

Presentation at the Second Plenary Meeting
of the Advisory Committee on Acoustic
Impacts on Marine Mammals
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Arlington, Virginia

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ESA Risk Assessment Framework

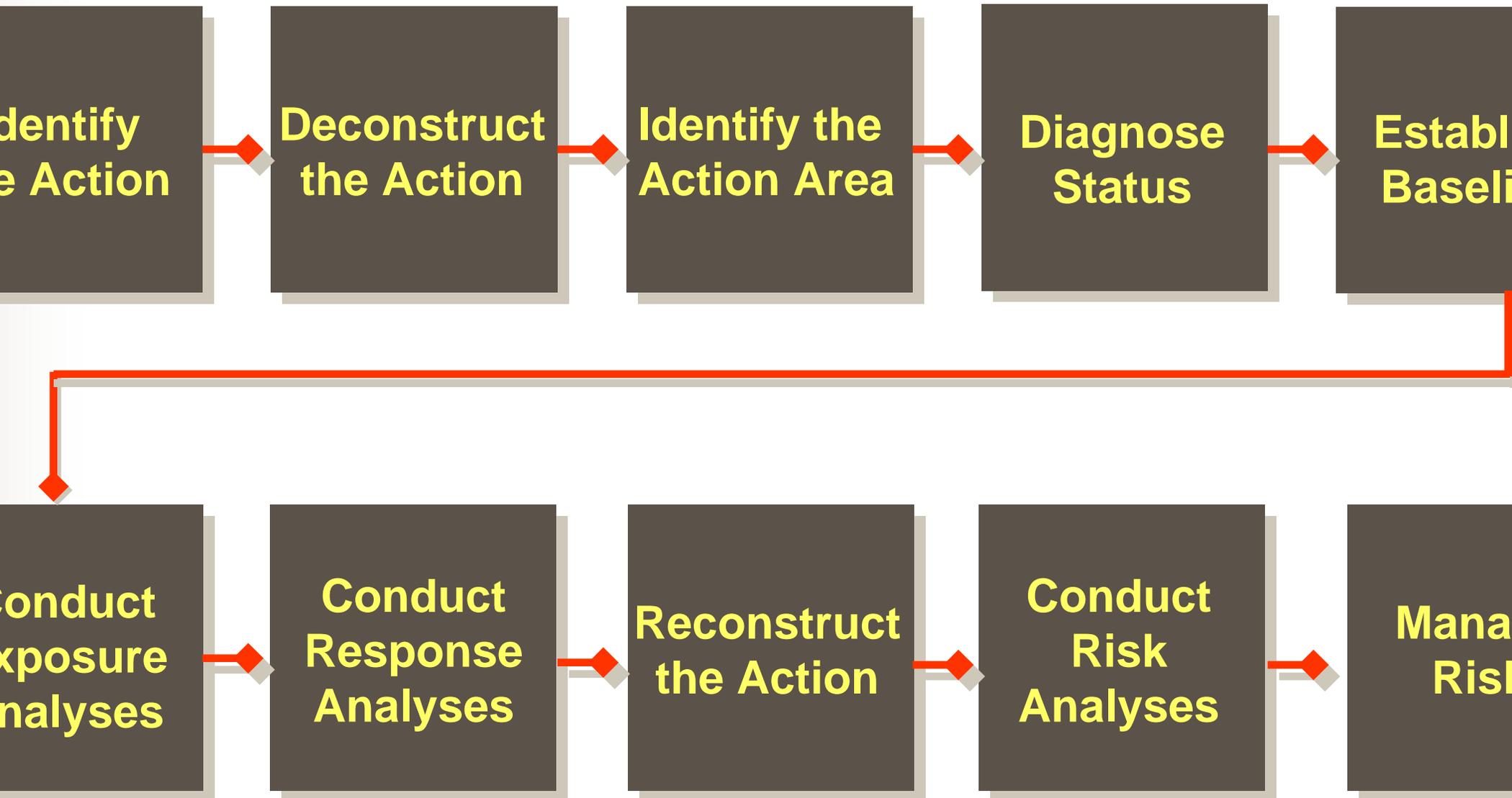


Penny R
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Section 7 Coord

What's the Question?

- **Is an action likely to jeopardize a listed species?** – ESA section 7(a)(2)
- **Jeopardize the continued existence of** – to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the numbers, reproduction, or distribution of that species.

The Analytical Model



Establishing Exposure

look for the co-occurrence of listed species and the
essors of the action:

ow many individuals would be exposed

hich populations those individuals represent

hat are the specific effects causing the exposure

here the exposure would occur

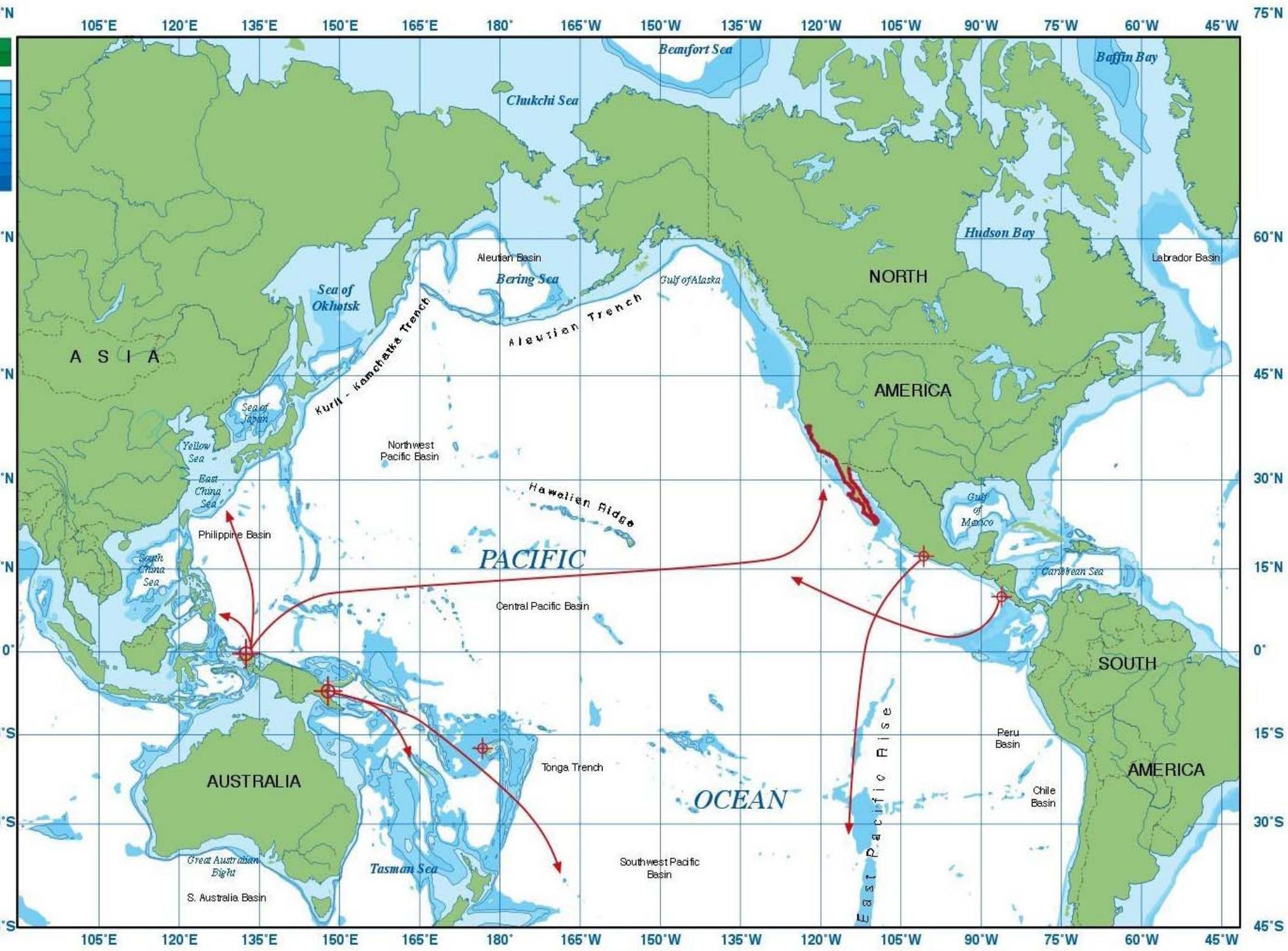
hen the exposure would occur

ow long the exposure would occur

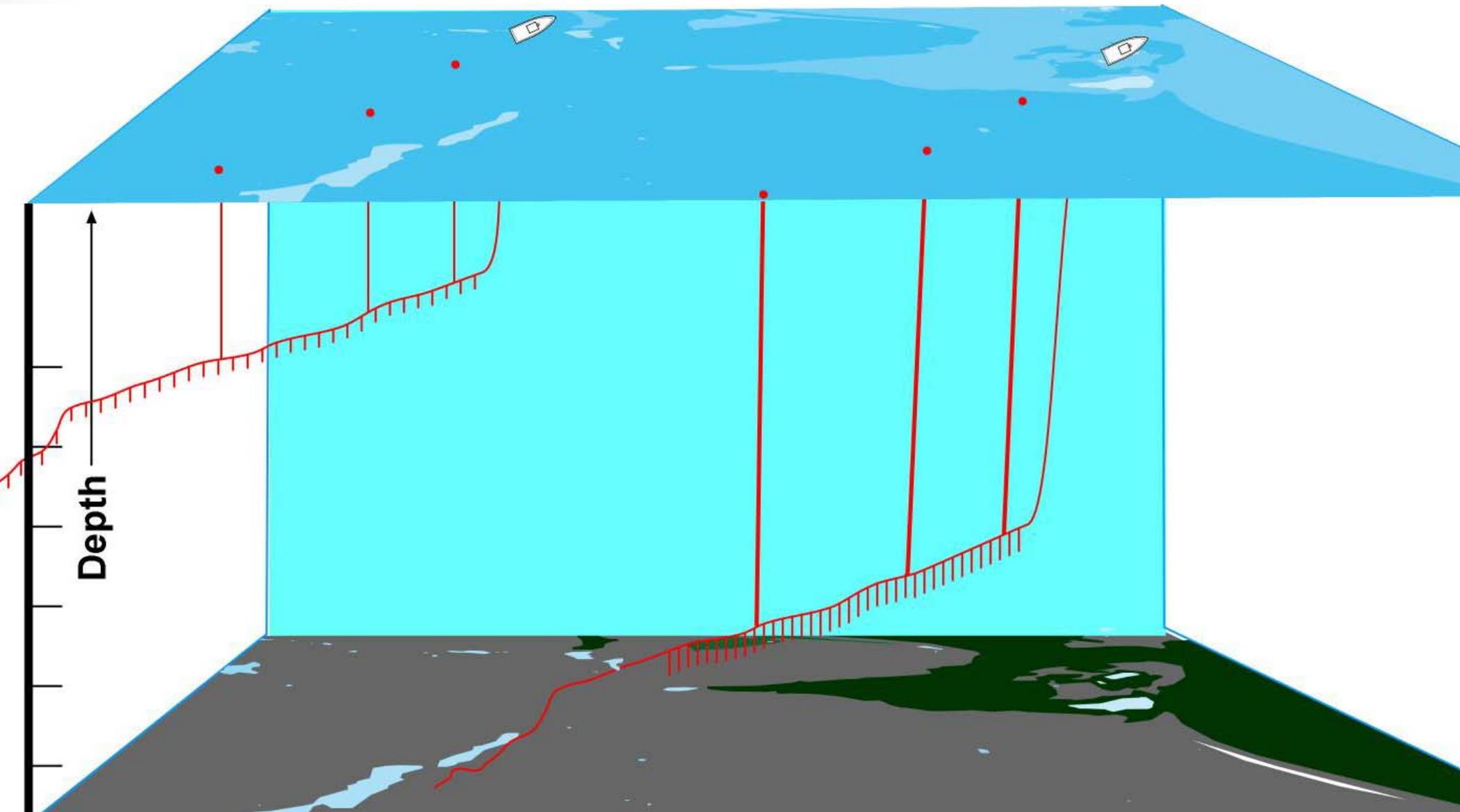
hat is the frequency of exposure

hat is the intensity of exposure

and Migratory Pathways in the Pacific Ocean



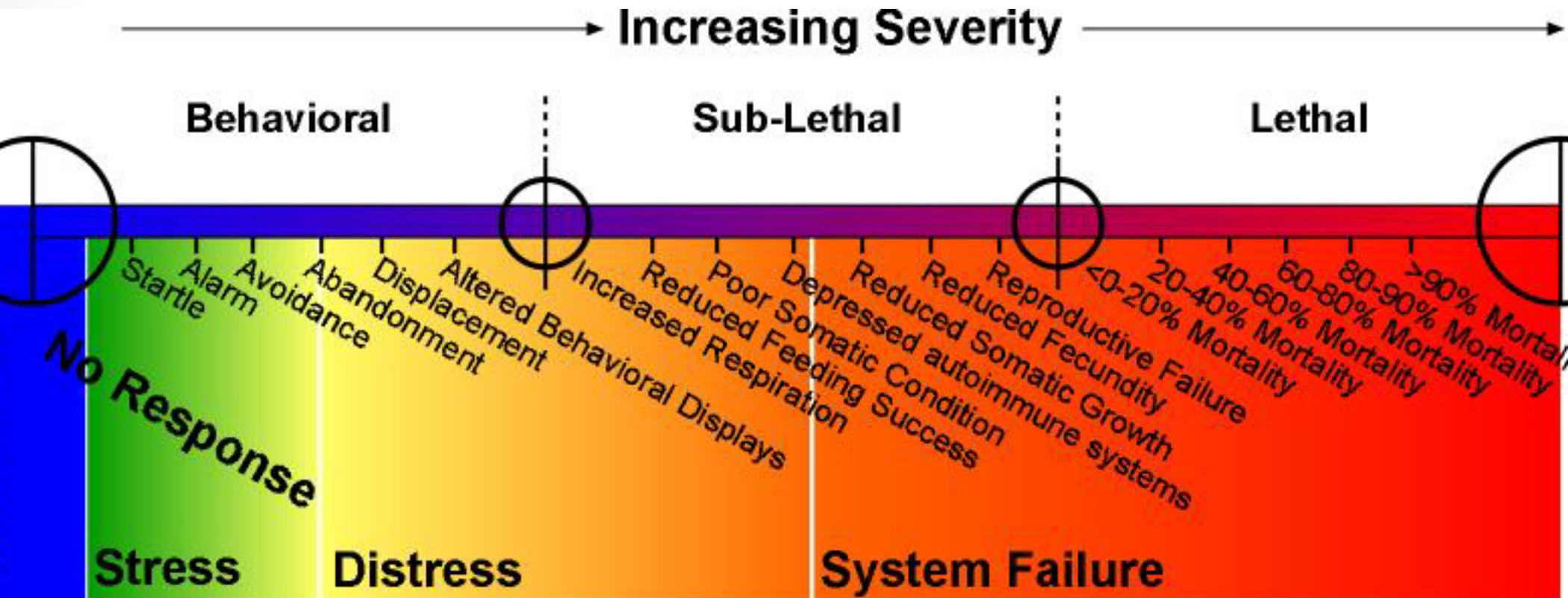
Longline Fisheries: Shallow and Deep-Set Gear



Response Analyses

- To complete our analyses, we need to know how the individuals that have been exposed are likely to respond
- Are the individuals likely to
 - Die?
 - Delay reproduction?
 - Produce fewer young or seeds?
 - Stop feeding?
 - Grow slower, take longer to mature, both?
 - Abandon their territory?

Response Continuum



Risk Analyses

- Given our knowledge of the number of individuals exposed
action and
- Their responses upon exposure
- Is the combination of exposure and response sufficient to .
 - Reduce the population's time to extinction?
 - Reduce the population's mean time to extinction?
 - Reduce the population's median time to extinction?
 - Increase the population's probability of extinction in an interval of time (for example, $P(e)_{25, 50, 100}$)
 - etc

Negligible Impact Determination

Section 101 (a) (5) (A) and (D) of the
Marine Mammal Protection Act
(MMPA)

Incidental Take Authorization Program

Donna Wieting

NOAA Fisheries, Office of Protected Resources

Negligible Impact Determination

- Taking determined on an individual mammal basis
- Risk assessed as impacts on the reproduction and survival of the species or stock

Negligible Impact Determination

Information for analysis:

- Description of activity
- Dates and duration of activity
- Species and numbers of marine mammals likely to be found within the activity area
- Status and distribution of affected species or stocks
- Type of authorization being requested and method of incidental taking
- By age, sex, and reproductive condition, the number of marine mammals that may be taken by each type of taking
- Anticipated impact of activity on marine mammal species or stock
- Anticipated impact on availability of marine mammals for subsistence uses
- Anticipated impact upon habitat
- Anticipated impact of loss or change of habitat on the animals involved
- Other possible means of effecting the least practicable adverse impact
- Steps to minimize adverse effects on availability of marine mammals for subsistence uses (when applicable)
- Means of conducting monitoring and reporting
- Suggestions on cooperation with other research activities

Negligible Impact Determination

- If species/stock has a low or zero Potential Biological Removal (PBR)
→ taking by serious injury or mortality may not be authorized
- Example: North Atlantic Right Whale ship strikes

Negligible Impact Determination

- If stock has a PBR level → taking by serious injury or mortality may be authorized
- Example: Atlantic Humpback Whale ~1 in 5 years may be allowed by all activities

Negligible Impact Determination

- Risk also relates to type of taking
- Most authorized incidental take (excluding fisheries) is behavioral harassment and potential (non-serious) injury

Negligible Impact Determination

- Level B harassment, short term activity → unlikely to result in removal of animals from the population, or to have significant effects on a stock's reproduction or survival
- Example– Oceanographic surveys using acoustic instruments.

Negligible Impact Determination

- Level B harassment, longer term activity in a biologically significant area
→ cumulative impact assessment is needed prior to determination
- Example-Long-term Oil & Gas Production or Seismic Exploration in the U.S. Beaufort Sea or Gulf of Mexico.

Negligible Impact Determination

Risk Assessment Information is obtained from:

- Application
- Related NEPA Document(s)
- Published and Unpublished Data and Information

Risk Assessment Procedure

Proposal Stage

- Risk is assessed by complete review of the MMPA application and NEPA documentation
- Review-area of activity, mammal abundance and seasonality, type of take, mitigation and monitoring

Risk Assessment Procedure

Final Authorization Stage

- Preliminary Risk Assessment Based on Reanalysis of Activity, and
- Impacts utilizing NEPA and ESA assessments

Risk Assessment Procedure

- Applications Usually Assess Risk Without Implementation of Mitigation and Monitoring Measures
- Risk Likely Lower if Measures are Imposed

Risk Assessment Procedure

Example - Churchill Shock Trial

- NEPA, MMPA and ESA Review
- Extensive Pre-Detonation and Detonation Mitigation and Monitoring to Ensure No Mammal Mortality
- Post-Detonation Monitoring Verified No Mortality