critical to successful protection and restoration efforts, as one of the four foundations of the Oregon Plan. Science oversight and monitoring with adaptive management are the two other key foundations of the Oregon Plan and

successful watershed restoration. These last two components are necessary for demonstrating forest practice adequacy.

The rule-making and voluntary measures proposed by the Board of Forestry are improvements over the existing Forest Practice Rules; however, we are not confident that they can be relied upon to meet Oregon's water quality standards. Besides the proposed rule changes under consideration we believe that additional improvements to the rules are needed to ensure that water quality standards will be met and that beneficial uses such as domestic water supplies and fish habitat will be fully protected. The primary areas where additional rule improvements are needed include riparian protection and protection of high risk, landslide prone areas.

Riparian management areas are the primary Forest Practice Rule mechanism for protecting water quality. Expert reviews and research have identified the need for increased protection of riparian management areas in Oregon for both fish and non-fish streams to provide riparian functions important for fish and water quality. Protection for high risk, landslide prone areas has also been identified as key for water quality and aquatic habitat protection. Increased protection for these two critical areas could help address well documented impacts from forest practices to shade, large wood delivery, sediment retention and routing, and stream channel conditions that directly and indirectly affect water quality and aquatic habitat for fish.

Attached to my written testimony are several past EPA comment letters, from 1999, 2001, and 2003, related to Oregon Forest Practices that provide additional information and explanation for the above recommendations and conclusions.

I want to again thank Chairs Reeve and Hobbs and the rest of the Commission and Board members for the opportunity to provide this testimony and would be happy to answer questions you may have at this time. Dave Powers, our Regional Manager for Forests and Rangelands, and I are both available at any time to discuss these issues further with you.

Testimony of David Powers,
Regional Manager for Forests and Rangelands,
Environmental Protection Agency, Region 10

Oregon Board of Forestry
November 22, 2005

Good morning Chair Hobbs and Board of Forestry members. My name is David Powers. I am the Regional Manager for Forests and Rangelands for the Environmental Protection Agency's (EPA) Region 10 Office. Thank you for the opportunity to share EPA's thoughts on the Rule Concepts draft reports.

As EPA noted in testimony at the October 21, 2004 joint Board meeting with the Environmental Quality Commission we generally support the proposed forestry rule changes that have been under consideration by the Board. We believe that there is a substantial body of science that demonstrates Oregon's existing forestry rules and best management practices do not consistently meet water quality standards or fully provide riparian functions important to water quality, public water supplies, and fish. We believe that protecting water quality and meeting salmon recovery goals on private forest lands in Oregon will require changes to the State Forest Practices Act (FPA).

Three of the rule concepts under consideration by the Board would help ensure a more consistent, broad-scale application of forest practices that have a higher likelihood of addressing water quality and aquatic habitat impairment on private forest lands than the existing rules. Adoption of new rules to implement concepts #3, #4, and #8 would make progress in addressing protection of riparian areas and high risk, landslide prone areas.

An extensive body of research, monitoring, reviews and assessments support the need for FPA rule changes regarding increased protection of riparian and landslide prone areas. The Governor's Independent Multidisciplinary Science Team report on FPA adequacy provides a strong basis for increased protection of riparian areas. A joint ODF/DEQ FPA sufficiency analysis highlights the high degree of uncertainty that riparian measures in the current FPA are adequate to meet water quality objectives on smaller streams. Improved forest management in riparian areas above human caused fish barriers is strongly supported by science, watershed restoration strategies and expenditures in Oregon, and Oregon Plan objectives.

EPA supports rulemaking on rule concepts #3, #4 and #8 because it would make incremental progress towards addressing shade, bank stability, sedimentation, large wood recruitment, and other functions critical to water quality and beneficial uses. While EPA is not confident that the proposed rule concepts alone will ensure attainment of water quality standards or full attainment of beneficial uses, their adoption as rules would be an important step towards meeting water quality standards, protecting public water supplies, and addressing aquatic habitat impairment on private forest lands.

Thank you again for the opportunity to comment on the draft reports for the three rules concepts. Additional, specific comments are provided below for concepts #3, #4, and #8.

Rule Concept Specific Comments:

Rule Concept #3 Riparian management above fish barriers - the benefits of this rule concept would be enhanced by requiring consistent broad scale rule application and by the use of uniform criteria in determining fish presence. As currently written, provision 11(e) provides no standard or quality assurance that the type of information or "other" processes that can be used to determine fish presence are scientifically credible. In addition, the exception provided by provision 11(f) could substantially negate the potential benefits of rule concept #3. We encourage the Board to eliminate or modify proposed Rule concept #3 provisions 11(e) and 11(f) to ensure consistent progress towards attainment of water quality and aquatic habitat goals.

Rule Concept #4 Wood from debris flows and landslides - the benefits of this rule concept would be enhanced if tree retention outside of riparian management areas in high risk, landslide prone areas that have the potential to deliver wood to streams were also required. The long-term retention of leave trees (through next rotation) should also be required in the rule.

Rule Concept #8 Basal area target increase for medium and small Type F streams - We recommend that the Board eliminate the sunset provisions for the increased basal area targets associated with Concept #8. The existing large wood deficiency documented on private forest lands and the long timeframe associated with recruitment of wood that will persist in streams warrant longer term rule adoption of the proposed increased basal area targets.

We understand the stated concern about reduced primary productivity from "too much shade" within riparian areas. We believe that a credible demonstration of too much shade has not been made, particularly at the landscape scale. The proposed basal area target increase for small and medium streams falls well below the basal area generally found in mature forest stands. The revised targets would also apply only in riparian management areas for Type F streams which usually constitute well under 10% of the land area in typical watersheds in Oregon. No basal area retention is proposed for Type N streams (except landslide prone) which make up a substantial percentage of the overall stream network. Blow down occurs frequently in riparian areas especially after adjacent regeneration harvest. Flooding, beaver, landslides, insects, and disease also reduce shade levels in riparian stands. Based on the above factors we believe that elevated stream temperatures, high sediment levels, unstable banks, large wood deficiencies, stream simplification, and other aquatic habitat impairments on private forest lands provide a sound basis for adopting higher basal targets for riparian areas. We believe that the benefits of increased riparian protection to water quality and aquatic habitat far outweigh potential concerns about reduced primary productivity.