Ecological Risk Assessment Conflict Resolution

As an aid to Regional and Area Contingency Planning

Why was the Process developed?

- To offer a risk based approach to planning
- To build consensus understanding of environmental tradeoffs in response
- To help develop better response plans



What is an this Consensus ERA?

- *Not Scientific investigation but a sharing of scientific understanding*

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How was the process developed?

- Need to evaluate all alternatives recognized
- EPA and CG Risk Based Guidelines
- CG/industry/state workshops
  - Baltimore, Puget Sound, San Fran, Galveston
  - Mobile and LIS

How will it benefit planning?

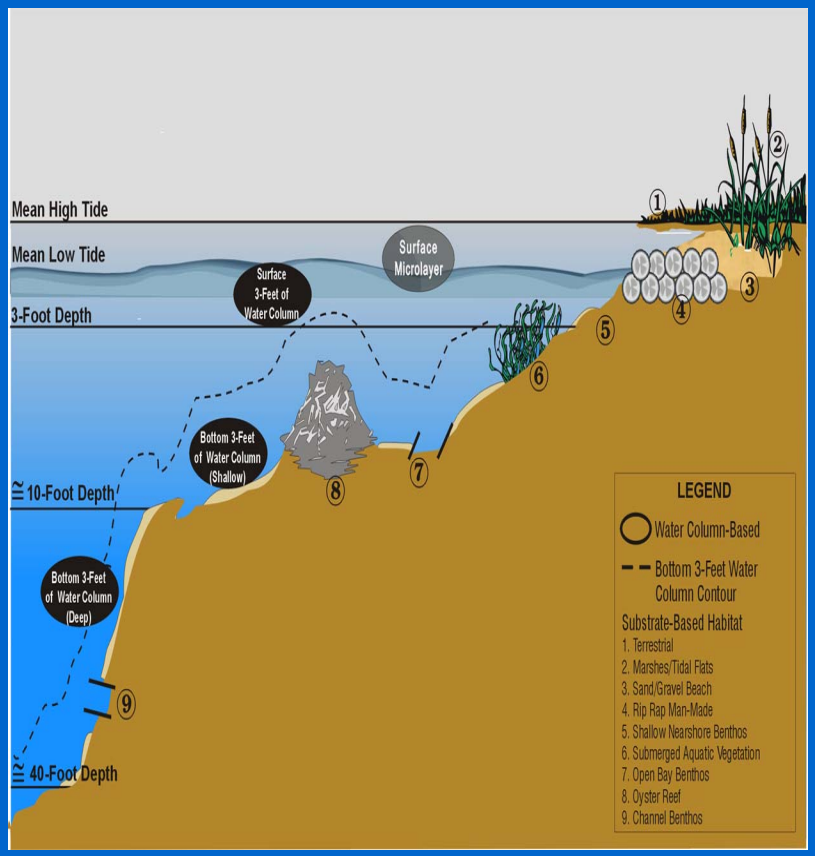
- Mechanism for response action comparison
- Consensus building tool
- Defensible analysis of tradeoffs

How Does It Relate to Other Planning Considerations?

- Ecological consequences are one element
- Must be integrated with other factors:
  - social
  - economic
  - legal
  - political
  - feasibility

What are the basic elements?

- Stakeholder Participation
- Problem Formulation
- Conceptual Model
- Analysis
- Risk Characterization



Problem Formulation

- Four Tasks:
  - Understand the potential risk in area
  - Outline management goals
  - Create a spill scenario
  - Develop a list of plausible response options

Process Conceptual Model

Conceptual Model Matrix

Habitats:	Terrestrial							Intertidal Shoreline									
Sub-Habitats:								Marsh/Tidal Flat					Sandy Beach				
RESOURCES:	Arthropods	Fish	Birds	Crustaceans	Infauna	Mammals	Molluscs	Fish	Infauna	Mammals	Molluscs	Reptiles/amphibians	vegetation	Birds	Crustaceans	Infauna	Mammals	Molluscs
STRESSORS:																		
Natural Recovery	1, 7	1, 7	1,4,7	1,2,4, 7	2,4,7	1,4,7	2,4,7	2,4,7	2,4,7	1,4,7	2,4,7	1,2,4, 7	2,4	1,4,7	1,2,4, 7	2,4,7	1,4,7	2,4,7
On-Water Recovery	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Shoreline Cleanup	3,4,6	4,6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Oil + Dispersant	NA	NA	4,7	2,7	2,7	7	2,7	2,7	2,7	4,7	2,7	2,7	2	4,7	2,7	2,7	7	2,7
ISB	1	1	1	NA	NA	1	NA	5,7	4,5,7	1,4,5, 7	4,5,7	1,4,5, 7	4,5	1	NA	NA	1	NA

These hazards represent changes from oil only scenario.
Shaded zones indicate areas of emphasis for the risk analysis

Hazards: 1 = Air Pollution, 2 = Aquatic Toxicity, 3 = Physical Trauma (mechanical impact), 4 = Oiling/Smothering, 5 = Thermal (from ISB), 6 = Waste, 7 = Indirect (food web, etc.) N/A means no interaction

The Analysis

- Characterize exposure and effect
- Given theoretical degree of exposure, estimate the impact on resources and habitats

Magnitude of Impact*	Recovery Time: > 6 years (1)	3-6 years (2)	1-3 years (3)	< 1 year (4)
High (A)	1A	2A	3A	4A
Moderate/High (B)	1B	2B	3B	4B
Moderate/Low (C)	1C	2C	3C	4C
Low (D)	1D	2D	3D	4D

*Note: Magnitude of Impact is based upon percentage of resource affected.

Risk Characterization

Comparative Risk Rankings

Resources	Terrestrial					Intertidal Shoreline												
						Marsh/Tidal Flat								Sandy Beach				
	Arthropods	Birds	Mammals	Reptiles/Amphibianss	Vegetation	Birds	Crustaceans	Fish	Infauna	Mammals	Mollusks	Reptiles/Amphibians	Vegetation	Birds	Crustaceans	Infauna	Mammals	Mollusks
A	4D	1D	4D	2D	3D	2B	3C	3D	4D	4D	4C	NA	3B	1A	3B	4D	4D	4C
A	1D					2B								1A				
B	4D	4D	3D	NA	NA	3B	3C	4C	3C	3D	3C	2C	4C	2C	3C	4D	3D	3D
B	4D					3C								3C				
C	4D	4C	4D	4D	4D	2B	3C	3D	3D	1A-4D	3C	3D	3D	2B	3C	3D	4D	4D
C	4C					2B								2B				

Simplified Consensus Process

- Pre-Workshop – framing the environment
- At the Workshop – Training the process & Assessing the impacts
- Post-Workshop – focused planning

Current Status

- ERAs in near shore areas: Long Island Sound, Mississippi Sound, Portland Maine and the Caribbean

ERA Conflict Resolution Future

FY04 –05

- Inland Rivers
- PAC Northwest

ERA Guidelines available at:

http://ecosystem-management.net/CG%20ERA%20Guidance%20Manual%20Final%20May2001.pdf