FISHERIES ISSUES FOR THE PACIFIC NORTHWEST
The Oceans Begin in the Watersheds

Presentation for the U.S. Commission on Ocean Policy
By
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Admiral Watkins, members of the Commission, thank you for the opportunity to address you here today, and welcome to the Pacific Northwest. I am the Northwest Regional Director of the Pacific Coast Federation of Fishermen's Associations (PCFFA), the west coast's largest organization of commercial fishing families. PCFFA represents people and communities who make their living from the sea. In that capacity I am an advocate for family fishermen and fishing-dependent communities throughout the Pacific Northwest, many of whom are now in deep financial distress. I am also the Program Director for PCFFA's affiliate organization, the Institute for Fisheries Resources, a nonprofit fisheries research and education organization created by fishermen to help restore our damaged fish resources, particularly the Pacific salmon fisheries, and to work toward sustainable fisheries for the future of our communities. In both capacities I have dedicated more than 15 years of my life to salmon protection and restoration throughout the west coast.

You have already heard from our PCFFA President, Pietro Parravano, in your Commission hearing in Long Beach in April 2002, particularly about some of the fisheries management and governance issues that most concern our nation's fishing industry. Fisheries management has in all too many instances failed to prevent overfishing, failed to protect the marine biological resources, and failed to provide a stable fishing economy for our future. However, there are even more pervasive environmental threats that remain largely unaddressed, many of them exemplified by situations in the Pacific Northwest.

Today I want to amplify on some of Mr. Parravano's remarks, and put them into the perspective of the Pacific Northwest, particularly with regard to the devastating loss of habitat and the various environmental threats that are depleting our living marine resources and pushing this regions primary fishing resource, Pacific salmon, ever closer to the brink of extinction.

THE OCEAN STARTS AT THE TOP OF THE WATERSHED

To many, the ocean begins only at the shoreline, and what happens far inland may seem irrelevant to the health and future of our nation's oceans. Certainly our public policy tools and laws make that artificial distinction, which is why fisheries managers cannot manage fish through their entire lifecycle, only manage fishermen.

In reality, however, there are intimate biological connections between human activities far inland and the health of our nearshore oceans, and these impacts can and do cumulatively affect ocean health far out to sea, and eventually worldwide. The oceans have become the final dumping grounds for all sorts of pollutants, and the final resting place for many of Humanities most pressing environmental problems.

The oceans really begin at the top of our nation's watersheds, many of which have already been heavily damaged or overdeveloped. What happens in those watersheds can have a dramatic impact on the health of our estuaries, our nearshore environments and the health of our nation's fisheries.

The Plight of Pacific Salmon: Dams, Dams Everywhere

Nowhere is this clearer than in the Pacific Northwest and Northern California. Throughout this region, one of this nation's most important fisheries, our once legendary Pacific salmon and steelhead runs, has now been systematically or negligently destroyed – not by overfishing, but by the pervasive destruction of inland and estuarine salmon spawning and rearing habitat by the extensive damming of rivers and the almost complete diversion of major river systems. Widespread agricultural pollution and the siltation of major river systems by overgrazing and overlogging of hillsides has also played a role in salmon habitat destruction in many places. So has urban and industrial pollution. All these factors have combined to the detriment of Pacific salmon habitat everywhere.

The impact on our once mighty salmon and steelhead runs has been devastating. In the Columbia River, for instance, once the site of the largest salmon runs in the world, wild salmon and steelhead spawning escapement once numbered between 10 and 16 million adult spawners annually. Now they number about 200,000, only 2 percent of historic runs size. As a result, nearly every salmon and steelhead population in the Columbia Basin has been listed as either threatened or endangered under the federal Endangered Species Act (ESA). Not surprisingly, the only exception to this tragic story of declines and eventual ESA listings is the fall chinook salmon run currently inhabiting the Hanford Reach, a 70-mile stretch of river that is the only part of the Columbia River that is undammed and still running wild.

In the Columbia River Basin the cause of these declines is clear, and it is not overfishing. In fact, harvest impacts account for only a very small fraction of all human-induced salmon losses within the Columbia Basin, particularly in the upper portions of the Basin such as in the Snake River (see Figure 1), the Columbia's major tributary.

Eight huge mainstem dams plus literally thousands of smaller dams[1] throughout the Columbia Basin have blocked salmon passage and destroyed access to habitat, turned once flowing rivers into warm-water reservoirs, and nearly destroyed a vibrant coastal and lower river economy that once supported approximately 25,000 jobs that produced an annual regional income of up to $500 million/year.[2] While some dams produce offsetting economic and social benefits, many do not, and some dams (such as the lower four Snake River dams) could easily be replaced at great economic benefit to the fisheries, an economic benefit that far outweighs any value those dams actually produce. In most cases the benefits lost from removing a dam can be cost effectively replaced through other means, with each dam judged on its own merits.

The end result of construction of the string of dams in the Columbia, particularly the eight mainstem dams, is that at every dam a little more salmon are killed trying to overcome either the turbines on the way out to sea, or the dam structure itself on the way back up three to four years later to spawn. Passage mortality at each dam is now about 5% to 10% and this mortality is cumulative (see Table 1). At each stage, more and more fish are lost, with the end result that fish in the top of the system are generally unable even to replace their own populations (see Chart 1).

Is this an oceans policy problem? Is this a fisheries management problem? We believe that it clearly is, but that current ocean policies and fisheries management laws are unable to grapple with these inland problems at the present time. For the most part, fisheries management agencies do even have legal jurisdiction over these inland issues, and thus do not have control over any portion of the salmonid lifecycle other than when actually in the oceans. Instead, the issue is left to the Clean Water Act, the Endangered Species Act and other environmental laws that are poorly adapted for that purpose rather than addressed head on, as it should be, as a fisheries management issue.

Loss of Columbia River salmon stocks even have international ocean policy ramifications. One major factor in the past collapse of the Pacific Salmon Treaty with Canada, for instance, what that declining Columbia River stocks which usually swim north into British Columbia waters became less and less available over the years for harvest in Canada as compensation for B.C.'s far more abundant stocks being heavily harvested in Alaska. Thus the fish that Canadians were looking south to as a one-to-one replacement under the Salmon Treaty were not only getting scarce, but were protected under our Endangered Species Act, which Canada does not recognize. Salmon are by

[1] Altogether state records in Oregon, Washington, Idaho and Montana identify 2,972 dams within the Columbia Basin large enough to be fish passage problems for salmon and steelhead, with 1,239 of these storing more than 50 acre-feet of water. Only 4% of these dams are used for power generation. Many are now obsolete or reaching the end of their engineer lifespan.

[2] Economic losses to the regional economy due to salmon declines over the past decades are roughly $500 million/annually and 25,000 jobs. *The Cost of Doing Nothing: The Economic Burden of Salmon Declines in the Columbia River Basin* (October, 1996), Institute for Fisheries Resources.

their nature highly migratory, and thus are a multinational resource. Yet we do not have comparable multi-national ocean policies to protect them.[3]

Only recently, with the passage of the "essential fish habitat" provisions of the Magnuson–Stevens Act in 1996 (see particularly 16 U.S.C. §1853(a) & (b)), have fisheries managers been able to "reach backwards" into the watersheds or have any input at all on actions that affect other parts of the salmon lifecycle than just ocean harvest, and even this power is limited to mere consultation and comment. This is not enough. True fisheries management should be about managing fish through their entire lifecycle, not just managing fishermen and fish harvests at sea in a near-total vacuum.

Similar Stories Elsewhere: Loss of Habitat Means Loss Of Fisheries

A similar story can be told for other west coast watersheds in which wild Pacific salmon once were abundant. In the San Francisco Bay-Delta and in the California Central Valley, for instance, salmon spawning and rearing habitat has almost disappeared, with many runs surviving only because of supplementation through hatcheries. Spawning and rearing habitat for salmon within the San Joaquin Valley, for instance, is about 95 percent gone. In the California Central Valley, whole river systems have been diverted and dewatered to support heavily federally subsidized and often inefficient commercial agriculture, such as the Westlands Water District on the west side of the San Joaquin Valley, to the great economic detriment of commercial fisheries and coastal communities.

Likewise in the Klamath River Basin, once the third largest salmon producing river system in the west coast producing between 660,000 and 1,100,000 adult spawners each year, this river system has been so diverted for federally subsidized crop irrigation in the upper river, and through water diversions of more than half of the total volume of the Trinity River (the largest tributary to the Klamath River) to the California Central Valley Project (CVP), that salmon in the lower river can barely survive. What little water remains left in the lower river is often too hot and so laced with nitrates and chemical fertilizers from commercial agriculture upriver that major salmon dieoffs are commonplace. So much of the water has been removed from the lower river, that some of its tributaries (such as the Scott River) have dried up entirely in recent years, and coho salmon that were once abundant within the river are now so depleted in the Klamath Basin and both north and south of this basin that they are now listed as "threatened" under the federal ESA

Currently fall chinook runs in the Lower Klamath Basin are now only about 8 percent of their historic run size, even including hatchery fish. Wild coho salmon in the Klamath

[3] Wild salmon declines have been masked and 'papered over' by massive releases of hatchery fish in the Columbia and elsewhere, partly as a mitigation for the loss of habitat behind dams. However, hatchery fish generally show much lower survival rates than wild fish evolved for millions of years for their unique river conditions. While hatcheries clearly play an important role in maintaining at least minimal fish harvests today, they are expensive to operate, prone to disease and dieoffs, and biologically are a poor substitute for free-flowing rivers and wild salmon runs that are self-sustaining.

River may now be only about 2 percent of their historic abundance. Again, fishing is not really to blame for these losses, but rather loss of habitat and systematic dewatering of the Klamath River.[4] As a result, fishing ports all the way from Fort Bragg, California to Coos Bay, Oregon, over more than a 200 mile stretch of coastline, and once the most productive salmon ports in the lower 48, have been closed to salmon fishing for nearly a decade, suffering up to a 99 percent loss of salmon landings and causing massive economic dislocation in coastal fishing-dependant communities.

Not only has the loss of most of the Pacific Northwest's and Northern California's salmon runs devastated its once great salmon fisheries, but this loss is having serious impacts on many other inland and ocean food chains. For instance, a report issued by the Washington Department of Fish & Wildlife (WDFW) in July 2000 confirmed that salmon play a key role in watershed health, including the food chain of more than 137 separate species, and provide the only known mechanism for renourishing nutrient-poor coastal watersheds from the oceans. The report, "Pacific Salmon and Wildlife," is a collaboration of the work of several agencies and brings together more than 500 separate scientific studies and decades of research on the role salmon play in watershed health and in maintaining critical food chains. Salmon declines, according to the research, have triggered cascading declines of many other major food chains for these 137 species as well as a decrease overall watershed fertility.[5] Thus in a very real biological sense, the health of our region's forests depends at least in part on the health of our region's salmon runs. Salmon also play an important role in a number of marine food chains, and their widescale disappearance from those food chains will also have an impact of many marine species.

In your review of the nation's oceans policies, keep in mind that what happens far inland can and will greatly affect ocean resources. Salmonids provide the best example, since as anadromous fish they spawn in freshwater, rear in the oceans and return to spawn in their natal freshwater streams often far upstream. However, there are many other examples of species (such as Dungeness crab, pollock, halibut and shrimp to name but a few) that depend on estuary or nearshore environments for at least part of their lifecycle, and thus are particularly susceptible to pollutants and water quality problems that originate onshore.

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[4] Though there was likely some overfishing earlier in the 20th century, after many years of increasing restrictions coho salmon commercial harvests in the Klamath Management Zone of Northern California and Southern Oregon were completely terminated in 1992, and recreational coho fisheries in 1994. "Take" by extensive agricultural water diversions and lowered water quality from agricultural operations within the Klamath Basin continue unabated, however, and have been identified as the most important limiting factors in the current declines. In spite of complete closures of fisheries, there has been no rebound of these stocks, indicating also that problems lie elsewhere than with fisheries.

[5] For a copy of the report itself contact: Washington Department of Fish & Wildlife, 600 Capitol Way North, Olympia, WA 98501-1091 or e-mail: wickelrw@dfw.wa.gov.

These are all examples of this general principle: *The health of the ocean resources is directly related to human activities in our watersheds.* The oceans begin in those watersheds. Ocean protection policies must take this fact into account.

The Importance Of Wetlands To Fisheries

Ocean policy must particularly take into account the impact inland activities and development will inevitably have on estuaries, coastal wetlands and nearshore environments.

The fishing industry is also a wetlands dependent industry. An estimated seventy-one (71 %) percent of this nation's entire commercial fish and shellfish resources are wetlands dependent.[6] An even larger share of inland recreational fisheries are wetlands dependent. In fact this nation's aquatic resources generate approximately $152 billion/year to our nation's economy in both commercial and recreational fishing activities nationwide. Without protection of this nation's wetlands, however, and particularly its coastal wetlands, much of this economic resource would simply disappear.

For America's oldest industry -- the commercial fishing industry -- the protection and restoration of coastal wetlands is simply about protecting our jobs. Wetlands mean food production and food on America's tables. They mean vibrant coastal economies and coastal employment. And finally, wetlands mean commerce and exports.

Fish do not arise from nowhere -- they are part of and supported by a complex and fragile ecosystem. The vast majority of commercially valuable species depend for some portion of their biological lifecycle on inland, near shore or estuary wetlands -- these are their nursery grounds.

Let me give you some examples. Salmon, for instance, are hatched from eggs laid in inland freshwater gravel beds sometimes hundreds of miles from the ocean. The young salmon then make their long migration downriver to the ocean where they will eventually grow to adulthood and return to spawn, but along the way they depend upon back channel wetlands as a food source, for shelter from predators and (in the case of coho salmon) they need these wetlands to provide "over-wintering" habitat to nourish them for up to 18 months.[7] Even when they reach the sea they still depend upon salt water and estuary wetlands to help them adapt to ocean conditions. Their adaptation from fresh to salt then back to fresh-water fish is one of the most remarkable biological feats in the natural world. However, without salt-water estuaries and salt marsh wetlands within which to make the necessary biological changes, these adaptations would be impossible and they would all die. All too often, however, these critical coastal and estuary wetlands are

[6] From the EPA Office of Wetlands' estimates of value of commercial landings derived from species that during their life cycles depend directly or indirectly on coastal wetlands.

[7] Coho salmon over-winter for up to 18 months in the middle and lower inland watershed, primarily in slackwater areas which are rich feeding sources due to adjoining wetlands. One reason coho salmon are now approaching extinction in many areas and listed under the ESA is the widespread loss of wetlands throughout the western U.S.

being dredged, damaged and destroyed to support human economic development elsewhere, at the expense of coastal communities that depend on these wetlands and the commercially valuable species they support for their own economic survival.[8]

Salmon are incredibly valuable to west coast economies. As recently as 1988, the Pacific salmon fishing industry (including both commercial and recreational portions of our industry) generated an estimated 62,750 family wage jobs, and more than $1.25 billion/year in economic income to the Pacific Northwest and Northern California.[9] This represents a national resource of roughly $39.5 billion in economic value from salmon harvests alone -- just from Northern California and the Pacific Northwest.[10]

Without adequate wetlands protection, however, much of the West Coast salmon fishing industry would be doomed. Wetland losses to date have already destroyed many west coast fishing jobs. According to official federal statistics, Washington State has lost an estimated 31 percent of its historic wetlands, Oregon another 38 percent and California a whopping 91 percent of all its historic wetlands base, particularly in the San Francisco Bay Delta. Counting coastal wetlands only, these loss figures would be much greater.

These wetland losses have already had a dramatic negative impact on salmon and many other fishery resources throughout the west coast, costing tens of thousands of jobs and hundreds of millions of dollars in productive capacity.[11]

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[8] A good example is the current plan by the U.S. Army Corps of Engineers to dredge out the Columbia River from Portland to Astoria (103 river miles) to a depth of 3 feet. This dredging operation may destroy a large portion of the remaining lower Columbia estuary wetlands, which have already lost 90% of their biological functions that support salmon production, not to mention Dungeness crab and other species. These wetlands are considered a vital element in salmon recovery efforts within the Columbia Basin by many scientists and in a Biological Opinion by the National Marine Fisheries Service (NMFS), while NMFS has a contradictory Biological Opinion approving this dredging project. These contradictions in ocean and estuary protection policies cannot be reconciled – we cannot both have coastal wetlands and yet dredge them to oblivion.

[9] Figures from an independent economic study done by the Pacific Rivers Council (January, 1992), *The Economic Imperative of Protecting Riverine Habitat in the Pacific Northwest*. This study was based on official federal salmon harvest figures for the 1988 baseline year -- catch figures which were already far below the productive capacity of prior years, reduced largely due to widespread habitat loss, including wetlands losses regionwide, which reduced the number of juvenile salmon able to be produced by damaged watersheds.

[10] Calculating the present value of an income stream of $1.25 billion/year based on a 3% discount rate over 100 years.

[11] Wetlands loss figures from Thomas Dahl, Wetland Losses in the United States 1780's to 1980's, published by the US Dept. of Interior, Fish and Wildlife Service, Washington, DC. 21 pp. Wetland losses in the western U.S. by state are: California (91%); Hawaii (12%); Idaho (56%); Oregon (38%); and Washington (31%). Those states with more than 80% wetlands losses include: California, Ohio, Iowa, Indiana, Missouri, Illinois and Kentucky. No state has lost less than 20% other than Maine, Hawaii, New Hampshire and Alaska. All western states, including Alaska, continue to lose their wetlands at alarming rates.

To give another example from another region, nowhere in the nation is the link between wetland habitat and fish production more obvious than in the Gulf states, where National Marine Fisheries Service scientists estimate that 98 percent of the Gulf commercial harvest comes from inshore, wetlands dependent fish and shellfish. Louisiana's marshes alone produced an annual commercial fish and shellfish harvest of 1.2 billion pounds worth $244 million in 1991.[12] At this rate of return the Gulf shrimp resource alone is worth roughly $7.7 billion dollars to the economy of those states.[13] Although by no means alone, Gulf shrimp clearly head the list of that region's wetlands dependent food species. Without strong wetlands protection this extremely valuable commercial fishery would eventually no longer exist in those states.

In response to the need for stronger wetlands protection, PCFFA and five other major fishing industry groups published a report on the need for wetlands protection to assure our industrial job base. That report, titled *Fisheries, Wetlands and Jobs* (March 1998), makes clear the value of wetlands for the production of bluefish, crab, halibut, lobster, menhaden, pollack, salmon, shrimp, striped bass, trout and many other species.[14] Without strong wetlands protection -- including both a "no net loss" policy and restoration -- much of the commercial fishing industry will eventually be lost.

In a report from the U.S. Department of Commerce, Office of the Inspector General, it was noted that habitat loss (rather than overfishing) is perhaps the single greatest threat the fishing industry now faces:

> "There is growing concern about the future economic prospects of industries that depend on abundant fish and shellfish stocks. Many of the past assessments of declining stocks have cited overharvesting as the primary reason, but we found that there is a growing concern within NMFS and the fishing industry that overfishing is being overshadowed by an even more significant threat: loss of fish habitat....
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> "Since the loss of marine habitat is perhaps the greatest long-term threat to the productivity of U.S. fisheries, we believe that a strong habitat protection program -- integrated with habitat restoration and fishery management -- is essential for

[12] From EPA Office of Wetlands publication Economic Benefits of Wetlands (February, 1995), taken from federal harvest figures.

[13] Again, calculating the present value of an income stream of $244 million/year at a 3% discount rate where N = 100 years.

[14] *Fisheries, Wetlands and Jobs: The Value of Wetlands to America's Fisheries.* Coauthored and presented by Pacific Coast Federation of Fishermen's Association, Atlantic States Marine Fisheries Commission, Southeastern Fisheries Association, East Coast Fisheries Foundation and Ocean Trust (March, 1994, updated March, 1998). A copy is available on the web at: http://www.pcffa.org/wetlands.htm.

> the health of our living marine resources and the economic survival of the U.S. fishing industry." [15]

A former Director of NMFS, Rollie Schmitten, has also spoken publicly on the importance of habitat protection to the commercial fishing industry, as follows:

> "My central message today is that the protection of fish and wildlife habitats is a national problem in critical need of attention.... The assignment of endangered and threatened status to many species is symptomatic of the cumulative, ongoing nature of broad-based habitat deterioration.... Habitat loss and degradation are the major factors contributing to endangerment and extinction.... The war to conserve fish and wildlife habitats is being lost." [16]

> "[O]ver the long term [nearshore ocean and estuarine fishery habitat] loss is probably the greatest threat to marine fishery productivity throughout the United States... Fisheries management will be moot if habitat loss and degradation destroys the productive potential and the quality of our living marine resources."[17]

In fact, the war to protect fishery habitat is being lost. Even under existing law, coastal and estuarine wetlands losses have not been halted, only the rate of loss somewhat reduced. Habitat losses to date have already cost the commercial fishing industry more than $27 billion/year and more than 450,000 jobs.[18] On the other hand, habitat protection and restoration -- and in particular wetlands protection -- would restore that lost productivity and recapture those lost jobs to the economy. This is part of the "economic dividend" to the country of wetlands and other fish habitat protection. Thus any effective coastal and oceans development policy should have a strong coastal wetlands protection and restoration component at its heart.

Wetlands protection should not be seen, therefore, as a cost so much as it is an investment in the future of a national commercial and recreational fishing industry that provides $152 billion dollars each year to the nation's economy and 1.5 million family wage jobs nationwide.

I won't go into the many other onshore economic benefits of wetlands protection in any detail. However, these benefits include: natural flood control, natural buffers against erosion and siltation, water purification functions, breakdown of pollutants and the

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[15] U.S. Dept. of Commerce, *Program Evaluation, Major Initiatives Needed to Protect Marine Habitats.* Final Report, IRM-5442, January, 1994 (37 p.). Office of the Inspector General, Department of Commerce, Washington, D.C.

[16] Speech at the 58th North American Wildlife and Natural Resources Conference, Washington, DC 1993.

[17] National Symposium on Coastal Fish Habitat, Baltimore, MD, 1991.

[18] Job losses due to habitat degradation from *Marine Fishery Habitat Protection: A Report to the US. Congress and the Secretary of Commerce*, prepared by the Institute for Fisheries Resources, East Coast Fisheries Foundation and Pacific Coast Federation of Fishermen's Associations (March, 1994).

support of a host of aquatic species with many other benefits. If these functions are lost through increased wetlands losses, then the costs of replacing these natural functions (e.g., increased water filtration costs) must either be paid by government or the damages will be paid by private landowners.

One acre of wetlands flooded to a depth of 12 inches holds 330,000 gallons of flood water that would otherwise damage human property and threaten human life. This function alone makes wetlands valuable. A 1965 study of the Charles River, for instance, by the U.S. Army Corps of Engineers determined that if 40 percent of the Charles River wetlands were lost, flood stages in the middle and upper river would increase two to four feet -- increasing annual flood losses by $800,000.[19] The Minnesota Department of Natural Resources has computed a cost of $300 to replace, on average, each acre-foot of flood water storage eliminated from natural wetlands. In other words, if development eliminates a one-acre wetland that naturally holds 12 inches of water during a storm, the replacement storage costs for flood control alone would be $300. Thus the cost to replace the storage capacity of the 5,000 acres of wetland lost annually in Minnesota would be $1.5 million (in 1991 dollars).

Coastal wetlands are particularly endangered but also particularly valuable. In other studies, the economic-equivalent values of coastal wetlands ranged from about $2,200 per acre along the Pacific coast to almost $10,000 per acre along parts of the Florida coast.[20] In fact, wetlands are now recognized as a valuable natural resource that protects our cities from flooding, protects our beaches from erosion, provides us cleaner water, supports a multitude of coastal fisheries and gives us a host of other valuable economic benefits. Even from a purely economic viewpoint, wetlands are in many cases more economically valuable as wetlands -- maintained simply for their biological and fisheries value -- than for any other purpose.

I should also note that the best way to prevent more listings under the federal Endangered Species Act (ESA) is to protect wetlands. Nationwide, over 5,000 species of plants, 190 species of amphibians, and 270 species of birds depend on wetland ecosystems for their survival. In fact, nearly 50 percent of all the animals on the endangered species list in the U.S. rely on wetlands for their very existence. Wetlands are among the most productive natural ecosystems in the world, and therefore it pays to protect them.[21]

We are in fact losing the struggle to save the nation's wetlands. Hundreds of thousands of acres of wetlands have been drained annually, despite increased efforts to conserve wetlands through state and federal legislation. Over half (53 percent) of the wetlands in the coterminous United States have been lost, with the percentage of coastal

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[19] From Kusler, Jon A., *Our Wetland Heritage: A Protection Guidebook* (1983), p.1.

[20] From *Economic values of wetlands from Coastal Wetlands of the United States: An Accounting of a Valuable National Resource*. U.S Dept. of Commerce, NOAA (1991).

[21] From *Population-Environment Balance*, April 1993; source quoted: U.S. Fish and Wildlife Service.

and estuarine wetlands lost likely much higher. Only about 103 million acres of wetlands remains today, but unfortunately much of this remainder has already been biologically compromised, particularly in coastal areas.[22]

In conclusion on this topic, I want to leave this Commission with two critical messages. The first is that coastal and estuarine wetlands are critical to fish production, which means they are essential to create and maintain jobs, food, commerce and exports. In fact, almost $79 billion dollars per year are even now generated from wetlands dependent species.

The second message is that we cannot afford to lose any more coastal wetlands. We have already lost far more than half, and are still only slowing the rate of loss down rather than reversing it. Our focus today should therefore be on protecting what is left, restoring what has been degraded and looking for opportunities to reestablish new coastal wetlands wherever possible, since this will mean more abundant fisheries and additional economic opportunities in the future.

Wetlands protection is, in fact, one of the wisest long-term investments this nation can make in the economic future of its coastal and fishing-dependent communities, and should be a key element in any oceans and coastal protection policy. An active policy to protect and restore these wetlands is even more important in the face of projections of continuing sea level rises from global warming, which already threatens to inundate what little coastal wetlands still remains.

Dead Zones and Water Pollution As An Oceans Issue

Another major impact on ocean resources is, of course, widespread inland pollution. These pollutants get into ocean and nearshore ecosystems in a variety of ways, where they persist for many decades and even centuries.

First, of course, is runoff from both point and nonpoint source pollution directly or indirectly into rivers, which then carry them down to estuaries and well out to sea. Pollution laden agricultural runoff from far up the Mississippi River Basin, for instance, winds up contributing to massive “dead zones” in the Gulf of Mexico. We have similar, though smaller, “dead zones” off many of our ports on the west coast, including Seattle, San Francisco and Los Angeles. In-river “dead zones” occur in the Klamath Basin and many smaller streams for similar reasons, carrying pollutants that also ultimately empty into the sea.

Persistent organic pollutants (POPs) are a continuing problem worldwide, and these chemicals ultimately wash into the oceans where they have largely unknown impacts on ocean ecosystems, including several that support human food chains. Efforts to ban these chemicals worldwide should be supported.

[22] Thomas Dahl, *Wetland Losses in the United States 1780's to 1980's*, ibid.

The other main mechanism for pollutants getting into the ocean ecosystem is through air pollution. While air pollution is usually not thought of as an oceans issue, 3/4^{ths} of the air mass of the earth lies over our oceans. Mercury pollution and many other pollutants are introduced in massive quantity into the ocean ecosystems each year from smoke stack air pollution that circulates over our oceans, or which deposits pollutants into river watersheds which ultimately flow to the oceans. These pollutants end up often being taken up in fish flesh, particularly larger, longer lived fish, that is ultimately consumed by humans

Again, any comprehensive ocean protection policy must address the continuing influx of industrial and agricultural chemicals, in vast amounts, that wash into our estuaries and contaminate our nearshore environments and ocean ecosystems, threatening the nation's fisheries and human food chains.

The Oceans Should Not Be A Dumping Ground

Finally, the oceans themselves have all too often become the deliberate dumping ground of choice for a wide variety of chemical and radiological contaminants, in the old "out of sight, out of mind" mentality of the previous era.

To name just two examples, massive amounts of DDT and PCB's, for instance, were deliberately dumped off Long Beach, California on the Palos Verde Shelf as a result inland pesticide manufacturing facilities. This is one of the nation's largest "Superfund" sites, and a massive cleanup problem that may take years to resolve. Similar nearshore pollution problems are being assessed in Elliot Bay, Washington, and in the San Francisco Bay Delta. In all these cases these pollutants were deliberately or negligently introduced into marine or estuary waters.

In another egregious example, one of the largest nuclear waste dumpsites in the world, used for decades by the military in secret operations, lies in shallow ocean water just off the Farallones Islands of Northern California, technically within the County of San Francisco. Not only has the extent of dumping in this dumpsite never been assessed, but the nuclear waste dumpsite off San Francisco has been essentially abandoned, leaving as many as 30,000 barrels of nuclear waste to rot at the bottom of the sea right in the middle of the Farallones National Marine Sanctuary and adjacent to prime fishing grounds. Again, it was the policy of the nation at that time to use the oceans as a dumping ground for pollutants that were literally "too hot to handle" onshore.

We now know that the oceans are a fragile ecosystem and that we disrupt it at our peril. We also know that anything dumped into the ocean can come back to haunt us and contaminate the human food chain.

Nevertheless there are still those who would use the oceans as our nation's dumping ground, particularly for persistent pollutants such as radiologically active nuclear wastes, spent nuclear fuel rods and decommissioned nuclear submarine reactors (a proposed program in the 1970's and a concept that is periodically revived). Any comprehensive

ocean protection policy should underscore our nation's commitment to keeping the oceans free of pollution, and reaffirm our commitment to such international ocean dumping treaties as the London Dumping Convention, which prohibits using the oceans as a gigantic trash bin.

THE THREAT OF OFFSHORE OIL DEVELOPMENT

There are other looming threats to our nation's fisheries that also greatly concern us. This includes the advancing threat of offshore oil development, not only here but elsewhere.

In 1968 the City of Santa Barbara suffered through one of the worst oil spill disasters ever to hit the lower 48 states. The impact of that disaster on local fisheries and fishermen was enormous, and the marine ecosystem has not yet completely recovered. Since then the State of California has wisely limited the development of offshore oil leases as a matter of state law, asserting its independent authority over licensing and permitting and onshore refinery development. Other coastal states have done the same, primarily for the protection of their state's commercial and recreational marine fisheries, but also to protect other economic interests such as tourism that would be severely impacted by any future oil spills. The 1989 *Exxon Valdez* supertanker oil spill in Alaska only underscored the wisdom of that precautionary approach toward protecting fragile and economically important coastal resources.

There is also a current moratorium on offshore oil development that should remain in effect. The *Exxon Valdez* spill in Alaskan waters provides one of the most recent and powerful examples of both the ecological and economic impacts of an oil spill, but the kinds of harm suffered by coastal communities in the *Exxon Valdez* spill are hardly unique, but rather typical of the impacts of any spill, differing only in magnitude.

There is a long history of oil tanker spills nationwide. Other spills that have recently polluted Pacific Northwest waters include: a 2.3 million gallon spill of the Olympic Peninsula in 1972; a 239,000 gallon oil tanker spill off Port Angeles, WA in 1985; a 231,000 gallon tanker spill along Grays Harbor, WA in 1988; a 400,000 gallon spill along the Olympic Peninsula once again in 1991, to name only some of the largest.

Other regions of the nation's coastline have also been similarly hit by oil spills: in 1990, a tanker ran aground in the Kill Van Kull in the New York/New Jersey Harbor, spilling over 250,000 gallons of oil, closing beaches and killing endangered piping plovers; in August of 1993, three ships collided in the main channel leading into the Port of Tampa Bay, Florida, spilling 328,000 gallons of oil into the water with an even large amount catching fire, seriously polluting the air of this highly populated area; in January of 1994, an oil barge ran aground in Puerto Rican waters after the towing cable broke, and 750,000 gallons of oil spilled into the ocean off a popular beach area, causing widespread economic losses; in January of 1996, off the shore of Rhode Island, the *North Cape* oil barge had to be abandoned after the tug towing it caught fire, and 820,000

gallons of #2 fuel oil were spilled into economically important fisheries; and in March of 1996, a barge in the Houston Ship Channel almost split in two, spilling 714,000 gallons of oil into Galveston Bay. Many similar examples can be culled from the record. Before they occurred, it should be noted, each event was said to be impossible by oil industry experts.

The impacts of any oil spill can be devastating on local fishing economies. For instance, following the 1989 *Exxon Valdez* spill the Town of Cordova, AK (population 2,500) went from being the nation's 7th largest commercial fishing port to the 51st in 1993. Cordova's fishing revenue was cut nearly in half after the disaster, reduced from $46 million in 1988 to $26 million in 1997, and it has never fully recovered.[23] For some of Cordova's fishermen, the market value of their salmon fishing permits dropped by $250,000 per permit, and subsequent bankruptcy filings by fishing families became commonplace. Following the disaster, Alaska's economy lost an estimated $45 million in fishing revenue region-wide in a single year.

A comprehensive ocean policy should strengthen existing barriers or provide stronger barriers preventing offshore oil development in any area that may impact regional fisheries. Any oil spill would spell economic disaster for these fisheries. Washington's commercial fisheries, for instance, generate more than $354 million/year in revenue for that state. Any major oil spill would devastate the region's vibrant coastal fishing economy.

More leeway should also be allowed the states in requiring additional protections for their coastal resources from the ravages of an oil spill. Unique coastal conditions often call for specific and unique state protection measures. Currently federal statutes are interpreted as allowing almost no leeway for states to protect their own coastal resources and fisheries from potential oil tanker accidents. The current Administration is also going in the wrong direction, seeking to overturn what few independent authorities states still have to mitigate potential environmental damage from offshore oil development in the Court of Appeals. This is a first stage to opening up offshore oil develop all along the west coast, and indeed anywhere else it chooses.

THE THREAT OF AQUACULTURE

A discussion of fisheries would not be complete without some mention of aquaculture. There continues to be a great deal of unfounded hype regarding aquaculture, particularly now from biotech interests promoting genetically engineered fish. Aquaculture, which has been around for 3,000 years, is nothing new and no panacea. It can increase the amount of fish protein available, although it's not certain how much of a net increase it could provide, and it's certainly not going to feed the world's starving masses – not with salmon, shrimp, abalone and oysters anyway.

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[23] See Ross Anderson, "Ten Years Later, Debate Still Rages Over Effects of Exxon Valdez Oil Spill," *Seattle Times*, 21 March 1999.

Our concern is that while fishery agencies have jumped on the "precautionary principle" bandwagon for captive fisheries, they appear to be charging recklessly ahead when it comes to aquaculture promotion and development. That is true in Canada and it's true with our own National Marine Fisheries Service. If ever there was a need to utilize the precautionary approach it is with new aquaculture development, particularly as it relates to the utilization of genetically modified fish.

We know of various benign and beneficial types of aquaculture, carp and oysters for example. But other forms of aquaculture have been extremely destructive, none more so than shrimp and salmon farming. Shrimp farming, at least the way it has been conducted to date, has resulted in the massive destruction of mangroves, polluted coastal areas and displaced traditional fishing communities. We have watched in many developing nations as fisheries supplying food to local communities are systematically displaced by corporate operations producing shrimp for the insatiable demand of first world markets.

In the case of salmon farming, there has been widespread pollution resulting from these operations – from both uneaten feed and heavy amounts of fecal material around the netpens. There is a heavy use of antibiotics, particularly in nations such as Chile where enforcement is lax. Disease from farmed fish has spread to native stocks. Farmed fish escape net pens with alarming regularity threatening native fish populations. Finally, there is the question of farming fish such as salmon, that are carnivores, where an estimated four pounds of feed (that may include wild harvested fish) is needed to produce only one pound of farmed salmon flesh.

The Invasives' Brave New World – Genetically Modified Organisms

The introduction of genetically modified organisms into the ocean ecosystem creates a serious risk of ecological disaster. Our nation's fisheries are already suffering from the multitude of invasive species hitting our waters from other areas in the world, but at least these threats are still within the range of natural biological variations, and can sometimes be contained. The introduction of GMOs into the ocean ecosystem, such as has been proposed for the salmon farming industry for faster growing salmon, carries with it a whole range of risks that are well outside our experience to adequately assess. Any number of likely scenarios could lead to disaster for wild populations.

For example, genetic distribution modeling concludes that the introduction of even a single new gene into the wild salmon gene pool that gives an initial strong breeding advantage (such as large size), but carries with it long-term survival deficits, could literally wipe out all wild interbreeding populations within as few as 30 generations. This result, called the "Trojan Gene Hypothesis" is no esoteric theory, but is based on how genetic traits actually propagate in a small population and on the fundamental principles of genetics and conservation biology. If true, then the introduction of GMO salmon which grow to a large size quickly but have higher long-term mortality into the wild may

doom many wild salmon populations. Also, as with many invasive organisms, once the genie is out of the bottle it cannot be recaptured.[24]

This is no hypothetical threat: the U.S. Food & Drug Administration (FDA) is currently considering an application for the use of genetically modified fast-growing salmon in farm fish operations with precisely these genetic characteristics. Assurances by the salmon farming industry that "there will be no escapes into the wild" ring rather hollow, given that hundreds of thousands of Atlantic salmon have already escaped from salmon farming net-pen operations in Washington and British Columbia, and are already colonizing several west coast streams.

PCFFA's view is that although certain forms of aquaculture have promise, we need to proceed with caution, not recklessly, in developing that industry so that it does not jeopardize our wild fisheries. We would recommend that all aquaculture operations be closed systems that physically cannot release fish into the marine environment. In establishing a policy for aquaculture in ocean waters, such operations should not be allowed to proceed unless:

1. They are non-polluting;
2. The operations are contained or such that fish cannot physically escape into the marine environment even by accident;
3. They cannot spread disease to native stocks or threaten or compete with wild stocks;
4. They do not utilize antibiotics;
5. They are efficient in food conversion and do not rely on wild-caught fish for feed;
6. The operations do not displace or compete with traditional fishing operations;
7. The operations comply fully with all environmental and labor standards.

In addition there may also be human health and security concerns that should also be considered. While it is perhaps not within the scope of ocean policy formulation, we believe that labeling of farmed fish and genetically modified fish should be required.

This Commission also needs to take a hard look at the existing Saltonstall-Kennedy Act program, originally passed solely to assist U.S. fishermen and our fishing industry, but which has become a slush fund for the Department of Agriculture and the National Marine Fisheries Service to support aquaculture. S-K cannot and should not be used, as NMFS is doing, to provide massive subsidies for salmon aquaculture. Over half of this year's S-K funds are designated for salmon aquaculture, including language, it appears, that supports genetically-modifying Atlantic salmon for fish farm operations, a process that poses serious risks as noted above. The fisheries development needed today is better research coupled with the creation or modification of fishing gear that is more selective, and vessels that are safer and can deliver a higher quality catch.

[24] See William M. Muir and Richard D. Howard, "Possible ecological risks of transgenic organism release when transgenes affect mating success: Sexual selection and the Trojan gene hypothesis," PNAS Journal, Vol. 96, No. 24, pp.13853-13856 (23 November 1999).

THE DANGER OF PRIVITIZING A PUBLIC FISHERIES

Despite the hype from a lot of free-market theorists, as well as a few environmental groups and bureaucrats looking for easy fixes, PCFFA has found most individual fishing quota (IFQ) systems in place in the U.S. and around the world to be unmitigated disasters, mostly consolidating ownership of the fisheries into a few corporate hands and relegating fishermen to the status of sharecroppers. They have had virtually no conservation benefit (over and above normal limited entry programs) and the safety aspects touted for them soon disappear as shoreside interests scoop up the quotas. For that reason, PCFFA supports the continued moratorium on the implementation of IFQ systems in the U.S. fishery.

If, however, the IFQ moratorium is eventually lifted, then specific standards must first be imposed to assure that these systems are not abused. NMFS and the regional councils cannot be given *carte blanche* in developing IFQ systems. The discussion draft provides a start on setting out guidelines to the councils for establishing IFQs; however, it does not go nearly far enough. The following elements, we believe, are critical for any IFQ program if the moratorium is lifted:

1. *Referendum*. Prior to any IFQ program being established, a referendum must be conducted among those individuals who participated in the fishery considered for an IFQ system, with documented landings in that fishery during one of the past three or more years, and who are still eligible to participate or have permits to participate in the fishery in question. A 60 percent approval, as proposed in the discussion draft, is the minimum that should be required for an IFQ system to proceed further. The basic rules for a referendum also cannot be left up to either NMFS or the regional councils, they should be statutory.

2. *Eligibility.* Eligibility for an initial grant of quota in an IFQ fishery should be open to all those individuals or vessels with landings, no matter how small, who participated in the fishery during one of at least three previous years, and who are still eligible to participate in that fishery or who have permits to the fishery in question. If free markets are to work, then allow those who are eligible to trade and sell quota among themselves to determine what amount they need for an economically viable fishery.

3. *Ownership*. Ownership of quotas should be limited to individuals (not corporations) holding fishing licenses and who are on board and engaged in the fishery for the quota. Where companies own vessels and may be eligible for quota share based on a vessel=s catch history, they could be "grandfathered" in, but any lease or sale thereafter of their quota could only be to an individual licensed and on-board fishing for the quota.

4. *Quota Concentration Caps.* Any IFQ system must have in place a strong and effective method for controlling the amount of quota owned or controlled, directly or

indirectly, by any one individual, family unit, partnership or corporation. Otherwise the program will simply result in greater and greater economic concentration in the hands of fewer and fewer fishermen, with most commercial fishermen ultimately relegated to the status of sharecroppers.

5. *Program Duration*. Finally, any IFQ system established should be for not longer than five years duration, after which point it may be abandoned or renewed following a review of its achievements for improving fish conservation, safety, product quality, and individual vessel ownership. IFQ programs are still experimental, and no program should become permanent until its benefits can be clearly demonstrated.

Standards must not only be established for any IFQ system, but they should be mandated as well for the "cooperatives" that are springing up in Alaska and elsewhere, where cartels are established among certain associations of vessel owners. These co-ops, while masked in a progressive sounding term, are nothing more than IFQ systems themselves.

Let me also emphasize my organizations, and most fishing organizations, adamant opposition to granting quotas to fish processors. Fish processors who already own vessels engaged in fisheries should be considered for eligibility for quota for those vessels, however, only with the clear caveat that any subsequent sale or transfer of any or all of that quota can only go to a licensed individual fisherman operating a vessel in the fishery for which the quota is designed. Moreover, the idea of splitting the overall quota for a fishery and giving a portion of it to processors is unacceptable.

Many of the nation's fisheries are already in bad shape. Making fishermen into sharecroppers or permitting fish processors to legally form cartels controlling a public resource will just make a bad situation far worse.

DEALING WITH OVERCAPITALIZATION AND OVERFISHING

There is no question that many of the nation's fishing fleets are grossly overcapitalized, and that this, coupled with routinely underfunded monitoring and stock assessment programs leading to seriously overoptimistic TAC recommendations, has led to overfishing. The question is, of course, how to set things aright, reduce overcapitalization and get comprehensive data collection and population assessment programs in place to give us accurate assessments, and to bring our fisheries back into long-term sustainability?

Dealing With Overcapitalization

Overcapitalization, or "excess harvesting capacity" in the U.S. fishing industry has been written about extensively over the past two decades, including the June 2000 GAO (Government Accounting Office) report on this subject. Even now, however, the full extent of this overcapitalization is still unknown.

A national survey on overcapitalization is essential in identifying those fisheries where there is excess fishing capacity and to provide guidance on appropriate measures for addressing excess capacity where it threatens conservation of fish stocks or the economic viability of the fishery. Such a report should include recommendations for funding sources for reducing fleet harvest capacity.

Such a report, identifying those fisheries with "the most severe examples of excess harvesting capacity," should, however, distinguish between those fisheries where: 1) the fleet capacity substantially exceeds the maximum sustainable yield of the fishery; 2) the fleet capacity exceeds the amount of fish currently or foreseeably available for a sustainable harvest in a fishery where the resource decline is attributable to non-fishing impacts (e.g., salmon); 3) the fleet capacity exceeds the fish available to it, at current ex-vessel prices, for the participants to achieve, on average, a reasonable income; and 4) the fleet is overcapitalized due to some combination of the first three. I raise this issue because there are, in fact, at least three different types of overcapitalization and each may require a different remedy.

The first type of overcapitalization (#1 above) clearly would warrant some form of fleet reduction as the correct remedy. Reducing fleet capacity would facilitate the matching of fleet harvest size to the size of the resource.

In the second type of overcapitalization (#2 above) an alternative to reducing the fleet may be simply to restore the resource; for example where disease or widespread habitat loss may have taken a heavy toll on the stocks. In all too many cases on the west coast, particularly with the salmon fisheries, the decline of stocks has little or nothing to do with the harvest and much to do with dewatered rivers, damaged watersheds and too many dams in the wrong places, all forces over which fisheries managers still have little control.

Indeed, fleet reduction, where fishing impacts are not the real or primary cause of the resource decline, could simply send a whole fishery into a death spiral with little or no conservation benefit. For example, in the west, how will policy makers allocate water in a stream between fisheries and agriculture if the value of the fishery continues in decline due to a shrinking fleet size, yet agriculture always has "unmet" water demands? It becomes increasingly difficult to argue economically for the rebuilding of fish stocks when the fleet has already been depleted.

In the third type of overcapitalization (#3 above), the remedy may be to look first at the economic factors driving ex-vessel prices down. If there is collusion among processors that is resulting in low prices, or if national trade policies that allow the flooding of our markets with competing products are depressing fish prices, why should the fleet be reduced -- diminishing the gross economic worth the fishery -- when perhaps the solutions may lie instead with the Justice Department or the U.S. Trade Representative? Alaska=s current salmon crisis, for example, is not occurring because there are "too many boats and too few fish," but is the direct result of a spate of cheap

farm salmon imports being continually dumped on U.S. markets, largely with U.S. government acquiescence.

Boats retired from the U.S. fishing fleet should be retired entirely, not just shifted around to deplete other fisheries. However, there should be some flexibility in how these boats are disposed of. In places such as the Russian Far East there is a real need to develop a small coastal fishing fleet that could employ local fishermen and support local fish processing, and such small boats are much sought after. Some of our surplus U.S. vessels that are still serviceable could be used to help with the development of such fleets, where the purchase of new vessels would initially be prohibitive. Specifically, I suggest a policy that would allow vessels removed from the U.S. fisheries to reduce overcapitalization to go into the fisheries of other nations, but only if the Secretary of Commerce finds that the vessels would: 1) not contribute to overfishing in that nation; 2) not be used to fish the same stocks U.S. vessels are fishing (in U.S. or international waters); and 3) contribute to modernization for improved product quality or fisherman safety, or contribute to development of individual, private owner-operator fleets.

Buyout Programs Are Essential

It makes far more sense economically for the federal government to help buy out surplus vessels and retire excess capacity than to have to rescue overcapitalized fisheries with perpetual disaster assistance. Furthermore, the federal government played a strong role in creating and encouraging fleet overcapitalization in the first place, though such capacity-building federal incentive programs such as the Capital Construction Fund.

Additionally, it was years of government negligence that created the kinds of disasters that so many of our fishermen on the west coast are facing today, by paying little or no attention to the health of commercially fished stocks, and by grossly underfunding the most basic scientific surveys and fisheries data collection programs that would have given us ample warning that these stocks were being depleted. The federal government owes the fleet some effort to right the wrong it has created and perpetuated. A rational buyback program is the most logical solution.

There are some concerns with such a program. First, there should be some discretion to allow vessels removed from U.S. fisheries to go to the fisheries of another nation if certain conditions are met (as mentioned above).

Second, and most importantly, a source of funding needs to be established for these buyouts to occur. The impediment right now to some much needed buyouts, such as for trawlers in the Pacific groundfish fishery, is not lack of a good program but a simple lack of funds.

If Congress can provide massive amounts of subsidies for agriculture -- the billions that will be appropriated in the recently signed Farm Bill, for example -- including proposals to buy-out and retire agricultural lands, then certainly some funds are appropriate now to remove vessels whose construction the government encouraged and

even helped finance (e.g., through vessel loan guarantees). Establishing a fund and appropriating the monies needed now for buy-backs would help stop the hemorrhaging in many fisheries and speed the recovery of several stocks. A buyback fund should probably be some mix of public and industry funds, with the exact mix to be determined by the circumstances of each fishery. Congressional efforts to structure such a program and to find these funds include Senator Ron Wyden=s proposed S. 973, and Representative Lois Capps' H.R. 2376 legislation.

Ecosystem-Based Management

Many of us have long recognized that it is not possible to conserve and manage fish stocks without considering the habitats of the fish, including water quality, as well as predator-prey relationships. Fishermen in PCFFA, at least, have long been cognizant of the importance of habitats and have been careful observers of predator-prey interactions.

For a quarter century now PCFFA and a few other fishing groups around the country have worked to protect water quality, freshwater flows and fish habitats. They understand the importance of maintaining forage stocks. Commercial fishermen in California, for example, favored conservative quotas for their herring fishery, recognizing those fish were forage for salmon and other commercially and recreationally important species. They also drafted and lobbied the passage of state legislation banning the take of white sharks, a top-of-the-food-chain predator, and a prohibition on fishing for krill, an important species near the bottom of the ocean food chain. All of this is to say that the importance of ecosystems has long been understood by many in the fishing industry. It makes sense therefore that we should manage fisheries based on an ecosystem approach.

It should be U.S. policy to support and encourage an ecosystem management approach to ocean resources as well. Proposed Magnuson Act amendments would accomplish some of that, but this Commission could play a great role in underscoring the need for marine ecosystem management as a national priority.

However, lack of information about an ecosystem or the lack of an ecosystem plan should never be an excuse for doing nothing where overfishing, or habitat destruction, or unacceptable levels of bycatch are known to exist. The too-often heard phrase in the implementation of the ESA, Magnuson-Stevens and other conservation laws, that "we can=t do single-species management," is nothing more than the rationale of those who do not want to act. Yes, we need to make it U.S. policy to support ecosystem management. Yes, we need to put in place a timetable for establishing ecosystem management plans. But in the meantime, we should not let the lack of ecosystem data, or the lack of ecosystem management plans, prevent implementation of sound fishery conservation and management measures based on what <u>is</u> known.

Improving Data Collection

Good data collection programs are the key to good fisheries management. In almost every case of overfishing, poor data leading to false population projections has been a

major factor. Neither fishermen nor fisheries agencies want to see any overfishing, particularly fishing communities that are always hardest hit when stocks collapse. However, simple lack of data, coupled with overoptimistic projections, can quickly lead us in that direction. The current crisis in the west coast groundfish fleet is a good example of this problem in action. Almost no data existed for many years on the populations of many rockfish species, and very little effort was made to obtain that data. When these data programs were finally put in place, after fishermen demanded them, it appeared that these stocks were already so depleted that these fisheries will have to close, perhaps for decades, until they are rebuilt. This is not the way to manage a fishery!

In a number of U.S. fisheries, the recreational catch may also equal or exceed the commercial harvest. In some fisheries the recreational impact on the ecosystem may be greater as well, including significant bycatch. It is therefore important that a good data collection system be established for the marine recreational fishery as well.

Professional Observers

There is considerable resentment among many in the fishing industry regarding on-board fishing observers. At the same time, most recognize the value of on-board observers and once this is made clear to them will support professional observers and legitimate data collection efforts.

The value of such observers is well proven. On the west coast, for instance, information from on-board observers in the Pacific whiting fishery helped to model regulations aimed at avoiding the take of salmon. On-board observers in the Pacific groundfish fishery can provide the independent data on the levels of bycatch among different gear types, as well as the effectiveness of new or modified gear to avoid the take of non-target species. Longline swordfish fishermen in the Pacific are wanting to have observers aboard whose data may quell the allegations made against that fishery regarding turtle and sea bird bycatch and the take of immature fish. Off the north coast of California, salmon trollers will be taking professional observers aboard this summer to determine contact rates with coho salmon. It is their hope that independent observer data will show what the fishermen believe to be true: that the contact rates are low and a liberalized season for chinook salmon can be justified without impacting recovery of the ESA-listed coho.

I don=t think there is any question of the need for better support for a national fishery observer program. These programs need to be better funded, training more standardized and more rigorous, and the whole program more professionalized. Congress, as well as the National Marine Fisheries Service itself, has given these important data collection programs short-shrift. As public policy, professional fisheries observer program should be a central part of fisheries management data collection.

FISHERMEN AS PROFESSIONALS

The demands placed on fishing men and women in the next century will be like none before. The ability of our industry to survive in the next millennium will require a level of professionalism far beyond that required from us during the last ten thousand years. Times have changed. A fishing profession capable of adapting, surviving and thriving in the twenty-first century will require new skills and standards for operation.

There are three concerns that I have in the development of professionalism programs for our industry. They are: (1) that the level of skills and standards for our profession be established by our profession, not by government; (2) that to the extent possible, fishing groups from different nations work together to develop similar programs for professionalism; and (3) that we remain open to and, indeed, seek diversity in our profession.

For generations, many fishing families have pushed their children into higher learning in the hopes of bettering themselves, "becoming doctors and lawyers and such." Tragically, today few fishermen and women encourage their sons and daughters to follow them in the fisheries, because they believe there is no future. I am not such a pessimist, but we have a lot of hard work ahead to ensure a fishery for future generations.

Programs for professionalism can provide the needed training and continuing education for fishing men and women. In addition to the technical skills, however, let us foment diversity. Let us encourage our children and crew to continue their educations and upgrade their fishing skills to become the thinkers and leaders of our fishing industry of the twenty-first century, the brains that will help us adapt to a constantly changing world.

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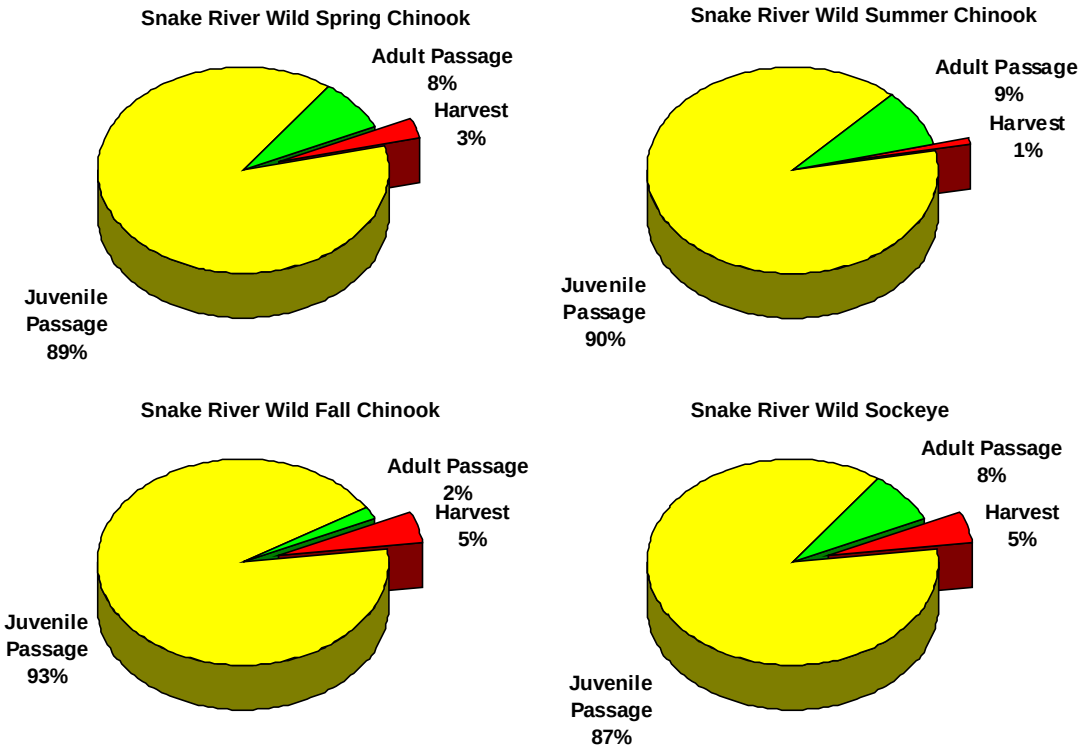
Attachments:

URL Web Page: “Rethinking Fisheries Management: Why Fisheries Management Fails,” *Fishermen’s News* August 2000 located at: www.pcffa.org/fn-aug00.htm.

URL Web Page: PCFFA Policy Statement: “Principles of the Pacific Coast Federation of Fishermen’s Associations Regarding Marine Protected Areas,” located at: www.pcffa.org/mpa3.htm.

spain_comments.pdf

Figure 1: Hydropower Compared to Harvest Causes of Immediate Mortality for Snake River Salmon Measured in Adult Equivalents



Source: Oregon Department of Fish and Wildlife 1994.

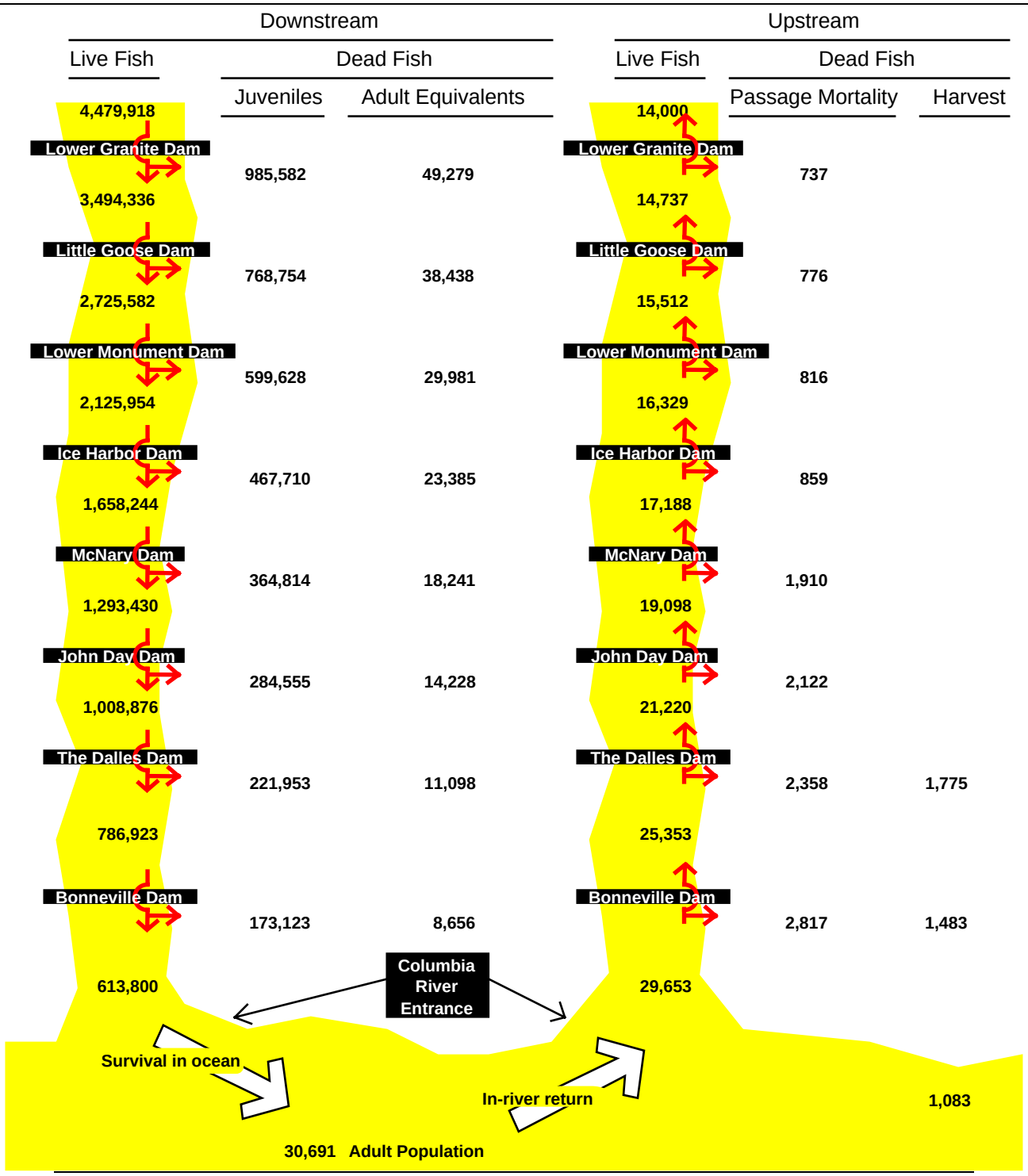
TABLE 1: Hypothetical Example of Potential Cumulative Mortality in Juvenile or Adult Salmon Migration in Relation to Number of Dams Requiring Passage[a]

Passage Mortality for Individual Dams	Cumulative Mortality for Number of Dams Requiring Passage							
%	1	2	3	4	5	6	7	8
5	5	10	14	19	23	26	30	34
10	10	19	27	34	41	47	52	57
15	15	28	39	48	56	62	68	73
20	20	36	49	59	67	74	79	83
25	25	44	58	68	76	82	86	89
30	30	51	66	76	83	88	92	94

[a]Mortality numbers for individual dams vary.

Source: National Research Council (1996).

Chart 1: Typical Passage and Harvest Mortality and Ocean Survival of Snake River Spring Chinook



Source: Oregon Department of Fish and Wildlife 1990.

Note: Normal smolt to adult survival rates are from 3% to 6%. Because of dams these smolt to adult survival rates in the Snake River are a mere 0.3%, which is much less than required for replacement to maintain the species over time.