Humboldt Bay Ecosystem-Based Management Program
Advisory Team Meeting – February 15, 2008

Announcements:

- March 14th Advisory Team meeting will be in the upstairs conference room at the USFWS office in Arcata.
- Humboldt Bay Symposium, April 24 – 26; EBM session from 10:30 – Noon on the 24th. Dean Wendt will give an overview of the west coast EBM programs; Susan will discuss the Humboldt Bay EBM program; finish with a panel of Advisory Team subcommittee members to answer questions.
- Implementation subcommittee decided to use the MOMU format from the NCIRWMP to establish a short-term structure for continuing the EBM program; then submit a proposal for funding the develop of permanent EBM infrastructure. UN document on designing an organization is posted to the Discussion Group.
- HSU North Coast Institute of Marine Sciences (NCIMS) received funding from the Resources Legacy Fund to produce a PDF library of documents and maps of the north coast from Pt Arena to the Oregon border. When the MLPA Initiative begins work in our area, the information will already be organized and accessible. Scott Quakenbush is the PI on the project; Steve Steinberg is working on the mapping; Pete Nelson will coordinate the literature. The web site server will run through Steve Steinberg's lab, separate from HSU and eventually combined with the Fish and Game database. Currently the MLPA group is working in the north central area, Año Nuevo to Pt Arena; next to the southern area from Santa Barbara to San Diego; then the north coast probably in 2-4 years.
- Natural Resource Monitoring Partnership, large network of aquatic and terrestrial projects; information could be used as part of a proposal for Humboldt Bay EBM monitoring
- Joel Gerwein discussed the EBM tools network through NOAA Coastal Services Center, distributes information on funding opportunities, modeling programs. He will email subscription information for people to sign up.
- Vicki Frey announced that FERC has issued the first pilot license in Humboldt County for a wave energy project off Trinidad. The licensed company then has a stake on the particular area and puts them in line for a long-term license; they have three years to conduct their research and work with agencies to complete the environmental requirements to determine if they will move forward.

January notes: no changes

Subcommittee Reports:

Water Circulation/Sediment:
Specific issues:

- What are the circulation and transport patterns in and around Humboldt Bay?
- What are the sediment inputs to Humboldt Bay and how do they get distributed, stored and/or removed?
- How does the suspended sediment load vary in space and time in Humboldt Bay and what are the implications for light limitation of primary productivity (e.g., eelgrass)? This will provide link to biological proposal
- How do current and future management actions involving sediment removal or addition affect circulation patterns and geomorphic change (erosion and deposition) in the bay, spatially and temporally?
- Review historic management actions and how those have changed the bay

Requires suspended sediment and turbidity data collection prior to sediment/circulation modeling, calibration and validation of data; expand data collection to include salinity, temperature, dissolved oxygen to build capacity, extend the model into the future. Two areas of modeling the bay: tributary loads and entrance (map bed form changes). Examine long-term budget on the bay; core sampling to look at how material is deposited; use various metals to date sediment deposits.

Biological Resources: Concentrate on five to ten indicators for the health of Humboldt Bay ecosystem; define thresholds to direct management decisions.
Proposal Design

1. Introduction – big picture, relating all proposals; discussion of management applications using monitoring
2. Table describing indicators: choose stressors, develop cause and effect arguments based on literature search; develop method to choose physical or biological indicators
3. Product Development: use San Francisco Estuary Institute report as template for displaying data in user-friendly approach; need economic value for process to support information
4. Identify stressors to monitor in Humboldt Bay ecosystem: watershed or nearshore
   Nitrogen, water temperature, organic pollutants, non-natives, TSS, climate change, habitat, human actions

Example Cause and Effect argument: targeted monitoring useful to management community

Stressor	*Effect*	*Short-term*	*Long-term*
Copper in the system	decline in health of salmonids & birds	biomarker thresholds established	

Socio-Economic
Develop land/bay use model to establish relationships showing economic and social impacts with environmental, ecosystem impacts; identify significant factors (jobs, cultural values, etc); designed for the big picture analysis, not specific, individual projects; provide information and connectivity between all organizations in the program showing common framework, cost/benefits and consequences of management decisions regarding EBM.

Mapping of Humboldt Bay and Eel River Estuary - Mark Finkbeiner, NOAA Coastal Services Center

1. In support of our EBM and Habitat Goals projects, mapping of subtidal and intertidal habitats of Humboldt Bay and the Eel River Estuary will be performed by Photo Science in conjunction with NOAA Coastal Services Center.
2. Aerial imagery data collection is scheduled for spring-summer 2008, weather permitting.
    a. Criteria for scheduling flight:
        i. Within one hour (on either side) of a minus one foot tide (-1 ft. MLLW) or lower.
        ii. Sun angle between 30 and 45 degrees.
        iii. Low turbidity, calm conditions (winds under 10 mph)
        iv. Clear skies (no fog, clouds, or haze)
3. Target windows of opportunity: May 7 through 10, June 4 through 8. If none of these days are conducive for the flight, low tides in July and August will be the next targets.
4. Spatial resolution: 0.5 meters
5. Spatial accuracy: +/- 3 meter horizontal spatial accuracy
6. Spectral bands: color and near infrared
7. Mapping units: the Coastal and Marine Ecological Classification Standard (CMECS) classification system developed by NOAA will be used to classify habitats
8. Minimum Mapping Unit (MMU): 100 square meters. Fringe habitats and tidal channels as narrow as 3 meters can be mapped.
9. Data points will be collected (by Sea Grant staff in conjunction with Photoscience staff) for ground-truthing and also for validation. The accuracy requirement for the product in 85% overall and 80% per habitat type.
10. Areas that are submerged at the time of the flight will be mapped as subtidal and only further defined if water conditions are clear enough to allow photo-interpretation (e.g., the subtidal edge of eelgrass beds.)
11. Where applicable, modifiers will be added to the mapping unit (e.g., to distinguish patchy from continuous eelgrass beds).

Habitat Priority Planner Demonstration – Dorn Moore, NOAA Coastal Services Center
Free tool to manage natural resources; sort options, develop and change scenarios, answer questions
Applications

- Conservation and restoration planning
- Land use planning
- Interactive decision-making

Intended Users

- Land use planners
- Conservation groups
- Resource managers
- Researchers

Software Requirements

- ArcGIS9.2 (SP 3) with Spatial Analyst

Data Requirements

- Raster land cover layer (CSC has coastal coverage available)
- NOAA Coastal Change Analysis Program data (C-CAP)
- Site -specific data sets (optional)

HPP Process

Step 1: Classify Habitats – unique, grouped or simple

Step 2: Habitat Analysis

Core metrics

habitat quality – size, perimeter-area ratio, core area

connectivity – proximity, nearest neighbor

Custom metrics

Count of points within specific area

Presence/absence

Polygon overlay - % cover

Linear distance to point, line, polygon

Step 3: Explore Data – participatory GIS

Interactive planning

Group decisions

Quick analysis

Develop site-specific applications

Outputs

Classified habitats

Prioritized sites

Reports

Download the tool and instructions from www.csc.noaa.gov/hpp/

Or contact Danielle.Bamford@noaa.gov for more information