

# SSLMC Proposal Ranking Tool

*Update!*  
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# Proposal Ranking Tool

## What it Is

- Spatially and temporally explicit model
- AHP
- SSLMC Expert Judgment

## What it's NOT

The "One Tool"

No Benefits or trade-offs analyzed

Hard to judge impacts from proposals that don't "fit" into the model

No anthropogenic effects

Bycatch?

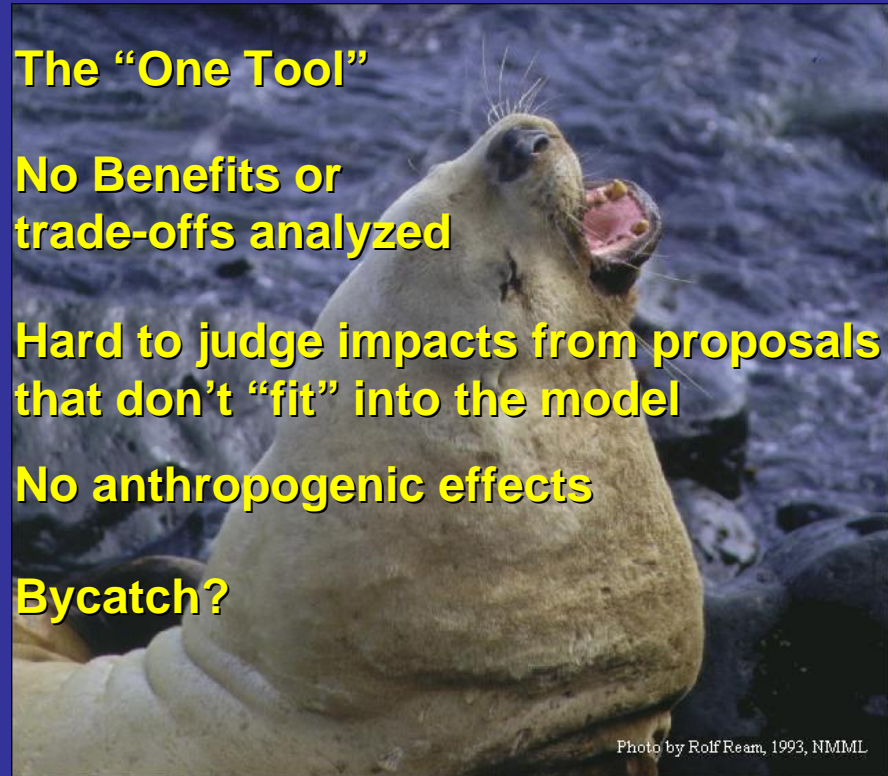


Photo by Rolf Ream, 1993, NMML

Other tools?

- White paper on bycatch
- Written committee report

# Proposal Ranking Tool

*A quick review of the variables included*

*Season, % TAC, Duration, Site-type, proximity, % sites, sub-region, target*

# Season

DEFINE

- Summer
  - May through September
  - B and C fishing seasons
- Winter
  - October through April
  - D and A fishing seasons
- Winter to Summer shift
- Summer to Winter shift

# Target Species Removals

- Slight increase in amount harvested  
1 to 5% of TAC **DEFINE**
- Moderate increase  
6 to 10% of TAC
- Large increase  
> 10% of TAC
- No change or a decrease in amount harvested

# Duration

- Shorter fishing season relative to status quo

DEFINE

- Longer fishing season relative to status quo
- No change

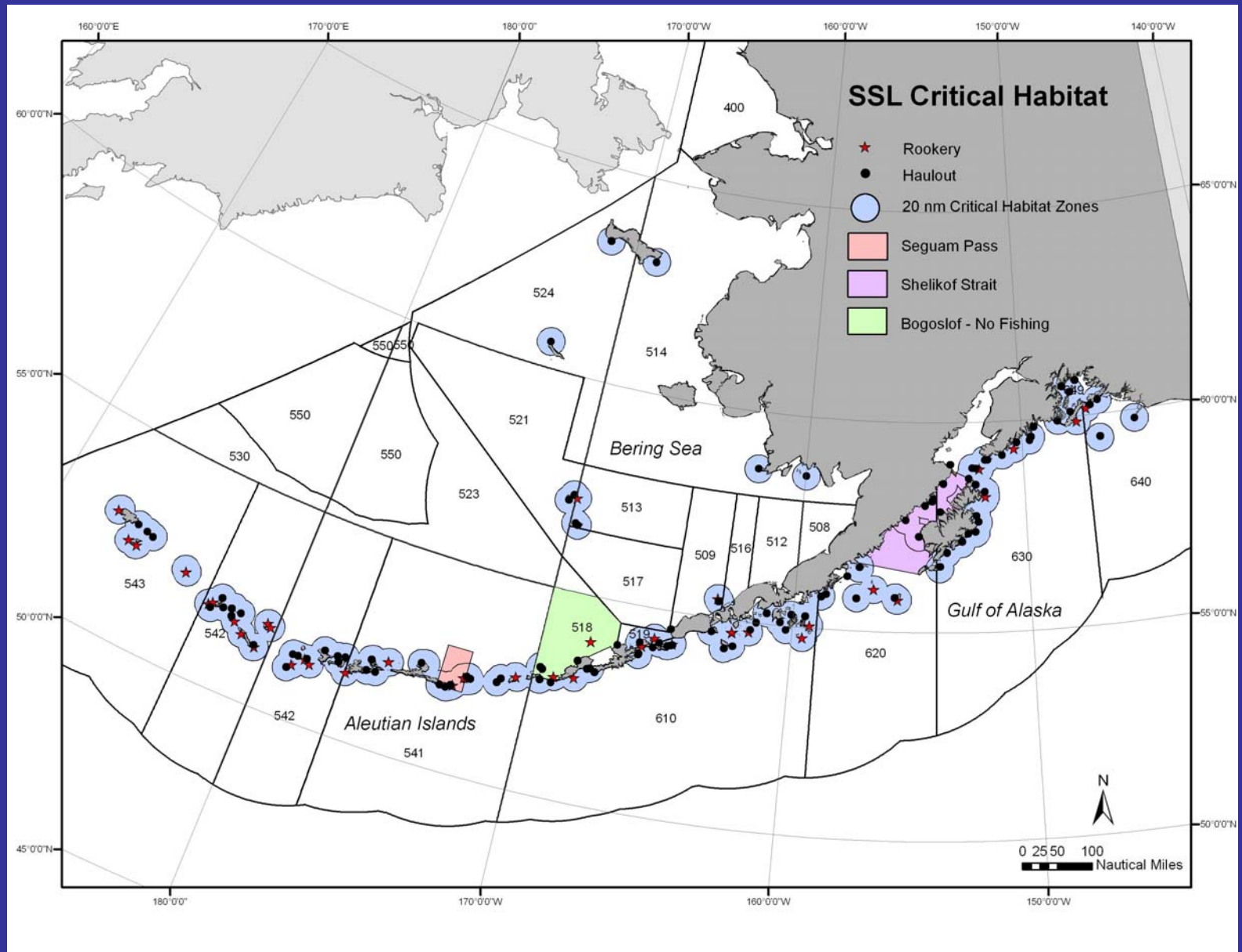
# Type of Site

- Summer Rookery - >50 pups counted since 1975
- Summer Haulout - > 200 since 1990
- Summer Other – site does not meet minimum number of observations in the summer to count as haulout or rookery, but is still considered important habitat
- Winter Rookery – site is a rookery in summer and a haulout in winter
- Winter Haulout – > 100 since 1990
- Winter Other - site does not meet minimum number of observations in the winter to count as haulout or rookery, but is still considered important habitat



# Proximity

0-3nm  
3-10nm  
10-20nm  
20+nm  
Not CH





# Percentage of SSL Sites

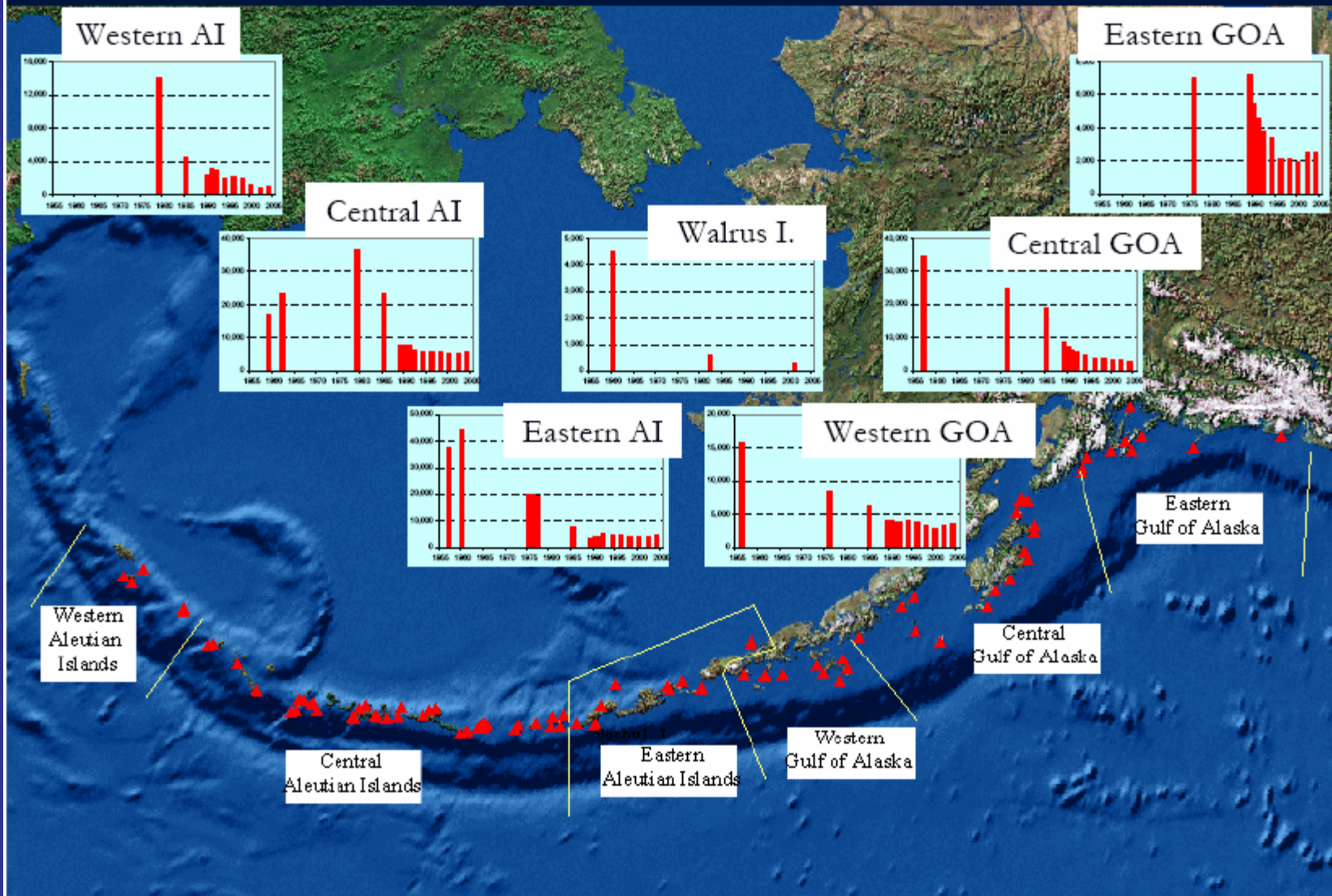
*Within each proximity grouping,  
how many sites in that region  
in that proximity category are affected?*

- 1-10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

**DEFINE – which list of sites?  
Are all sites the same?**

# Sub-Region

## Western Steller Sea Lion **Non-Pup** Counts in Alaska 1955-2004

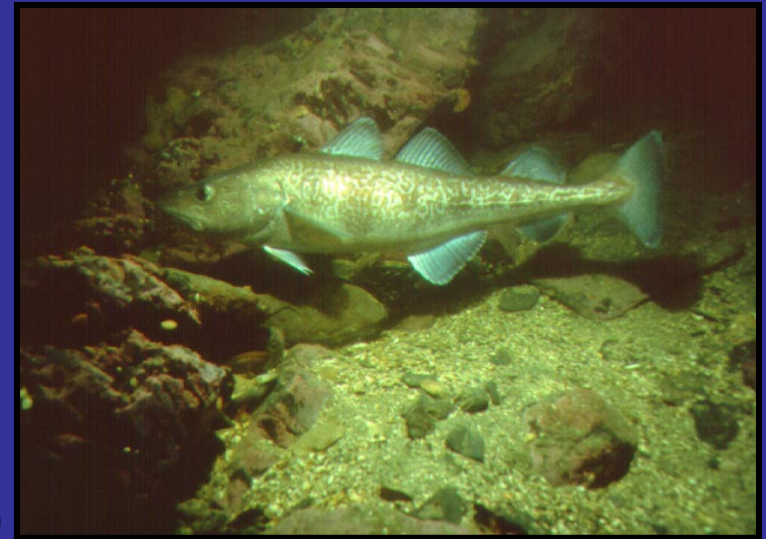


# Target Species

Walleye Pollock  
(*Theragra chalcogramma*)



Pacific Cod  
(*Gadus macrocephalus*)



Atka Mackerel  
(*Pleurogrammus monopterygius*)



# Proposal Ranking Tool

*here comes the  
hierarchical structure...*



## Relative significance of proposed changes in fishery regulations that pertain to SSL and their prey

Effects of fishing on fish **0.250**

Effects of fishing on SSL **0.750**

How does fishing alter the prey field? **0.250**

How sensitive are SSL to fishing? **0.643**  
*spatial/temporal*

How sensitive are SSL to fishing? **0.107**  
*diet composition*

**Season**

Summer	<b>0.068</b>
Winter	<b>0.061</b>
Summer-Winter	<b>0.061</b>
Winter-Summer	<b>0.059</b>

**Site-type**

Summer Rookery	<b>0.175</b>
Summer Haulout	<b>0.120</b>
Summer Other	<b>0.056</b>
Winter Rookery	<b>0.126</b>
Winter Haulout	<b>0.068</b>
Winter Other	<b>0.068</b>

**Season**

Summer	<b>0.060</b>
Winter	<b>0.047</b>

**Sub-region**

- EGOA
- CGOA
- WGOA
- EAI/BS
- CAI
- WAI
- Pribs

**% TAC**

- 1-5%
- 6-10%
- >10%
- No change

**Proximity**

- 0-3 nm
- 3-10 nm
- 10-20 nm
- 20+ nm
- Not CH

**Duration**

- Shorter
- Longer
- Same duration

**% sites**

- 1-10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

**Target**

- Pacific cod
- Pollock
- Atka mackerel

# Proposal Ranking Tool

## Sensitivity Analyses

- How does model output change when input categories change?

*We will test some example proposals to see how the score changes.*

- How sensitive is the model output to changes in expert judgments?

*Interactive selectivity analysis shows the resulting weights of children when the mother node judgment changes.*

- How robust is the model output to rank order changes?

*Next model report will include results showing that model was fairly robust. A 10% increase in weighting was needed to effect change in rank order.*



Expectations of  
model output?

# For an example...

Variable	Hypothetical proposal #1
Season	summer
Target species removals	big increase
Fishing duration	shorter
SSL site types	rookery
Proximity to an SSL site	0-3nm
% of SSL sites affected	76-100%
Season	summer
Geographic sub-regions	WAI
Target fish species	Atka mackerel

## Relative significance of proposed changes in fishery regulations that pertain to SSL and their prey

Effects of fishing on fish **0.250**

Effects of fishing on SSL **0.750**

How does fishing alter the prey field? **0.250**

How sensitive are SSL to fishing? **0.643**  
*spatial/temporal*

How sensitive are SSL to fishing? **0.107**  
*diet composition*

**Season**

Summer	<b>0.068</b>
Winter	<b>0.061</b>
Summer-Winter	<b>0.061</b>
Winter-Summer	<b>0.059</b>

**Site-type**

Summer Rookery	<b>0.175</b>
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**Season**

Summer	<b>0.060</b>
Winter	<b>0.047</b>

**Sub-region**

- EGOA
- CGOA
- WGOA
- EAI/BS
- CAI
- WAI
- Pribs

**% TAC**

- 1-5%
- 6-10%
- >10%
- No change

**Proximity**

- 0-3 nm
- 3-10 nm
- 10-20 nm
- 20+ nm
- Not CH

**Duration**

- Shorter
- Longer
- Same duration

**% sites**

- 1-10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

**Target**

- Pacific cod
- Pollock
- Atka mackerel

<u>Hypothetical proposal #1</u>	How does fishing alter the prey field?	How sensitive are SSL to fishing? <i>spatial/temporal</i>	How sensitive are SSL to fishing? <i>diet composition</i>
Weight based on judgments	<b>.250</b>	<b>.643</b>	<b>.107</b>
Model score	<b>.0191</b>	<b>.0080</b>	<b>.0138</b>

**Total Score = 0.409**

Expectations of  
model output?

# Another example...

Variable	Hypothetical proposal #2
Season	winter
Target species removals	slight increase
Fishing duration	longer
SSL site types	other
Proximity to an SSL site	20+nm
% of SSL sites affected	n/a
Season	winter
Geographic sub-regions	CGOA
Target fish species	Pacific cod

## Relative significance of proposed changes in fishery regulations that pertain to SSL and their prey

Effects of fishing on fish **0.250**

Effects of fishing on SSL **0.750**

How does fishing alter the prey field? **0.250**

How sensitive are SSL to fishing? **0.643**  
*spatial/temporal*

How sensitive are SSL to fishing? **0.107**  
*diet composition*

**Season**

Summer	<b>0.068</b>
Winter	<b>0.061</b>
Summer-Winter	<b>0.061</b>
Winter-Summer	<b>0.059</b>

**Site-type**

Summer Rookery	<b>0.175</b>
Summer Haulout	<b>0.120</b>
Summer Other	<b>0.056</b>
Winter Rookery	<b>0.126</b>
Winter Haulout	<b>0.068</b>
Winter Other	<b>0.068</b>

**Season**

Summer	<b>0.060</b>
Winter	<b>0.047</b>

**Sub-region**

- EGOA
- CGOA
- WGOA
- EAI/BS
- CAI
- WAI
- Pribs

**% TAC**

- 1-5%
- 6-10%
- >10%
- No change

**Proximity**

- 0-3 nm
- 3-10 nm
- 10-20 nm
- 20+ nm
- Not CH

**Duration**

- Shorter
- Longer
- Same duration

**% sites**

- 1-10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

**Target**

- Pacific cod
- Pollock
- Atka mackerel

<u>Hypothetical proposal #2</u>	How does fishing alter the prey field?	How sensitive are SSL to fishing? <i>spatial/temporal</i>	How sensitive are SSL to fishing? <i>diet composition</i>
Weight in model	<b>.250</b>	<b>.643</b>	<b>.107</b>
Model score	<b>.0015</b>	<b>.0030</b>	<b>.0004</b>

**Total Score = 0.0049**



# Compare Model Scores

Hypothetical  
proposal #1

Hypothetical  
proposal #2

0.409

0.0049

More impact

Less impact

NMML Photo Gallery, 2002