



CALIFORNIA
OCEAN
SCIENCE
TRUST

Ecological Risk Assessment (ERA) for California Fisheries



ERA Workshop
Santa Rosa, CA | July 27, 2017



CALIFORNIA
OCEAN
SCIENCE
TRUST



Working across boundaries. Building trust & understanding in science.

LINKED TO THE STATE

We're an independent non-profit, created through legislation.

MAKING SCIENCE USEFUL

We empower broad participation in management with useful science and knowledge.

PARTNERS IN GOOD GOVERNANCE

We're independent of academia and the state, but linked to both.

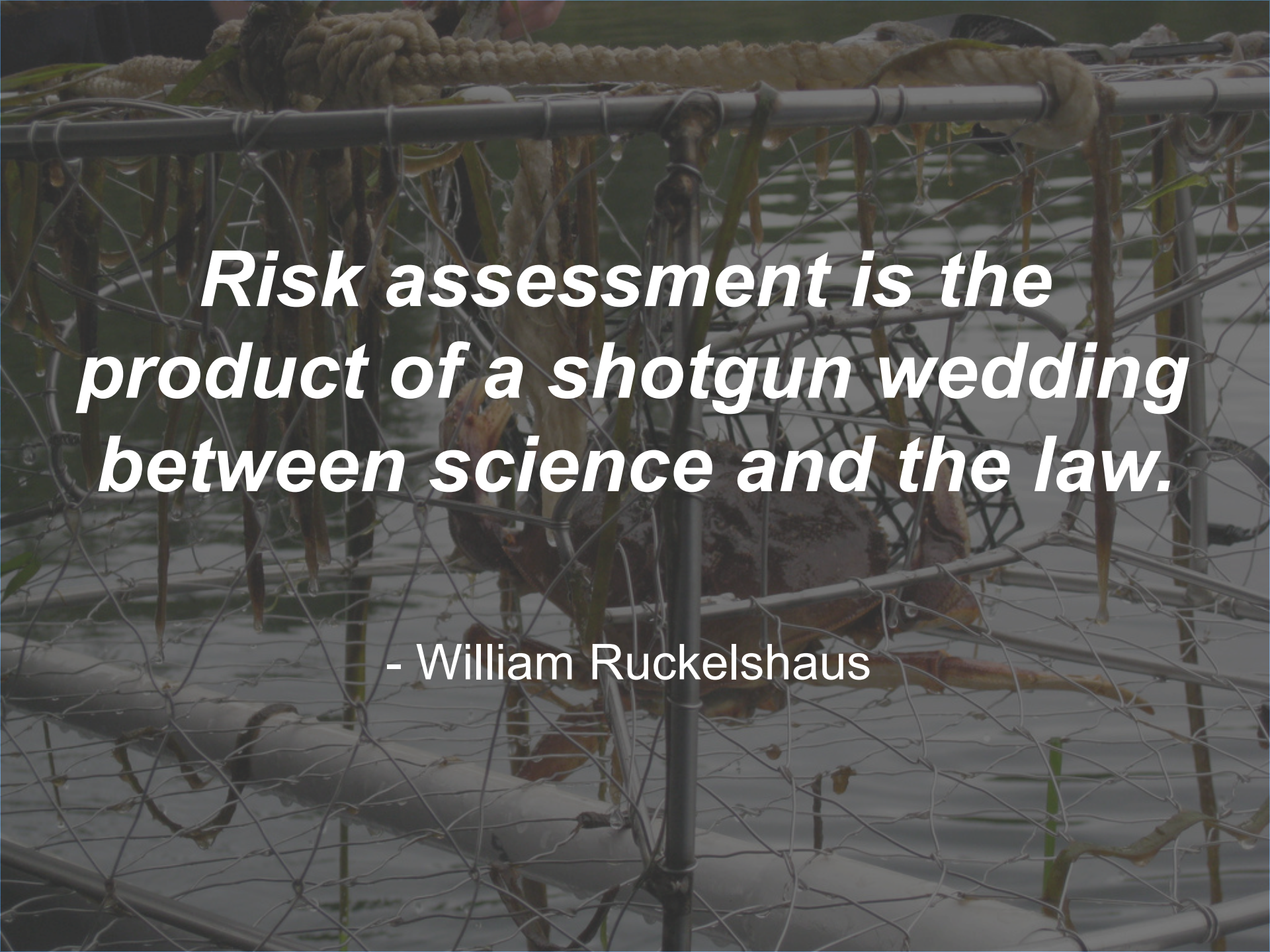
Overview

- Context: Marine Life Management Act (MLMA) Master Plan Amendment
- Risk Assessments 101
 - What they are and why the State is interested in exploring
- Ocean Science Trust Pilot Project Overview
 - Phase 1: Target risk assessment
 - Phase 2: Habitat and Bycatch risk assessment

Context: MLMA Master Plan Amendment

- Large number of marine fisheries under state jurisdiction, prioritizing management efforts is essential
- State's draft updated prioritization framework seeks to consider fishery impacts to target species, ecosystem structure and function, socioeconomics, and other factors

Given this need, OST, as funded by OPC, is working with CDFW & NOAA to pilot risk assessment tools as a quantitative way to prioritize among state-managed fisheries for management attention



***Risk assessment is the
product of a shotgun wedding
between science and the law.***

- William Ruckelshaus

Risk Assessment 101

What is "Risk?"

- Risk is the probability that some part of the ecological system will change beyond acceptable limits as defined by users of tool.

What are Ecological Risk Assessments?

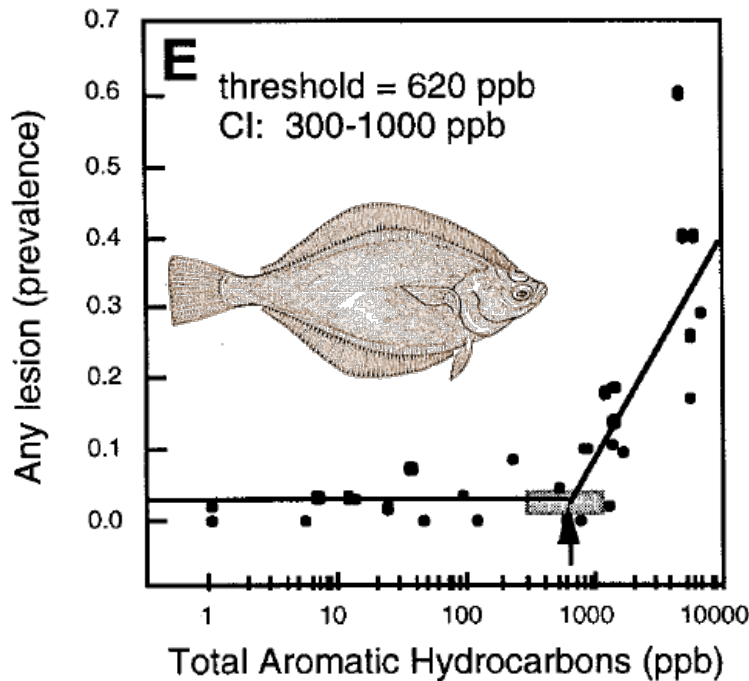
- Frameworks for rapidly assessing the likelihood of a fishery, species, or ecosystem to face significant impacts or "risk" due to a stressor (e.g., fishing activity, climate change, agriculture, development)

Overview: Ecological Risk Assessments (ERA)

What they can do:

- Assess *potential* relative vulnerability
- Assess both data-poor and data-rich fisheries on *same scale*
- Demonstrate fisheries that are likely to be most sensitive to a particular method of fishing or stressor
- Useful for a baseline comparison *among fisheries* (or other species/ecosystem feature)
- Can be conducted alone or as part of a series of data analyses on vulnerability
- *Precautionary* methodology
- Bring multiple types of expert knowledge and data together

Risk Assessment 101: Quantifying Risk

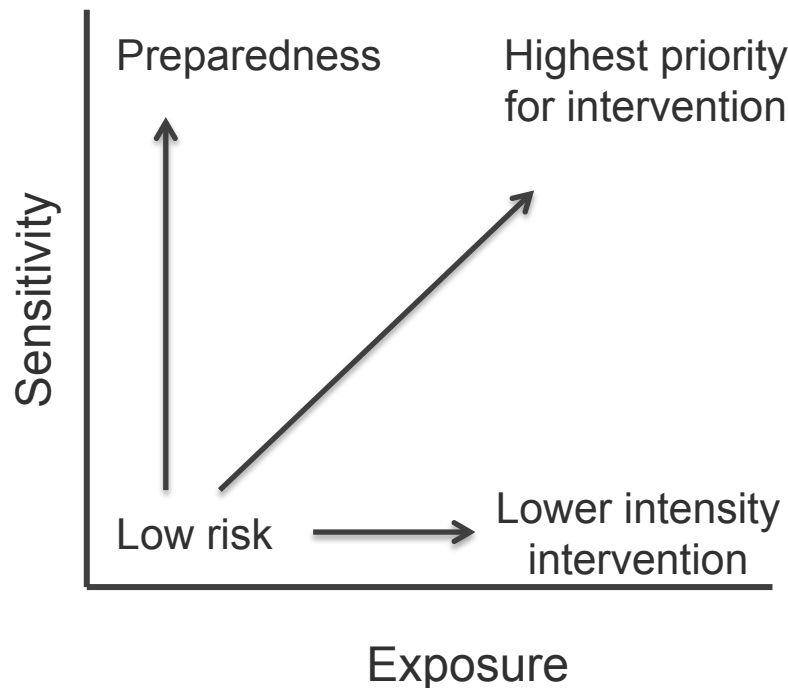


Horness et al. 1998

2 axes of information

1. the *exposure* of a subject to a pressure
2. the *sensitivity* of the subject to the pressure, if exposed

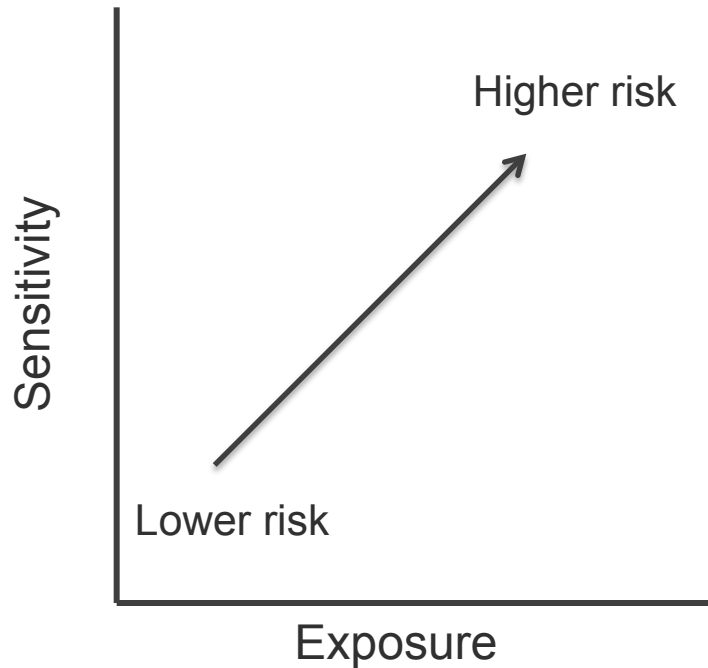
Use an Understanding of Risk to Prioritize Management Attention



2 axes of information

1. the *exposure* of a subject to a pressure
2. the *sensitivity* of the subject to the pressure, if exposed

Ecosystem Risk Assessment Framework



Focus on:

1. Bycatch, Habitat, Target groups
2. Fisheries

What Does it Mean to be High Risk Relative to Other Species/Habitats?

- Some combination of attributes are creating a high potential risk (not necessarily absolute or “true” risk) relative to other species
- High risk species are evaluated to better understand why they fell out as higher than others
 - Ascertain if there is a need for management attention
 - Understand data gaps
- Results can lead to creative solutions from different groups

Ecological Risk Assessment Implementation

Typical process/best practices:

- Clear management goals for ERA tool
- Stakeholder engagement (takes many forms)
- Management decisions of how to use output should be identified before conducting full assessment
- Can be iterative over time

Overview: OST Pilot Project

Phase I – Risk to Target Species: Select and apply a Productivity Susceptibility Analysis (PSA) on target species

Phase II – Risk to habitat and bycatch: Pilot a tool that assesses risk to habitat and bycatch, document lessons learned

PHASE I: Risk to Target Species - PSA

- Widely utilized risk assessment tool for understanding relative risk to target species
- NOAA customized PSA for US fisheries
- “Off the shelf approach” - Did not adapt or change methodology for CA fisheries
- Publicly available
- More this afternoon!

PHASE II: Risk to Habitat & Bycatch - ERA

- CDFW requested risks to bycatch, habitat
- Defined management goals/questions
 - What is the risk posed to a fished species, bycatch species, and habitat due to fishing activity?
 - Want to understand risk posed by fishery, not just if a species/habitat is at risk inherently or from other stressors
- OST/NOAA added risk to target species component

PHASE II: Three Components

- Target- fished species
 - “Fishery” or “unit of analysis” defined as unique combination of species, gear, sector
- Bycatch- catch that is returned to the water
 - Working definition for pilot purposes only
- Habitat- any habitat that interacts with a particular fishery

Risk to Bycatch and Habitats: Samhuri and Levin ERA

- Selected this ERA for customization for several reasons:
 - Stands on shoulders of PSA
 - Applied in several locations already
 - Part of NOAA Integrated Ecosystem Assessment toolkit
 - Ability to assess
 - ecosystem level considerations
 - fisheries the same way as California
 - fisheries at multiple scales

Risk to Bycatch and Habitats: Customized ERA for CA Fisheries

- Iterative process to develop tool
- Developed a customized approach
- Working with CDFW experts to test tool
 - Provided instructions, CDFW completed draft scoring
 - Group discussion and briefing
 - Re-scoring
 - First workshop, feedback, more changes
- Draft results to share today
 - Fishery expert input

ERA Tool Pilot Process

- Throughout the workshop we are looking for meaningful feedback from group on tool itself, its utility, and how you would like to interact with the tool if the State integrates into amended Master plan
- Feedback from workshops and conversations will be captured in workshop materials as well as inform OST's final report with tool and findings to CDFW



CALIFORNIA
OCEAN
SCIENCE
TRUST

Questions?

- Questions related to what an ERA is?
- How might an ERA be a valuable/useful tool for CDFW to prioritize fisheries for management?
- Are assessments of bycatch and habitat important ecosystem considerations? Others that are important?