

Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary

Advisory Team Meeting Notes

July 24, 2008, 1:30 to 4:30 pm, Eureka Sea Grant Office

- I. In Attendance:** Diane Ashton (NOAA Fisheries), Steve Cannata (DFG), Annie Eicher (California Sea Grant Extension), Vicki Frey (DFG), Joel Gerwein (Coastal Conservancy), Andrea Pickart (USFWS), Bill Pinnix (USFWS), Kirsten Ramey (DFG), Susan Schlosser (California Sea Grant Extension).
- II. Desired Outcome:** 1. Review and revise list of focal conservation targets developed at 06-25-2008 meeting. 2. Start process of identifying key ecological attributes and indicators for targets.
- III. Review and Revise Focal Conservation Targets—Group Process**
 - A. Per CAP recommendations, we narrowed our ten selected targets down to eight through the process of lumping by considering shared ecological processes, threats, and conservation strategies. We eliminated the targets “Filter-Feeding Bivalves” and “Dungeness Crabs,” deciding that they could both be nested under other targets (see attached revised list of targets and nested targets).
 - B. We deleted “catadromous fish” as a nested target since we do not have catadromous spp in our estuaries
- IV. Viability Assessment**
 - A. Overview
 1. Viability Assessment is a flexible and yet powerful methodology that has been developed to define the current status and the desired future condition of focal conservation targets.
 2. Viability Assessment provides an objective, consistent means for:
 - a. determining changes over time
 - b. comparing the status of specific targets shared by other projects
 - c. comparing the status and effectiveness of different projects
 - d. guiding the identification of current and potential threats
 - e. targeting and identifying past damage
 - f. serving as the basis of strategy design
 - g. creating the foundation of a monitoring plan
 - h. summarizing and documenting knowledge about the biology/ecology of targets
 - i. identifying crucial information gaps and research questions
 - B. Expected Outputs
 1. At least one key ecological attribute for each focal target
 2. A measurable indicator for each key ecological attribute
 3. An acceptable range of variation for each attribute
 4. Current and desired future status of each attribute
 5. Brief documentation of how you arrived at your viability assessments
 - C. Definitions
 - ∞ **Viability** - the ability of a conservation target to persist for many generations or over long time periods. Synonyms: status, health (esp. for a population of a specific plant or

- animal species), integrity (esp. for ecological communities)
- ∞ **Key Ecological Attributes (KEAs)** - aspects of a target's biology or ecology that sustain a target's viability or ecological integrity over space and time
 - ∞ **Indicators** - measurable parameters used to track the status of a key ecological attributes, allowing precise, consistent, and sensitive assessment of changes over time
 - ∞ **Acceptable Range of Variation** –the limits of variation that constitute the minimum conditions for persistence of a conservation target (note that persistence may still require human management interventions)
 - ∞ **Current Status** - an assessment of the current “health” of a target as expressed through the most recent measurement or rating of an indicator for a key ecological attribute of the target
 - ∞ **Desired Future Status** - a rating of an indicator for a key ecological attribute that describes the level of viability/integrity that the project intends to achieve. Generally equivalent to a project goal
 - ∞ **Size** - a measure of the area or abundance of the conservation target's occurrence
 - ∞ **Condition** - a measure of the biological composition, structure and biotic interactions that characterize the occurrence
 - ∞ **Landscape context** - an assessment of the target's environment including ecological processes and regimes that maintain the target occurrence
 - ∞ **Viability Rating Scale**
 - **Very Good** - Ecologically desirable status; requires little intervention for maintenance
 - **Good** - Indicator within acceptable range of variation; some intervention required
 - **Fair** - Outside acceptable range of variation; requires human intervention
 - **Poor** - Restoration increasingly difficult; may result in extirpation of target
- D. Steps in Completing a Viability Assessment
1. Identify key ecological attribute(s) for each conservation target
 2. Select indicator(s) for each attribute
 3. Build a rating scale for each indicator based on an acceptable range of variation
 4. Determine the current status and the desired future status of each attribute using the rating scale and available data on all indicators
 5. Record any issues, gaps in knowledge, or assumptions
 6. Repeat this process for all your targets
 7. Review and adjust your assessments as necessary
- E. Results: see attached DRAFT list of key ecological attributes and indicators for the target: Eelgrass

V. Assignment for Next Meeting:

Think about key ecological attributes and indicators for the targets: Water Column and Intertidal Flats, and be prepared to share your ideas with the group on 08-07-2008.

VI. AUGUST MEETINGS:

Thursday, August 7, 1:30-4:30, Sea Grant Office

Thursday, August 21, 1:30-4:30, Sea Grant Office

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Focal Conservation Targets (revised 07-24-2008)**

<u>Focal Conservation Target</u>	<u>Scale</u>	<u>Nested Targets</u>	<u>Notes</u>
1. Water Column	Coarse		Physical habitat type (broad)
		Open Water	Physical habitat type nested under Water Column
		Sloughs and Channels	Physical habitat type nested under Water Column, Intertidal Flats, Tidal Marsh
		Dredged Channels	Physical habitat type nested under Water Column
		Macroalgae	Group of organisms; nested under Intertidal Flats and Water Column
		Invertebrates	Group of organisms; nested under Intertidal Flats, Water Column, and Subtidal Benthos
		Planktonic Community	Group of organisms; nested under Water Column
		Filter-Feeding Bivalves	Group of organisms including native and cultured species; utilize water column and benthic habitats; sensitive indicators
		Dungeness Crabs	Native species with commercial significance/pressure; utilize mosaic of habitats including oceanic habitats not addressed by other focal conservation targets
		Marine Mammals	Group of organisms; nested under Water Column and Intertidal Flats

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Focal Conservation Targets (revised 07-24-2008)**

<u>Focal Conservation Target</u>	<u>Scale</u>	<u>Nested Targets</u>	<u>Notes</u>
2. Intertidal Flats	Coarse		Physical habitat type (broad)
		Sloughs and Channels	Physical habitat type nested under Water Column, Intertidal Flats, Tidal Marsh
		Mud/sand/gravel	Range of substrate types found in Intertidal Flats
		Unvegetated Flats	Physical habitat type nested under Intertidal Flats
		Macroalgae	Group of organisms; nested under Intertidal Flats and Water Column
		Microbial Mats	Group of organisms; nested under Intertidal Flats
		Invertebrates	Group of organisms; nested under Intertidal Flats, Water Column, and Subtidal Benthos
		Benthic Community	Group of organisms; nested under Intertidal Flats and Subtidal Benthos
		Marine Mammals	Group of organisms; nested under Water Column and Intertidal Flats
		Dungeness Crabs	Native species with commercial significance/pressure; utilize mosaic of habitats including oceanic habitats not addressed by other focal conservation targets
		Marine Mammals	Group of organisms; nested under Water Column and Intertidal Flats

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Focal Conservation Targets (revised 07-24-2008)**

<u>Focal Conservation Target</u>	<u>Scale</u>	<u>Nested Targets</u>	<u>Notes</u>
3. Tidal Marsh	Coarse		Biogenic habitat type (broad)
		Salt Marsh	Biogenic habitat type nested under Tidal Marsh
		Brackish Marsh	Biogenic habitat type nested under Tidal Marsh
		Freshwater Marsh (tidal)	Biogenic habitat type nested under Tidal Marsh
		Sloughs and Channels	Physical habitat type nested under Water Column, Intertidal Flats, Tidal Marsh
		Insects	Group of organisms nested under Tidal Marsh and Riparian
		Dungeness Crabs	Native species with commercial significance/pressure; utilize mosaic of habitats including oceanic habitats not addressed by other focal conservation targets
		Marine Mammals	Group of organisms; nested under Water Column and Intertidal Flats
		Terrestrial Mammals	Group of organisms nested under Tidal Marsh and Riparian
		Rare Plants	Significant species nested under Tidal Marsh

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Focal Conservation Targets (revised 07-24-2008)**

<u>Focal Conservation Target</u>	<u>Scale</u>	<u>Nested Targets</u>	<u>Notes</u>
4. Riparian Scrub/Forest	Coarse		Biogenic habitat type, more common in Eel River Estuary than in Humboldt Bay
		Neotropical migrant birds	Group of organisms nested under Tidal Marsh; Riparian; and Shorebirds, Waterfowl, and Piscivorous Birds; also utilize upland habitats out of the range of our study area
		Insects	Group of organisms nested under Tidal Marsh and Riparian
		Terrestrial Mammals	Group of organisms nested under Tidal Marsh and Riparian
5. Subtidal Benthos	Coarse		Group of organisms with unique considerations
		Invertebrates	Group of organisms; nested under Intertidal Flats, Water Column, and Subtidal Benthos
		Benthic Community	Group of organisms; nested under Intertidal Flats and Subtidal Benthos
		Dungeness Crabs	Native species with commercial significance/pressure; utilize mosaic of habitats including oceanic habitats not addressed by other focal conservation targets
		Marine Mammals	Group of organisms; nested under Water Column and Intertidal Flats

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Focal Conservation Targets (revised 07-24-2008)**

<u>Focal Conservation Target</u>	<u>Scale</u>	<u>Nested Targets</u>	<u>Notes</u>
6. Eelgrass	Medium		Significant species constituting a biogenic habitat type that supports a community of organisms
		Dungeness Crabs	Native species with commercial significance/pressure; utilize mosaic of habitats including oceanic habitats not addressed by other focal conservation targets
		Marine Mammals	Group of organisms; nested under Water Column and Intertidal Flats
7. Shorebirds, Waterfowl, and Piscivorous Birds	Medium		Group of species that utilize mosaic of habitats including terrestrial habitats not addressed by other focal conservation targets
		Osprey	Significant species nested under Shorebirds, Waterfowl, and Piscivorous Birds
		Bald Eagle	Significant species nested under Shorebirds, Waterfowl, and Piscivorous Birds
		Neotropical migrant birds	Group of organisms nested under Tidal Marsh; Riparian; and Shorebirds, Waterfowl, and Piscivorous Birds; also utilize upland habitats out of the range of our study area

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Focal Conservation Targets (revised 07-24-2008)**

<u>Focal Conservation Target</u>	<u>Scale</u>	<u>Nested Targets</u>	<u>Notes</u>
8. Native Fish Assemblages	Medium		Group of organisms with threats (fishing) not addressed by other conservation targets
		Anadromous species	Group of species nested under Native Fish Assemblages
		Catadromous species	Group of species nested under Native Fish Assemblages
		Salmonids	Group of species nested under Native Fish Assemblages
		Commercial fish species	Group of species nested under Native Fish Assemblages
		Fish nursery grounds	habitat types nested under Native Fish Assemblages
		Herring	Significant species; nested under Native Fish Assemblages
		Tidewater Goby	Significant species; nested under Native Fish Assemblages

**Subtidal and Intertidal Habitat Goals for Humboldt Bay and the Eel River Estuary
Key Ecological Attributes (DRAFT 07-24-2008)**

Focal Conservation Target: Eelgrass		
<u>Category</u>	<u>Key Ecological Attribute</u>	<u>Indicator</u>
Size	Acreage	Total number acres of eelgrass in estuary
Size	Density	Shoots/square meter
Size	Biomass	Kg/square meter
Size	Minimum Functional Area	Patch size
Condition	Population Structure and Recruitment	Ratio reproductive shoots:total shoots and number of seedlings per year in sample plots
Condition	Plant Health	Infection rate by wasting disease
Condition	Epiphyte Cover	% blades covered by epiphytes in sample plots
Condition	Biotic Interactions	# pipefish, Phyllaplysia, Idothea, herring eggs, or other organisms
Landscape Context	Water Quality	Turbidity, Salinity, Nutrients, Temperature
Landscape Context	Distribution	Acres of eelgrass by region
Landscape Context	Diversity of Patch Types	Relative abundance or presence/absence by region
Landscape Context	Connectivity	Nearest neighbor analysis
Landscape Context	Currents/Wave Action	Water velocity