

Humboldt Bay and Watershed Symposium
February 8 – 9, 2002
Wharfinger Building, Eureka

Sponsored By:

California Sea Grant
University of California Cooperative Extension
City of Eureka
U.S. Fish and Wildlife Service
Humboldt Bay Harbor Recreation and Conservation District
Humboldt Bay Watershed Advisory Committee
Redwood Community Action Agency
AmeriCorps Watershed Stewards Program
California Coastal Commission
California Department of Fish & Game

**Thank you to the following members of the Steering Committee for
organizing the Symposium:**

Ben Beaver, AmeriCorps Watershed Stewards Project
Jennifer Bloeser, Pacific Marine Conservation Council
Gary Bloomfield, Bloomfield Studio
Ruth Blyther, Redwood Community Action Agency
Randy Brown, U.S. Fish and Wildlife Service
Jan Duncan-Vaughn, Salmon in the Classroom
Vicki Frey, California Department of Fish and Game
Debbie Hart-Harris, Redwood Community Action Agency
Maggy Herbelin, Humboldt Bay Watershed Advisory Committee
Susan McBride, UC Sea Grant Extension
Vanessa Metz, California Coastal Commission
Jeff Robinson, Humboldt Bay Harbor, Recreation and Conservation District
Tiffany Tauber, California Coastal Commission
Yana Valachovic, University of California Cooperative Extension
Laura Ward, AmeriCorps Watershed Stewards Project

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Registration Table Volunteers, Spilt Milt (band), Nathalia Katz, Charlie Herbelin, Debbie Marshall, John Ash (boats), Celebrations for catering, Poster Judges (Jaren Gerstein, Christine May and Jan Vaughn), Vicky Frey for taking notes.

**Special thanks to Gary Bloomfield for creating the artwork for the
Humboldt Bay and Watershed Symposium poster !**

Celebration of Humboldt Bay and its Watershed
February 8-9, 2002
Wharfinger Building, Eureka Waterfront

February 8: Friday

12:00-1:00 Poster viewing (optional) and Registration
 1:00-1:10 Welcome Susan McBride and Yana Valachovic, University of California
 Welcome Mayor Nancy Flemming, City of Eureka
 1:10-1:15 Cheryl Seidner: Wiyot Welcome , Wiyot Tribal Chair
 1:15-1:40 Introduction of symposium– Terry Roelofs, Humboldt State University
 1:40-2:20 A tour of the Humboldt Bay Watershed: Ridgetop to shoreline – Ruth Blyther, RCAA
 2:20-3:00 30 years of restoration in Humboldt Bay Watershed – Mitch Farro, PCFWR
 3:00-3:10 BREAK
 3:10-3:50 Land use, social and economic trends in the Humboldt Watershed Region–Steve Hackett, HSU
 3:50-4:40 Watershed panel discussion with all speakers – Moderator Rondal Snodgrass
 5:00-6:30 Poster session - hors d'oeuvres
 6:30-9:00 Banquet and social

February 9: Saturday

8:00- 9:00 Walk down City of Eureka's Boardwalk to view recent projects – Ruth Coughlin, Eureka Trails
 9:00-9:15 Overview of previous days' topics – Nina Hapner, Wiyot Tribe
 9:15-9:45 Introduction to lowland and estuaries of Humboldt Bay – Steve Rumrill, SSNERR
 9:45-10:15 Humboldt Bay Management Plan overview– Jeff Robinson, Harbor District
 10:15-10:45 BREAK
 10:45-11:15 Current uses of Humboldt Bay – David Hull, Harbor District
 11:15-12:00 Bay panel discussion with all speakers – Moderator Jennifer Bloeser, Pacific Marine ConsCouncil

12:00-1:00 LUNCH

1:00- 3:00 Panel Discussions. Making the connection – linking watershed and bay systems
 Who is working in the watershed and Bay? – Moderator Sungnome Madrone, RCAA
 1. How does your organization link the watershed and Bay?
 2. What is your groups' role in sustaining resources or community values in watershed or bay?
 3. What is the future?
 4. How can community members become more involved in watershed and bay activities?

Jeff Barrett, Pacific Lumber Company
 Tim McKay, Northcoast Env. Center
 Julie Neander, City of Arcata
 Jennifer Rice, RCAA

Cheryl Seidner, Wiyot Tribe
 Jimmy Smith, Board of Supervisors
 Mark Wheetley, Dept. of Fish & Game
 Katherine Zeimer, Farm Bureau

3:00-3:30 Synopsis and overview of Symposium - Chris Dewees, University of California
 3:30-3:45 Wrap up –Susan McBride and Yana Valachovic

February 10: Sunday optional tours

Kayak tour 9:30AM Meets at Bonny Gool Dock, goes to Eureka Slough for 2+ hours
 RRAS bird walk 9:00AM Meets at Del Norte Street parking lot, goes to Eureka Marsh for 2+ hours

Saturday, February 9, 2002 Presentations

HUMBOLDT BAY, CA: An Introduction to the Coastal Land Margin Ecosystem

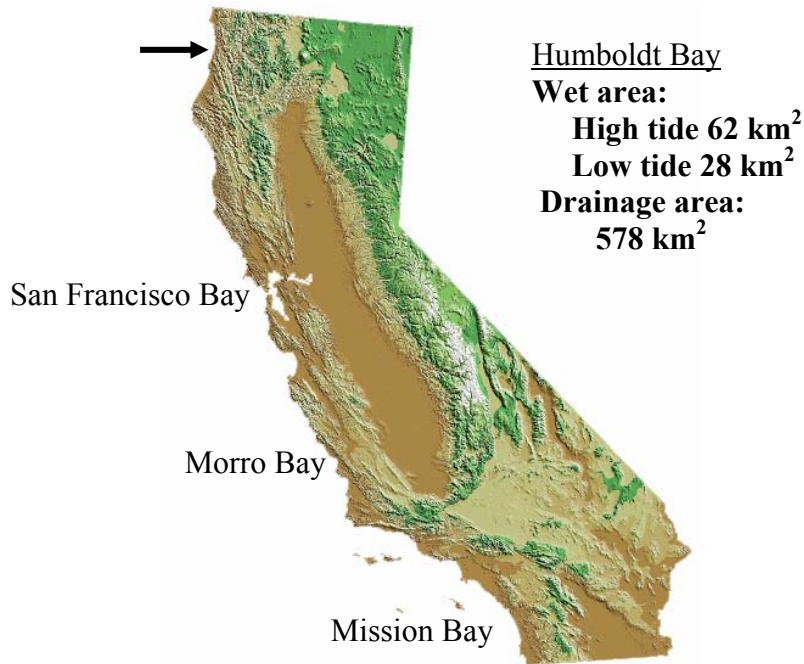
Steve Rumrill,
Chief Scientist and Research Program Coordinator
South Slough National Estuarine Research Reserve

Abstract

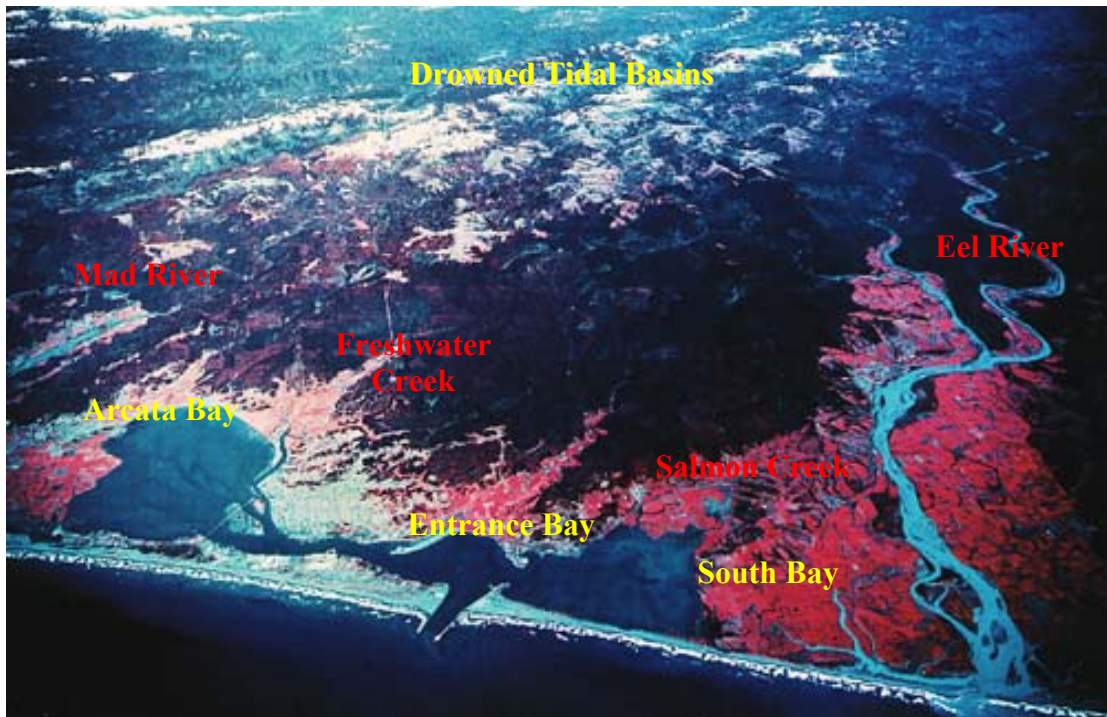
Humboldt Bay is the second largest estuarine embayment in California, second only in size to San Francisco Bay. Located at the southern end of the Lower Columbia Biogeographic Region, the marine-dominated estuarine tidal basin is flooded on a semi-diurnal basis by seawater from the nearshore Pacific Ocean. At high tide, the flooded area of Humboldt Bay encompasses about 63 km² where it provides the largest commercial shipping port and ecologically most important estuary on the northern California coast. Humboldt Bay receives relatively little freshwater input from its 580 km² drainage basin, and the shallow embayment is divided into three distinct sub-basins: 1) Entrance Bay, 2) Arcata Bay and 3) South Bay. The protected waters of Humboldt Bay contain a wide variety of habitats including rocky jetties, subtidal channels, floating docks and piers, sandflats, mudflats, eelgrass beds, commercial oyster reefs, saltmarshes, and the estuary holds special ecological importance as habitat for many species of invertebrates, fishes, birds and mammals. The natural resource values of Humboldt Bay also attract many recreational users. This seminar will describe the diversity of habitats, biotic communities and ecological functions of the Humboldt Bay estuarine ecosystem.

Summary of Presentation

Humboldt Bay is the second largest estuarine embayment in California, second only in size to San Francisco Bay. Located at the southern end of the Lower Columbia Biogeographic Region, the marine-dominated estuarine tidal basin is flooded on a semi-diurnal basis by seawater from the nearshore Pacific Ocean. At high tide, the flooded area of Humboldt Bay encompasses about 63 km² where it provides the largest commercial shipping port and ecologically most important estuary on the northern California coast. Humboldt Bay receives relatively little freshwater input from its 580 km² drainage basin, and the shallow embayment is divided into three distinct sub-basins: 1) Entrance Bay, 2) Arcata Bay and 3) South Bay. The protected waters of Humboldt Bay contain a wide variety of habitats including rocky jetties, subtidal channels, floating docks and piers, sandflats, mudflats, eelgrass beds, commercial oyster reefs, saltmarshes, and the estuary holds special ecological importance as habitat for many species of invertebrates, fishes, birds and mammals. The natural resource values of Humboldt Bay also attract many recreational users. This seminar will describe the diversity of habitats, biotic communities and ecological functions of the Humboldt Bay estuarine ecosystem.



Humboldt Bay, located in northern California or Baja, Oregon, is a marine dominated system, not much freshwater coming in. This is the second largest estuary in the state, San Francisco being the largest. The federal government recognizes this region as part of the Lower Columbia biogeographic marine ecosystem which extends from Cape Mendocino in the south to Puget Sound in the north.



That is, it is under some type of seasonal influence from discharge of the Columbia River. During the winter the current distributes the freshwater throughout the system. But there is little, if any, influence this far south. This unique ecosystem deserves the designation of National Estuarine Research Reserves. The marine climate also drives this system.

Humboldt Bay is three tidal basins:

- Entrance Bay
- Arcata Bay
- South Bay

Major freshwater influence:

- Eel River
- Mad River

Not very much freshwater for a basin this size

The bay is a young marine system dominated by the Pacific Ocean with a large tidal prism – 44% of the bay empties in and out on the flood and ebb tides.

Major Geomorphic Zones & Salinity Regimes in Pacific Northwest Estuaries

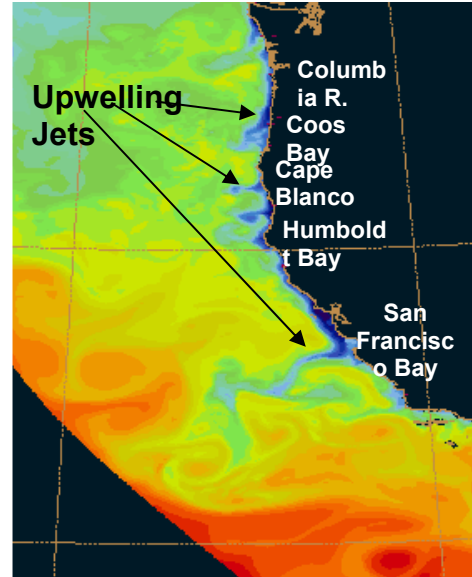
| Geomorphic Zone | Water Regime | Salinity Range |
|-------------------------------------|---------------------|-----------------------|
| Ocean Interface marine-estuarine | Marine | 33-25 psu |
| Lower Zone marine dominated | Polyhaline | 30-18 psu |
| Middle Zone estuarine mixing | Mesohaline | 18-5 psu |
| Upper Zone riverine | Oligohaline | 5-0.5 psu |

ARCATA BAY:

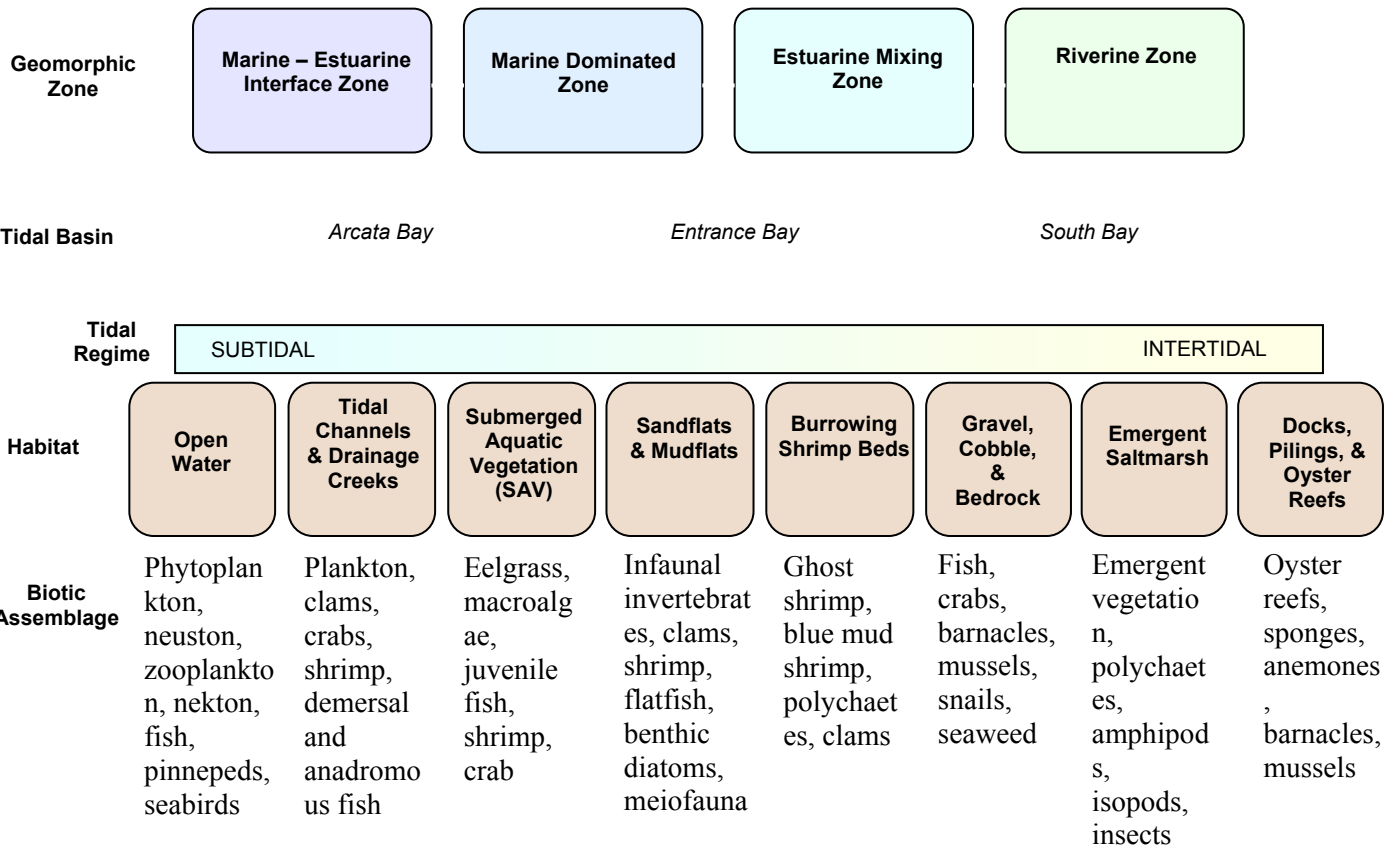
High Tide Wet Area: 62 sq. km Volume: 85 million m³

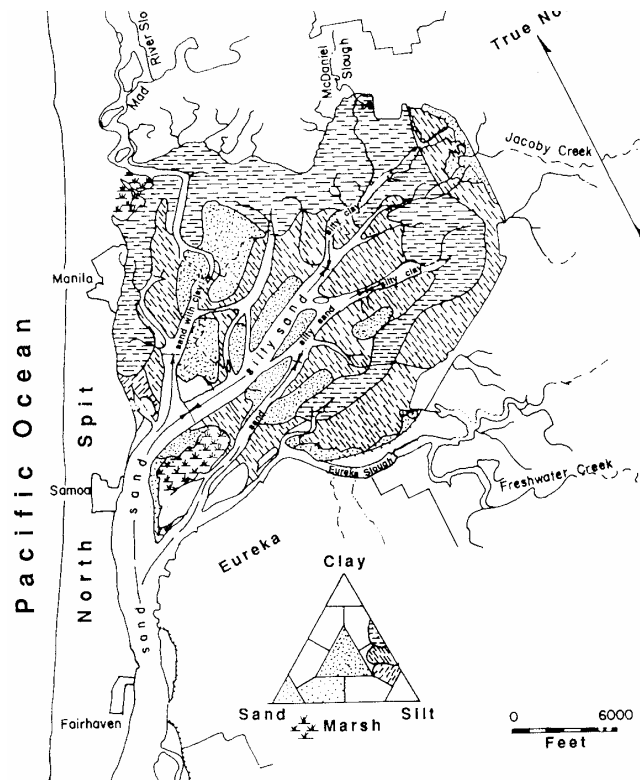
Low Tide Wet Area: 28 sq. km Volume: 48 million m³

California Current and Coastal Upwelling: As the current sweeps down the Columbia biogeographic region and into Humboldt Bay, coastal upwelling occurs. This is the process that drives deep, cold, nutrient rich ocean waters up to the surface and fertilizes the coast.



Humboldt Bay





Estuarine Functions & Values

- Sediments & Water Quality
 - tidal basins accumulate sediments
 - biotic elements contribute to water quality
- Production & Feeding
 - emergent vegetation & detritus food webs
- Refuge, Resting and Nursery
 - shorebirds, waterfowl, fish, & shellfish
- Coastal Economic Development
 - shoreline industry, aquaculture, & ecotourism

Estuarine Biotic Components

- Algae & Emergent Plants
- Microbes & Meiofauna
- Epifaunal & Infaunal Invertebrates
- Epibenthic & Pelagic Zooplankton
- Resident Estuarine & Anadromous Fish
- Shorebirds & Waterfowl
- Estuarine Mammals

Tide Channels & Drainage Creek Biotic Assemblage

Diatoms and Hydromedusae

Copepods (*Acartia spp.*)

Ostrea lurida

Cancer spp.

Heptacarpus spp.

Crangon spp.

Leptocottus armatus

Cymatogaster aggregata

Gasterosteus aculeatus

Oncorhynchus spp.

Sediment Distribution In Arcata Bay

Unconsolidated muddy sediments are predominantly sand and fine-grained silt and clay

Sandflat & Mudflat Biotic Assemblage

Algal Mats

Clinocardium nuttalli

Mya arenaria

Cryptomya californica

Macoma spp.

Tresus capax

Corophium spp.

Abarenicola pacifica

Glycera robusta

Nephtys spp.

Burrowing Shrimp Bed Biotic Assemblage

Neotrypaea californiensis

Upogebia pugettensis

Cryptomya californica

Hesperonoe complanata

Submerged Aquatic Vegetation Biotic Assemblage

Eelgrass studies for spatial distribution, abundance growth rates; habitat important for recruitment fish, shellfish and crabs

Zostera marina

Zostera japonica

Chaetomorpha sp.

Enteromorpha spp.
Ulva spp.
Epiphytic Diatoms
Corophium spp.
Eogammarus spp.
Clinocardium nuttallii
Cancer magister
Cymatogaster aggregata

Life Stages of *Cancer* Crabs

Planktonic Zoea Larva – swept out of bay, spend about 100 days in various molting stages
Late Stage Megalops – April to May swept into bay, live in tide or mud flats, algal beds or eelgrass beds
Adult *Cancer productus* – move to deeper waters

Gravel, Cobble, and Hard Substrata Biotic Assemblage

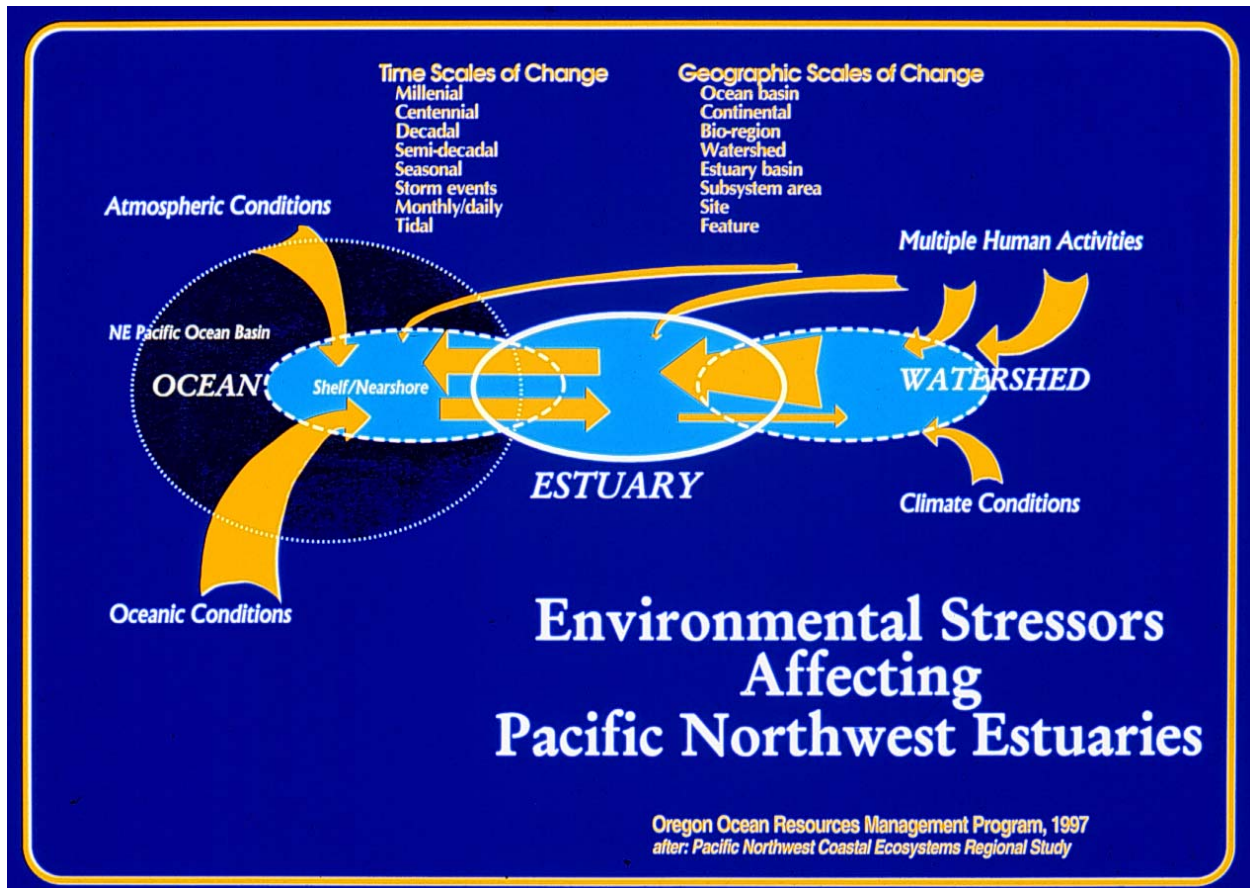
Fucus spp.
Balanus spp.
Mytilus spp.
Hiatella arctica
Penitella penita
Pachygrapsus crassipes
Hemigrapsus oregonensis
Eogammarus spp.
Cancer productus

Anthropogenic / Constructed Habitats Biotic Assemblage

Fucus spp.
Balanus glandula
Mytilus spp.
Limnoria tripunctata
Gnorimosphaeroma insulare
Crassostrea gigas

Oyster Culture Techniques: Humboldt Bay

Ground culture, putting oysters directly on the bottom which creates a reef like structure
Long-line culture: move oysters up off bottom, suspend on ropes supported by PVC pipe
Cable culture for Kumamoto Oyster



Emergent Salt Marsh Biotic Assemblage

Diking and drainage to convert shoreline habitats to agriculture causes sediment to directly drain into the bay rather than being stopped.

- Carex lyngbyei*
- Distichlus spicata*
- Deschampsia caespitosa*
- Jaumea carnosa*
- Juncus balticus*
- Salicornia virginica*
- Triglochin maritimum*

Estuary is an integrator between the ocean and watershed – the good stuff in the middle of the Oreo cookie. Pacific northwest estuaries are affected by human activities which impact the watersheds. An estuary to watershed connection includes salmon returning to streams to spawn. The strong ocean influence in Humboldt Bay impacts the system.

Humboldt Bay serves several essential functions in coastal ecosystems including:

- Production of organic matter
- Trap sediments & improve water quality
- Detritus-based food webs & provision of habitat for diverse invertebrate communities
- Nursery areas for juvenile fish & shellfish
- Important habitat for resident & anadromous fish
- Forage & resting areas for waterfowl, shorebird

Humboldt Bay is a Marine-Dominated Estuarine Tidal Basin (ETB):

- The ETB is an integral component of Pacific Northwest coastal land-margin ecosystems
- Functional role of the ETB is still poorly understood in the context of the coastal zone landscape - seascape
- Popular concept of coastal watersheds should be broadened to encompass the ETB and the nearshore marine interface area

Import of Non-Indigenous Species by Ballast Water Discharge

- Cargo ships discharge ballast during port operations in estuaries
- Planktonic larvae are transported long distances and released in foreign estuaries

European green crab: *Carcinus maenas*

INVASION HISTORY ALONG THE WEST COAST

San Francisco Bay - 1989

Bodega/Humboldt Bay - 1995

Coos Bay - 1996

Yaquina/Tillamook Bay - 1997/99

Willapa Bay - 1998

Vancouver Island - 1999

Humboldt Bay Management Plan Overview

Jeff Robinson, Conservation Specialist
Humboldt Bay Harbor, Recreation, and Conservation District

Abstract

The Humboldt Bay Management Plan is intended to provide a comprehensive framework for balancing the economic needs of the Humboldt Bay region while optimizing the conservation and preservation of Humboldt Bay's natural resources. This effort will be based on an ecosystem-based approach for the development of the management plan for Humboldt Bay and its immediate surrounding area. The Harbor District has put three years into the development of a physical and natural resources database for Humboldt Bay and has formed a 19 member Task Force to assist in the development of the Plan. The Task Force is composed of representatives from government agencies that manage land within the plan area and stakeholder representatives from agriculture, recreation, mariculture, commercial/industrial, environmental, education, and commercial fishing.

The planning area for the Humboldt Bay Management Plan consists of all of Humboldt Bay up a tidal elevation of mean higher high water (MHHW). As part of the planning process, the Task Force will also look at the land uses within a "sphere of interest" which ranges from MHHW inland to the established Coastal Zone boundary determined by the CA Coastal Commission.

The ecosystem approach reflected in the Plan looks at interconnections among all the natural resources and human uses of the Bay, across ownership and jurisdictional boundaries. Humboldt Bay is viewed as an ecosystem rather than as a collection of individual species or isolated sites/projects. This Plan is intended to be an agent of change. As such, it will serve as a guide to better, more cost-effective decisions by those involved with the Bay.

Summary of Presentation

The Humboldt Bay Management Plan (HBMP) is a collaborative effort among several contributors which are state, local and federal agencies. We are looking to evaluate the emerging trends, existing data, in order to create a comprehensive plan to protect, restore, enhance the natural resources in and around Humboldt Bay. We are looking to educate the public about the ecological significance of Humboldt Bay and the surrounding environment and we are promoting interagency coordination on issues in and around the bay. We are using the interagency information to develop a resource management plan which will incorporate all the agencies needs and projects. The Plan intends to look at all the interconnections among the natural resources and human uses across the bay. Humboldt Bay is viewed as an ecosystem with all of its processes rather than a collection of individual sites, projects and species. This plan is intended to be an agent of change and to this end many new strategies and tactics for bay management will be proposed.

Necessity of HBMP

- Need for a comprehensive framework plan
- Recreational aspects and access
- Need for comprehensive basemap

Overview

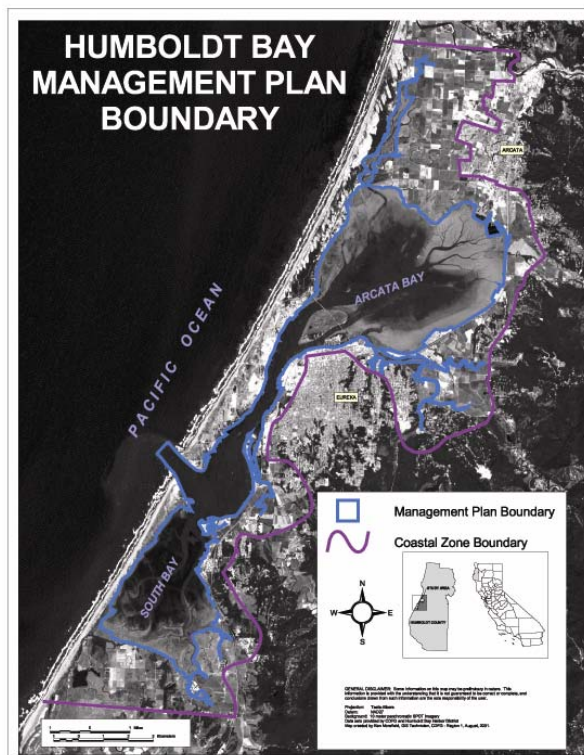
- Promote interagency coordination on issues in and around Humboldt Bay
- Use interagency information to develop a resource management plan, incorporating all agencies' needs and projects

Mission Statement

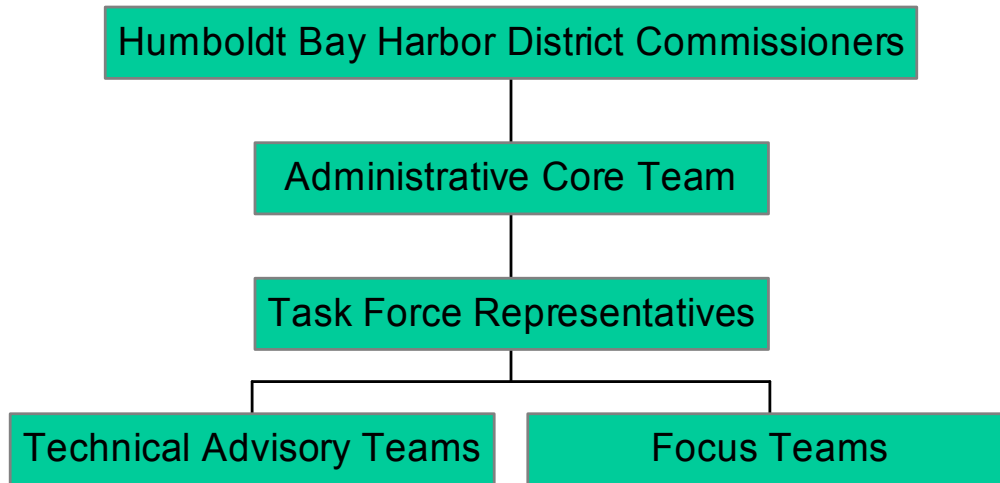
The Humboldt Bay Management Plan provides a comprehensive framework for balancing and integrating conservation goals and economic opportunities in a cooperative manner for the management of Humboldt Bay's resources.

HBMP Planning Boundary

- Humboldt Bay Management Plan Planning Boundary: shoreward to Mean Higher High Water (MHHW)
- Humboldt Bay Management Plan Sphere of Interest Boundary: Mean Higher High Water inland to the established Coastal Zone boundary (CA Coastal Commission)



Project Organization



HBMP Sphere of Interest

The intent of the Sphere of Interest is to identify existing and future uses compatible with the Humboldt Bay Management Plan goals and recommendations within the plan boundary.

Administrative Core Team (three major agencies funding the project)

- Harbor District
- U.S. Environmental Protection Agency
- California Coastal Conservancy

Task Force Representatives

Technical Advisory Team

Federal/State Agency

US Army Corps of Engineers
US Fish & Wildlife Service
National Marine Fisheries Service
California Coastal Commission
California Department of Fish & Game
Regional Water Quality Control Board
Bureau of Land Management
NOAA

Legislative Representatives

Mike Thompson
Wes Chesbro
Virginia Strom-Martin
Science Review Panel
Humboldt State University
Redwood Sciences Laboratory
U.C. Extension (Sea Grant Office)

Focus Team (individual goals to maintain in the bay)

| | |
|-----------------------|--------------------|
| Agriculture | Education |
| Commercial/Industrial | Commercial Fishing |
| Environmental | Mariculture |
| Recreation | |

SCOPE OF WORK FOR THE HBMP

Phase One: Baseline Mapping - completed

Parcel and ownership map was created for the properties in the Humboldt Bay Management Plan boundary as well as, the Sphere of Interest

Phase Two: Resource Inventory- Shapiro report published in 1980

Physical Characteristics around the Bay - completed

Historic Findings

- Sediments
- High/Low tides 1912
- High/Low Tides 1944
- High/Low Tides 1993
- Wetland Area Flux
- Tidal Area Flux

Natural Resources around the Bay - completed

- Land Use/Zoning
- Public Land Owners & Managers
- Habitat Types
- Wetland Habitats
- National Wetlands Inventory
- Wildlife Habitats
- Shellfish Resources
- Historic Eelgrass
- 1997 Eelgrass
- 2000 Eelgrass

Phase Three: State of the Bay - completed

Literature and documentation review of City, State, County, and Federal planning documents relevant to the management and use of the Bay

Phase Four: Human & Economic Activities

A series of public input sessions have been developed to listen to the following Bay interest groups:

- Commercial/ Industrial (completed)
- Agriculture (completed)
- Environmental (completed)
- Recreation (12 February 2002)
- Education (26 February 2002)
- Commercial Fishing (12 March 2002)
- Mariculture (9 April 2002)
- Will continue through April 2002

If needed additional public input sessions will be added

Humboldt Bay Management Plan Task Force Goals

- Listen to issues & interest of community regarding Humboldt Bay
- Collect and collate information
- Draft HBMP
- Submit HBMP to HD Commission

Stakeholder Questions

1. If you could have anything you wanted in or around the bay, what would it be? What is your vision of the future of the bay and its environment?
2. What topics should the HBMP address? Include specific projects, activities or details that should be included.
3. What specific activities or projects should not be included?
4. Where do you see potential conflicts between your interests and the interests of other users?
5. Regional issues you believe the HBMP needs to address?

Review Process of Public Input Synthesize data collected

- Review various issues, concerns and projects discussed
- Complete conflict matrix for various interest groups
- Identify any gaps in existing data
- Task Force will develop a vision, goals and objectives

Phase Five: Plan Preparation

Integrate information and work products developed during phases one through four

Phase Six: Plan Implementation

- Formulate implementation strategy based on resource inventories, maps, policy recommendations and project opportunities
- Develop potential project alternatives
- Prioritize opportunities
- Develop legal/regulatory mechanisms to coordinate management
- Develop recreation guide to Humboldt Bay – portions of RCAA plan to be included
- Prepare a Humboldt Bay public access and trail feasibility report
- Identify potential funding sources and financial strategy for plan implementation

Harbor District website as central source for data

www.humboldtбай.org

The Current Uses of Humboldt Bay

David M. Hull

Humboldt Bay Harbor, Recreation, and Conservation District

Abstract

Humboldt Bay is a complex system with many uses. This snapshot of the current activities highlights the major activities and emphasizes the importance of planning and public participation to ensure sustained social and environmental values.

Humboldt Bay is used as a resting, feeding, breeding and nursery area for a variety of fish and wildlife species. As of 1999, 362 species of invertebrates use the waters and/or tidal flats and marshes of Humboldt Bay. Fish and bird diversity is great in the Bay with over 113 species of fish and 251 species of birds found during different seasons.

Humboldt Bay is generally divided into North Bay, Central Bay and South Bay. The principal commercial use of North Bay is oyster culture. Since 1997, oyster production has changed from bottom to off-bottom culture methods. Approximately 64,000 gallons of oysters are produced annually. Seasonal commercial fishing for herring, perch, shark, and crabs are conducted throughout Humboldt Bay. Commercial maritime activities associated with shipping and fishing operate from docks and marinas located in Fields Landing, King Salmon, and Eureka. Export products include wood chips, paper pulp, logs and lumber. Logs, wood chips and fuel are the major imports to port facilities. Fish are landed at a processing plant in Eureka or buying stations where about 12 million pounds are landed annually.

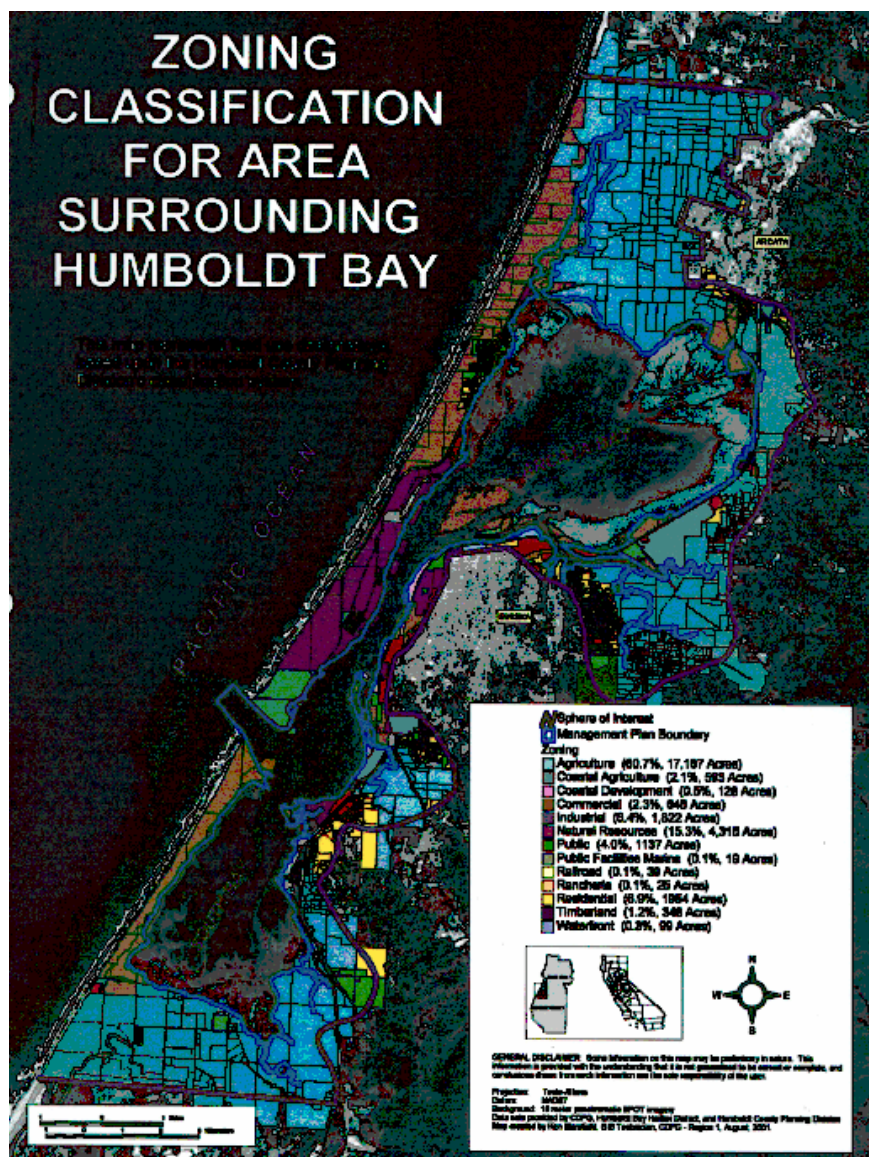
Recreational uses occur throughout the Bay, but are most common in North and South Bay. These include recreational fishing and boating, clamming, bird watching, hunting, and hiking. Recently, public access to the Bay has increased considerably. The City of Eureka has constructed a guest dock, waterfront walkway, a new marina, and numerous projects have cleaned up waterfront areas. Recreational boaters have additional access at the Humboldt Bay National Wildlife Refuge Hookton Slough launch facility and at the improved Humboldt County boat ramp at Fields Landing.

Current natural resource planning are developing comprehensive information to maintain balanced uses of Humboldt Bay. Public input to this process is essential and the results will be apparent at the next Humboldt Bay and Watershed Symposium.

Summary of Presentation

Current Land Use - 2001

- Agriculture - 17,760 acres or 62.8%
- Natural Resources - 4,315 acres or 15.3%
- Commercial/Industrial - 2,596 ac. or 9.2%
- Residential/Rancheria - 1,979 ac. or 7.0%
- Public - 1,156 acres or 4.1%
- Timberland - 348 acres or 1.2%
- Railroad - 39 acres or 0.1%



Commercial/Industrial Uses:

- Maritime Shipping – 6 active terminals; 3 largest are Louisiana Pacific dock, Schneider dock, Fields Landing dock
 - Deep draft vessel
 - Tug and barge
 - Dock operations
- Channel Maintenance and Erosion Control Activities – dredging
 - Private - suction
 - Public – suction hopper by Army Corps of Engineers
- Marina Operations
 - Eureka Boat Basin and Woodley Island Marina combined capacity of 400 vessels; 80% occupancy
- Vessel Fueling
- Mariculture Activities
- Commercial Fishing/Fish Processing – 230 fishing vessels, 1 processor, 2 buying stations
- Boat Rental Services
- Tour Boat Operations
- Boat Repair

Recreational Uses

- Recreational Fishing
- Recreational Boating
- Clamming
- Waterfowl Hunting
- Bird Watching
- Surfing/windsurfing
- Beachcombing/hiking

Natural Resources Uses

- Habitat Restoration
- Wildlife Management
- Research
- Waterfront Cleanup Activities
- Pollution Prevention and Response

Wildlife Use

- 362 Species of Invertebrates
- 113 Species of Fish
- 251 Species of Birds

RECENT CHANGES

North (Arcata) Bay

- Hunt Property Acquisition
- Initiation of Mariculture Impact Study
- Conversion of Mariculture Techniques
 - bottom to off-bottom oyster culture method
 - elimination of shell deposition
 - elimination of depredation activities
 - phasing out of use of hydraulic dredge

Middle Bay

- Shipping Channel Modernization – entrance deepened from 40 to 48 feet, main channel deepened from 35 to 38 feet for a total of 5 million yd³ of sediment dredged from the bay
- Eureka Waterfront Revitalization
 - Bonnie Gool Guest Dock
 - Clean up of “Rebar Park”
 - Eureka Public Marina
 - Inner Channel Boardwalk
 - Removal of dilapidated structures B-F Street
 - Clean up of Elk River Wildlife Area

South Bay

- Clean up of South Spit
- Improvements to Fields Landing Boat Ramp
- Completion of Hookton Slough Non-motorized Boat Launch Facility

Bay Wide

- Ballast Water – on board treatment or exchange at sea
- Oil Spill Co-op – Harbor District, Renner, City of Eureka, Englund Marine
- Continuing Exotic Species Control/Removal

Current Planning Efforts In Use Or In Development

- Humboldt Bay Management Plan
- Harbor Revitalization Plan
- Harbor District Strategic Plan (
- Eureka Waterfront Revitalization Plan
- RCAA Trails Plan
- Humboldt County General Plan Update

Bay Panel Discussion

Moderator: Jennifer Bloeser

Pacific Marine Conservation Council

Panel: Steve Rumrill, Jeff Robinson, David Hull

What is the involvement of the Harbor District and sediment transport into the bay as it relates to dredging?

David Hull: The Harbor District through the Bay Management Plan (BMP) is the best, most extensive interagency approach to management around the bay. The BMP will include a list of things we can do. But it will also have a list of things which need more work. Having the County at the table as well as other agencies that are land managers in the area will help us go upslope and work further into the watersheds. A lot of the material the Corps of Engineers dredges from the bar and bay entrance comes from the Eel River. There is a strong north current and the Eel River produces a lot of sediment, same as the issues that relate to Freshwater Creek. A lot of sediment moves up the coast and is deposited into Humboldt Bay. The maintenance dredging at Woodley Island and the Eureka Boat Basin paid for by local taxpayers through the Harbor District and the City of Eureka consists of material from the Freshwater watershed. This costs millions of dollars every 7 to 10 years so this is a major concern. But the BMP will help continue the unity with the other agencies so we can also coordinate planning into the watersheds.

What is the feasibility of doing sediment budgeting in the bay and sediment load issues coming from upslope areas?

Steve Rumrill: I don't know much about the sediment in Humboldt Bay but we are addressing the same issues in a more riverine dominated system in Coos Bay. There is a huge amount of redistribution within the Coos Bay system based on where tides are moving sediments around. It may be as much as 40% of the changes in volume that we measure from hydroacoustics that is redistributed sediments in that system. I don't know how that translates to here. But I do know there is a lot of sediment that moves around in the bay from season to season with the tides.

David Hull: We don't know a lot more about it around here and that is something the interagency team has to move into with the next phase of bay management.

Steve Rumrill: Coming from the riverine dominated systems a lot of that transport and redistribution comes during seasonal storm events. There is low level chronic movement but then there is episodic big movements that happen fast.

In the 1800's there were active ports like Eel River, Camp Wiyot and Port Kenyon. Back then they were already concerned with erosion and sedimentation at the Salt River. We lost those ports due to sedimentation so can we learn anything by comparing and contrasting historic ports?

David Hull: Other models are valuable to look at. But historic floods 50 to 60 years ago removed access to these ports. Land use activities created the problem in the beginning so that needs to be addressed.

What is ballast water exchange?

David Hull: Ships are designed to safely navigate with a certain amount of draft, the amount of ship underwater. If they do not have cargo then they take on water to get the ship down to that draft. The water may include organisms from that port. When they arrive at a port to take on cargo, they discharge the ballast water into the bay. If conditions are right, the organisms can survive in the new port. Ballast water exchange is a process of dumping port ballast water in the mid Pacific and taking on water that does not contain the same organisms as the coast. In theory, when the ship arrives at the new port, the ballast water exchange has diluted, washed out, or replace all water so the chance of introducing non-indigenous species is decreased. The problem is that a lot of ships are not designed to do that. Their ballast intake and discharge is underwater and that makes it a problem to exchange water in the mid Pacific while moving. Overflow pipes on deck can allow for exchange but depending on the size and design of the ship that can take 3 days or more with ocean water running on deck. If the master of the vessel decides it's unsafe to do that, then he can decide not to exchange the water. Studies have been done on each port having a ballast treatment program, but it is incredibly expensive to the ship operator as well as the port. So treating the water on the vessel is the best option. Studies have tried heat, chemicals, nitrogen gas. New ships will be designed with a treatment mechanism installed or exclude the ballast tank altogether.

Steve Rumrill: Pumping nitrogen gas into the ballast water in the tanks causes the oxygen levels to decrease, killing the larvae. It also cuts down on corrosion.

Jeff Robinson: It's not only foreign vessels bringing in exotics, one from a northern port, say Washington, can also transport these.

There is coastal water extraction suggested for the Mad River. What significance did the prehistoric freshwater plume have on Humboldt Bay, Eel River, Continental Shelf salinity conditions prior to diversions and increased consumptive uses?

Steve Rumrill: In a general sense, removing freshwater for agriculture or municipal purposes will decrease amount coming out in that plume. The impact of less freshwater in the nearshore ecosystem is not significant but the sediment transport is the major issue. The system is robbed of smaller sand grains and goes to a larger boulder, cobble material. Locally, the transport systems does not seem to be interrupted that much. Removing freshwater will dampen the salinity impact but it will not be severe enough to eliminate entire species or population differences. The Columbia River systems has damns in several points and the water is treated at some point so the salinity along the Oregon/Washington coast changed by 0.2 ppt. Most organisms go through salinity changes from 28 to 33 ppt in normal circumstances so there is much potential for a huge impact.

Does the state have a prioritized way to treat basins for invasive species? If they don't how might they do this?

Steve Rumrill: I'm impressed by the work being done to characterize the levels and extent of invasive species in all taxa and habitats. This has not occurred in many estuaries up and down the coast. San Francisco is ground zero for invasive species; Coos Bay is ground one, we are heavily invaded. The three states, California, Oregon and Washington, and British Columbia should act in a coordinated manner to monitor new arrivals and deal with existing invasive species. Sea Grant has a strong outreach, educational program to inform the public about these species.

How do harbor dredging and deepening projects work in the bay?

David Hull: Twelve years ago local shippers addressed the Harbor District regarding the depth of the bay and their inability to compete globally. Humboldt Bay companies had a practice of light loading, partially filling a ship, then the vessel would have to go to another port to top off. Additional fees were required each time a vessel enters another port. The shippers said an extra three feet depth was needed. Thirty-eight feet is the controlling depth for shipping. The Corps of Engineers likes to have entrances 10 feet deeper because of swells and storm conditions.

There is a proposed deepening of the South Bay channel and the turn around basin. What mitigation might occur as a result of impacting habitats such as eelgrass?

Steve Rumrill: There will be an interruption of nutrients flowing down in addition to deepening and widening the channels increasing the volume, that's what it is intended to do in the channels. This will cause a change in the salinity, so more saline water will come in. Some fish species are more sensitive to changes in salinity.

David Hull: Deepening the south channel was part of the original project twelve years ago, but the Corps of Engineer's have concentrated on the entrance and north channel. Only a few areas of the bay are suitable for deep water navigation and harbor activity. There is 33 miles of shoreline around the bay but only 15% fit into this category. A small section, about one mile long, in south bay is suitable. The channel is a couple of miles long. The last time it was deepened was in the 30's. It is maintained at -26ft but it naturally maintains itself at about -30. The proposal is to go to 35 ft so it will be comparable to the north bay channel. To make it deeper you have to make it wider also. The plan is to straighten out the channel and widen the turning basin. The EIR contained mitigation measures for intertidal mud flats and eelgrass impacts. Areas with recreational clamming were avoided. The plan was to work with Humboldt Bay National Wildlife Refuge or California Department of Fish and Game on wildlife area projects since the money would be available now.

In terms of organisms per cubic meter, what are the numbers for one cubic meter of bay water, bay mud and soils?

Steve Rumrill: The numbers of little organisms can be in the millions. As you scale up in size, the numbers can be in the thousands to tens of thousands. The large predator are scattered throughout.

How can someone become involved with the harbor revitalization plan that will address the commercial/industrial areas?

David Hull: The public process for this plan will come as input to the plan itself after it is created. We have a consultant with world-wide shipping, marketing transport and railroad expertise to find out where the port of Humboldt fits in the global scheme and what kind of improvements to the facilities is needed. The beginning of the harbor plan came through the public process but there will not be any kind of stakeholder meetings until there is a draft version of the plan. Then it will be presented to the public.

Have there been discussions with the Harbor District regarding a National Estuarine Research Reserve in this area?

David Hull: The Harbor District is going to look at that designation. We have heard it through our strategic plan process, in the BMP and stakeholder meetings. It is definitely something we

are going to be looking into. From our experience, it provides funds and also works well in areas where there isn't another agency taking the lead in conservation or management of the bay. In our area, we have a lot of agencies that are working closely to develop the BMP which are the same type of things a National Estuarine Research Reserve (NERR) would do. There are already 17 agencies involved in the process but it's something the District will look hard at because a lot of people have expressed an interest in NERR.

Steve Rumrill: The South Slough that I work for was established by a local community interest like this in 1974. Many of the community members that precipitated the Reserve are still very active in seeing how their marine protected area experiment has matured over the years. That was the only thing in town at the time. But now there are other layers of administration and regulatory responsibilities that have come to play on Coos Bay. So now, we are one of many that operate in our tidal basin. The NERR now has 25 sites and California has 3 already – Elkhorn Slough at the mouth of Monterey Bay is partnered with Fish and Game, Tijuana River at the border is partnered with Parks and Recreation, the new one in San Francisco bay will have three different components with the state partner being the California State University system based out of Tiburon. So, there are various kinds of partnerships that can be developed to meet the goals and objectives of the site. At the Coos Bay site the state partner is the Oregon Division of State Lands who are the landlords for state owned property.

Is there anything citizens can do to persuade the City of Eureka to scuttle the proposal for a 101 bypass west of Broadway in a wetland next to a bird watching trail?

David Hull: I think public involvement is what it takes. Get together with the Council people and let them know how you feel. This is the way the process works. I think the Council right now is open-minded and wants to see the best for the community. But they need to know so you need to make the contact with them.

Will the Harbor District's website include presentations from this Symposium or is there another site with comprehensive information on the watershed?

Jeff Robinson: We have all the PowerPoint presentations and I will ask the authors for the right to put these on our website. As far as the one-stop-shop, we are trying to get as much data as we can on the site. It takes a lot of time and effort to do that. A lot of documents are historical in the Humboldt State University Library. We are working with Humboldt State to preserve these documents by scanning them into a computer to archive them. Then we could make them available online.

If estuarine areas are suppose to be the most productive why isn't there more bird activity in Arcata Bay?

Steve Rumrill: The term production is a key point. I think of tide flats almost like the surface of a leaf. When the tide is out, the mud flats have a small micro layer of diatoms and algae, microphyto benthic layer, that is alive and moving. We are in our infancy in understanding on the north coast as to how much is produced where. When you compare this layer to larger areas like eelgrass or salt marshes that we can see, where's the balance. We don't know yet how much production is happening in the estuary or even on the tide flats. All the decaying material is moved over into food for the polychaetes, worms and tiny clams that the birds will feed on. The migratory patterns are driven by things even out of the United States. This is an important migratory stop for many birds.

Audience Participant: In terms of numbers, probably a million birds have moved through here. The numbers of birds you can find at any one time from October through May, the time that

birds are resting here, is 200,000 birds per day. This is based on a census and not all the bay was censused at one time. It could be a half million birds at any one time in the fall, winter or early spring.

Could you outline the Harbor District Strategic Plan and Management Plan trends and public involvement?

David Hull: The two big trends the Harbor District will work on over the next five years is to complete the Humboldt Bay Management Plan and the Revitalization Plan. All of the input from the resource conservation and resource management end in the management plan and the economic portion of the harbor plan reflected that the Harbor District needs to finish and implement these plans. The Strategic Plan has a list of all public comments ranging from refinements to the marina operation to mariculture issues.

Do you think campaign finance reform could benefit Humboldt Bay improvement funding?

David Hull: It think anything that streamlines the government makes it more honest and forthright then it will help the whole process.

Steve Rumrill: Oregon estuaries are always under a local emergency to keep the ports open with dredging for commercial ships and recreational boats. It's a dangerous place to work and recreate. It's a political issue because you can receive funds when people are dying at the mouths of bays.

Panel Discussion

Making the Connection – linking watershed and bay systems

Moderator: Sungnome Madrone
Redwood Community Action Agency

Panel Questions:

1. How does your organization link the watershed and bay?
2. What is your group's role in sustaining resources or community values in the watershed or bay.
3. What is the future?
4. How can community members become more involved in watershed and bay activities?

Jeff Barrett - Pacific Lumber Company, Director of fish and wildlife programs; B.A. in environmental biology U.C. Santa Barbara; PhD in ecology University of Georgia; supervises a staff of 25 in watershed analysis, aquatic monitoring and wildlife surveys; member of Humboldt Bay Watershed Advisory Committee;

Representing timber interests in the Humboldt Bay Watershed. Timber represents over 60 to 70% of the entire basin. Pacific Lumber Company is the largest single landowner of those timber lands but Simpson Timber is also a significant owner, Barnum Timber, Sierra Pacific and a variety of small landowners are represented as well. When I was asked to explain how timber lands are linked to the bay, I factiously thought of Dickens and a Tale of Two Cities – “it was the best of times, it was the worst of times”. The best of times is simple; when the Europeans first came to Humboldt Bay area, it was covered with redwoods. Our lands still are. All of the things that one would like to see in redwood forests have at least the potential of still being on our lands. Unlike many of the rest of the areas that have been converted probably irreversibly to uses other than redwood forests. Similarly, our lands are immune to the same kind of developmental pressures that we see all over California. As long as we can maintain our lands as a viable resource, we won't be prone to divide and commercialize them and develop them. We are lucky that some much of this basin is in a land use that could potentially stay in its natural state or forested for some time and not be converted into condominiums. It is clearly a refuge for a lot of species. We have populations of many animals that are rare or absent in other areas. Managed timber lands in Humboldt County have the highest recorded density of northern spotted owls. We also have fishers, salmon osprey, and eagles. We also provide employment, economic resources and jobs to a community that can use them. Humboldt County is not a bustling generator of new income or employment growth. Although natural resources are diminished in their overall importance, they still remain an important economic contribution. Worst of times, I can think of two things. First, the sediment entering Humboldt Bay originates these timber lands. There are a variety of reasons for that. We have the higher gradients, all of the soils here are very erosive. We have high rainfall levels and forestry activities by the very nature are ground disturbing. So that combination ends up generating a lot of sediment relative to what happens in the flatter portions of the watershed. I think our timberlands are also a source of controversy and divisiveness in our community. It keeps us from finding solutions. Linkages – we control the upper basins and therefore the amount of sediment, wood and water following off

of our lands are important to what happens in the bay. Most fish spawning occurs on our lands as a consequence of geology and slopes. The economic linkage to the community. Our role in sustaining the Humboldt Bay watershed and ecosystem hinges on our ability to manage and protect the forest, manage them in ways to minimize downstream impacts. The large timber companies have a strong economic base to support scientific research, analysis and watershed studies. We spend between 3 and 4 million dollars per year. The timber companies in this region have the ability to do scientific work that can help all of us answer the questions we want to know. I don't know what the future is. It's up to all of us. I think there is a very active debate, especially in this county but also throughout the northwest, of whether or not we want to have commercial timber lands. There are other economic uses and landowners will ultimately make the economic decisions that best suite them. If we decide as a group that we don't want to have commercial timber lands, I have no doubt they will go away. They will either become condominiums or parks or whatever else depending on what the economic opportunities are. This conference is about how people can get more involved and participate in the process. I think HBWAC is an excellent forum for everyone to get together and talk about the issues.

Tim McKay - Northcoast Environmental Center 25+ years;

So many wonderful things have happened around Humboldt Bay since 1967, when I first came here. Everyone here is a reflection of that effort. So many different initiatives have gone on. We're really fortunate to live in such a vibrant community. Our organization would link the watershed and bay by projects in adjacent watershed that impact the bay. The average landings of salmon in Brookings, Crescent City, Eureka and Ft. Bragg have drastically declined due to the Klamath River watershed. Several of our member organizations, Redwood Region Audubon Society, Redwood Chapter of the Sierra Club, and California Native Plant Society, have long been involved in efforts around Humboldt Bay. The creation of the Humboldt Bay Wildlife Refuge, 1977, was due in part to the Audubon Society. Friends of the Dunes help project those wild areas have grown in many ways out of efforts originating from the California Native Plant Society. The Sierra Club has been active in reforming forest practice activities and the realization of the goals of the Clean Water Act that protect the beneficial uses of water which include fisheries, swimming, water-based recreation and drinking water. The big question is how to link all the individual projects around the bay for a holistic protection for the future. The Harbor District needs to develop a database available to the entire community and work with the many agencies in the watershed. One of our roles in the community is to point individuals in the right direction to find out how they can help with their particular interest. Many things in the past of Humboldt Bay, living with the original inhabitants and pollutants from past activities, can come back. We can't go into the future without dealing with the past issues.

Julie Neander - Resource Specialist with City of Arcata; prior worked with the Hudson River Sloop Clearwater; Bachelor degree from Cornell, masters in environmental planning from Rutgers; student of life and a bay enthusiast.

From a city perspective of linking the watershed to the bay, the city has just completed the General Plan for Arcata. In that plan we look at the natural resources, wetlands, creeks, the bay, open space, forest. In addition to that we also have a number of water quality protection ordinances, a wetland and creek combining protection zone and sediment and erosion control policy. So we are looking at the fact that anything that happens in the watershed will eventually end up in the bay. We have done a lot with the GIS program to look at what our different

resources are. We have mapped those out to make better, more informed decisions when we are looking at new types of development. We are fortunate to have a very active citizenry, with wonderful community groups as well as institutions like Humboldt State University, local high schools and elementary schools where we have a lot of participation things like the Adopt-a-Creek program. The city has also taken on different projects in cooperation with non-profit groups or state agencies to do enhancement and restoration work on our creeks. The marsh project is considered one of the crown jewels of the city. The group's role in sustaining resources – the city is the land-use regulator and owns tidelands so our role is through the general plan, ordinances, policy and other regulations. It also comes into play to educate our citizens about what they can do to protect the bay, the creeks, marsh sanctuary, non-point pollution. We work in cooperation with funding from other agencies to do this kind of education. School groups have painted our storm drains to not dump since these lead to the bay. Part of the future is living with the legacy of the past. In the past we didn't have land use regulations that protected the creeks from development. We have that legacy so that is what we will work with into the future. We have new policies that are much more protective that require setbacks and do not allow some of the things as in the past. We continue to do outreach and education. We are a public agency; we have a number of public meetings, city council meetings, planning commission, open space, wetlands and creeks. It is there for the public. Anything going on in the city is talked about publicly. One of the best ways to become involved is to be informed, talk about your concerns, learn more, bring up issues so they are publicly noticed. An active city it there because of its citizens, because of the people there that make it happen. We also have an Adopt-a-Creek program, volunteer days at the forest or marsh, Friends of the Arcata Marsh.

Jennifer Rice – Projects coordinator with Natural Resources Services, Redwood Community Action Agency for six years; watershed, restoration and trail projects; just finished the Humboldt Bay Trails Feasibility Study; working on Arcata to Korbekel railroad project; designing trail system in Elk River Wildlife area.

I am representing the recreational standpoint, non-consumptive recreation. Our organization helps link the watershed to the bay as well as the Trails project. We are about community and action. In the Natural Resources Services Division we work to link the community and natural resources in this area. We look at the big picture, we listen then we move in to fill the gaps and address needs that are not being met. A specific example of that is there is no one actively doing non-motorized access on a regional scale in this area. We embarked on doing this study with funding from the Coastal Conservancy to look a ways to improve access to Humboldt Bay from the population center of the north coast. We talked to the public, set down ideas then prioritized. The goal is to connect people with the bay and provide opportunities to experience the bay, understand it and become better stewards of the bay. Our role is gatherer, coordinator, facilitator, to move in the direction that the public wants. We work equally with different groups. We point out needs and we act. We get things put on the ground like the Hammond Trail and with the city here to expand the waterfront trails in Eureka. The future is acting by design instead of by default. I believe that we have acted by default for too long in the area. Our planning processes are way behind the times. When California style growth hits us here, now is the time to strategize and be ready for that. That includes community development, resource land management, and access development. We need to support local government staff, tell your local representatives about the good work being done. Get involved with local groups like

the Eureka Trails Committee, Explore North Coast Fund, Humboldt Area Foundation, volunteer on work days, bay management planning, county planning.

Cheryl Siedner – Table Bluff Reservation, Chairwoman of Wiyot Tribal Council; Chair of the NCIDC Board; descendent from the Indian Island Bay Sites and Elk River Wiyot Tribe; active with KEET TV and with Humboldt State University.

Previous comments from panel – “our lands, our control, and we have so much money”. Wiyot land, Wiyot control and we would like to have some of your money. We have been trying to work with PL for the last four years and they’d give us listening. The watershed and bay are our livelihood as Wiyot people as all the rivers were. We lived on the river, we moved on the island, we lived on the land, we gathered there. The City of Eureka has impacted us so much that we can’t gather in the places we use to. The deforestation of our area has effected us greatly. We can’t gather there either. Leonna Wilkenson is a basket weaver who has to go on private land to gather. We didn’t have to do that before 1850. As weavers who chew on the ends of the sticks, we have to be careful because we don’t know what’s in the rivers or been sprayed. We are very linked and we’ve been here for thousands of years; not just 4, not just 30. We are not a group, we are the people the creator has put here. We are no longer a special interest group, are who we are. We are the Wiyot people who made this our home because that’s where the creator put us. But we want to work with all the agencies because they are important. You are here to work and sustain what we have. We want to be a part of that issue. Nina Hapner works for us in the Environmental Department of the Table Bluff Reservation. Our future looks back to our past; our future is incorporating what happened previously before 1850, before contact. We have purchased our sacred land but only 1.5 acres of it. We want to bring back the dance that we were killed and murdered in 1860. We want to look back, remember it, then go forward. Become more involved by asking questions, be participants, volunteering. We are here, the Wiyot people. We want to be a part of everything that happens on the bay. Eureka has been overbuilt. All that is left of the forest is Sequoia Park. That forest came all the way down to the bay. We need money so we can continue this dream, that’s the education that won’t stop. When I’m no longer here, that will still be here. Your children will also be benefiting from our children when that gets completed. Everything is education. Public land trust is very viable. People have been put in organizations, employed to look out for our public interest. Are they doing that or are you hearing rhetoric. If that’s the case, nail them on it. Don’t let them get away with it. We put them in power, we can take them out.

Sungnome Madrone speaking for Jimmy Smith –

He was going to talk about the economic, commercial end of things around the bay. I try to go back to the beginning and think about the most sustainable resource, the indigenous people that lived here. The practice burning of the balds to keep the prairies open. They didn’t harvest the forest for their sustainable living. They let the forest provide them with all the products that they lived by, the fish, building materials, and other things. Now we harvest the forest and it’s a different time. We are not going to be back from doing that but when I look at 1850 – 1970s we entered a different realm from what were sustainable practices of the past. We entered a realm of extraction oriented until we reached the end of that extraction. In many cases we had boom and bust types of economies. In the 70’s and 80’s we entered into extraction and renew kind of approach. Now we’re moving into restoration. There’s a lot of talk about moving towards sustainable economic development. If we want to have a harbor maybe it’s better to keep the

soil on the slopes first rather than dredge it out of the bay. Here, people have been talking of a system of sediment budgeting and charging for input of sediment. I really like an approach that provides incentives upfront to keep the soil there in the first place. More and more you'll hear people talking about the current disincentives to a timberland, ag or urban landowner to take better care, stewardship of that land. The tax codes and permit systems have a lot of disincentives. If you have endangered species on your land, it constrains your ability to manage your land. If you don't have any endangered species, carry on. That's opposite of what we need to create. In economic development, as we move towards creating positive economic incentives upfront, for landowners to do the good stewardship they want to do then we'll see less sediment entering into the bay and more renewable forest type of approaches.

Mark Wheetley – Basin Planner for California Department of Fish and Game North Coast Klamath River Basin Planning Program, help planning development and implementation of watershed restoration projects and activities in the Humboldt Bay area; member of HBWAC, Humboldt Bay Management Plan; Bay Trails group; South Spit; previously with California Coastal Conservancy.

Provide agency perspective. Fish and Game is a schizophrenic agency in terms of its mission and everything it is responsible for both from the trustee capacity and active resource and land manager. In our connection to the bay, we cross over into the trustee world and the regulatory world in regulating fisheries, harvest issues with THP review, permitting issues, ocean spill prevention response program, and enforcement activities. Within active management, we have several wildlife areas around the bay in public ownership. In my capacity with the basin planning program, the focus has been in watershed restoration efforts in project planning, implementation, and funding. The marine division has a lot of challenging things on their plate too. In Humboldt Bay, their focus has been around aquaculture issues, eelgrass and how those activities affect nearshore fish species. Community members are involved with planning and project activities. This will continue with management plans, projects, and permitting issues that everyone can get involved with. The Department is involved in the Northcoast Watershed Assessment Program as well as several other agencies. Pat Higgins is a good contact for watershed information. There are a lot of transferable lessons from one watershed to the next. This program is the future in integrated approach in dealing with watershed issues. On the immediate horizon, the coho status review is on the way. That will be an opportunity for the public to become involved in a highly volatile fish issue. The issues are getting more complex and it's requiring more collaboration between agencies. Keeping informed and communicating with each other is a challenge. HBWAC is a good model; it's the future for watershed planning efforts. You have to have everyone at the table if you're going to make forward progress. The Department will develop an integrated management plan which incorporates Mad River, Faye Slough, Elk River; all those areas under one management program. Each site has specific needs but in terms of the department and how to be strategic and how to identify the resource needs, we need to take on those management needs to a single focused integrated plan. Since the last Symposium, the North Coast Regional Land Trust emerged. That will served our needs in this area. The Buckeye Conservancy is a new organization that represents private landowner interests.

Katherine Ziemer: Katherine is the Executive Director of the Farm Bureau. The Humboldt County Farm Bureau is a member organization formed in 1913 to help rural families join

together to work on issues that affects them economically and socially. In the current political and regulatory climate, a significant amount of Katherine's effort is directed toward issues of land use, retention of agricultural lands in sizes that allow for productive agricultural land uses, and research and referral of information regarding the myriad of planning issues at the local, regional and national level. A Humboldt County native, Katherine comes from a ranching background and has worked as the Farm Bureau Executive Director for 14 years. She functions as an intermediary and information resource for a range of production organizations such as Humboldt Del Norte Cattlemen Association, Woolgrowers Association and the agricultural community in general.

With the number of people we have here you'd think we'd want to have more of the ag producers communicating with everyone else in the room. I think that's something we need to work towards; to have more dialogue, understanding more about what agriculture needs to survive. We all want similar results; we want open space, land that is healthy, continue to be next to each other with a sense of cooperation. It's an educational process. I can explain some of the hardships we face. They may seem minor in the beginning but can lead to people selling the ranch which then could be lost as ag land.

Questions from the audience:

What sort of solutions are there to deal with the diked and formally tidal influenced lands around the bay, to maintain those lands in the state they are in or modify them?

Julie Neander: The City of Arcata acquired 75 acres adjacent to the Marsh and Wildlife Sanctuary of former tidelands that are used as ranch land. The City began working with Fish and Game to breach the dike, restoring tidal flows to Janes Creek and trying to reestablish anadromous fish species. We are also looking at other types of enhancements to that habitat; salt marsh or a combination of freshwater and salt for the bird species. It's very much a public process. There isn't much scientific data on the outcomes that will occur. Whatever design we do come up with I hope we can study it to have a better understanding of the different dynamics and processes to help guide us as we look at other potential changes around the bay in terms of restoring more tidal lands. One of the immediate concerns is the influence of a non-native cordgrass. If we do restoration to salt marsh are we going to have non-native cordgrass take over. That's not restoration and it's not the goal. We've worked with Andrea Pickard from US Fish and Wildlife Service who will help us study the progression of the project and is it meeting our goals. If it isn't, how do we adaptively manage it to meet those goals.

Tim McKay: I was looking at the flack over freshwater or salt and immediately asked "paper or plastic", then I realized it's much more important than that. There is more experience with freshwater restoration; whether it's been in wetland areas for ducks or marsh project. The people involved are all credible whether for fresh or salt. One group wants to do more of the tried-and-true technique to create freshwater marsh. On the other hand it's more of an art of restoration associated with the salt marsh. Humboldt County has been a laboratory of restoration and we need to some of both. The pioneering work is in salt marsh.

Katherine Ziemer (? Towards beginning second side) : Julie made a comment about studying the project, you're going to be studying it for a very long time because you're going to be affecting a lot of people that are neighbors. When you breach dikes and you have experts on it

which have the opportunity of saying they may not realize how it will affect the neighbors. That's what worries the ag community, when you bring in salt water and take away crops from their property, they say we're sorry, we didn't expect this result, that's why we need to have this studied a lot longer than most people would think reasonable. But there's going to be a lot of different effects on the landowners when we start making changes like this. Even though it's a change back, it will be different for the landowners now.

Sungnome Madrone: Two other examples include: Cock Robin Island in the Eel River Delta by taking land out of ag production and put into open space with no management plan can impact neighbors. Fish and Game has purchased land then had no maintenance. A project was designed with Fish and Game working with local ranchers and non-profits with funding from Fish and Wildlife to restore an area on Cock Robin Island to native habitat. The land was purchased from a willing seller but the design was created in a way to maintain open grassland for geese and other waterfowl. In order to do that the ranchers have been enlisted to mow those areas to keep them in that type of habitat, producing silage and agricultural products off of what is a reserve. This is one example of how these things can be married together. Another example, on Martin Slough, tributary to Elk River, we are working with landowners who are up against the permits for maintaining dikes, levees and tidegates have spent \$5,000 on permits to do \$500 worth of work on the land. This is very cumbersome. So Katherine, the Harbor District and other are talking about creating a permit system that would be an umbrella for the ag owners to do simple types of practices under this type of system. Another way of people trying to come together and collaborate on Martin Slough, we are working with landowners, the City of Eureka, and the Municipal Golf Course to realign the channels through the golf course to make it more friendly for the fish, less flooding. These are some examples of people in the community trying to find solutions to these things.

Even though you would be losing some ag land, is levee setback a solution to stream channel alignment?

Sungnome Madrone: That is exactly one of the solutions recommended for Martin Slough through the golf course. By doing that you can enhance the riparian habitat in the stream for the coho.

Katherine Ziemer: One of our ranchers wanted to add some fill on top of the levee and in the process he checks to see if permits were required. He was instructed that no permit was required but he would have to have the entire levee engineered before he did anything to it. The idea of moving levees back is a good one but with the required work and expense, ranchers won't be interested. It could take years. The constraints are what we see as problems.

Mark Wheatley: Trying to do these site specific assessments and coming up with all the different alternatives points back to the value of the comprehensive management plan. We can take a step back at look at the big picture perspective, historically where is the likely successful restoration going to occur. Each and every project is not going to accommodate each and every need. All sites and all projects are not going to be compatible for public use.

What do you see as the largest problem that keeps the tribe excluded from the bay planning?

Cheryl Siedner: People do not think that we exist. Tribal members telling people that we are here lets them know we are still here. Someone in the 80's commented on how sad it was that the last Wiyot person died. That's why education is so important like the restoration of the Indian Island village site. We want to continue to educate people, not only children but adults as

well as college students and the community members that don't know. We have been getting out in the community; we have joined the Chamber of Commerces to tell them about the Indian people in their communities so the can't be ignorant of that fact. That's what Mark Twain said, "We are ignorant of something". But if I come along and tell you about it then you're no longer ignorant about that issue. So, today you are not ignorant any longer.

Sungnome Madrone: Cheryl mentioned early that funding is needed. On the south spit, indigenous territory for the Wiyot people, a major project will happen in the next year to try and take care of some issues now that the area has been cleaned up. The Coastal Conservancy has been some restoration projects out there, access control. RCAA received the grant and we look at who are the appropriate players to be engaged in implementing this project. There is no one more appropriate than the Wiyot people.

How are we going to get objective evaluations of the economics of the bay developments and projects, the deferred costs in time and money?

Sungnome Madrone: There is a real lack of objective information. Often the externalities have not been included in these things. I don't have any grand solution but I believe processes like HBWAC that are trying to bring all the stake holders to the table are a piece to that solution. It's a place where this information can be discussed and shared in a more balanced, objective way. On all these kinds of development and environmental issues everyone is trying to figure out how to identify the true economics.

Paula Yoon: The major stakeholders need to decide on what needs to be studied. Choosing a financial group that could pull this together would take a lot of communication for the various groups to approve of one organization to do the analysis.

Tim McKay (?): I think there is an economic cost associated with the conflicts generated over these issues. One way to get over that is when the various stakeholders feel they are equals. I don't think we're there yet. When there is a management plan for the bay that incorporates the environment and economics in a way people feel is equitable then we approach resolving that issue.

Jennifer Rice: Strategizing by design, not default demands more study and start thinking more objectively rather than emotionally. A lot of decisions on the north coast tend to be made emotionally.

Why isn't the City of Eureka, a major player in Humboldt Bay and watershed issues, represented on this panel?

Yana Valachovic: When you design something you can't always do it perfectly. In a perfect world I'd have all of the audience on this panel, but we had to make some decisions. The City of Eureka was very generous with this facility, the mayor spoke yesterday morning. We strived for diversity and asked these panelists the impossible, to try and represent multiple perspectives within single interest groups as with ne person from the agencies, which isn't fair to anyone. It's certainly an omission but we had to make choices. It's not meant to slight the city by not having a voice.

Sungnome Madrone: The City of Eureka has made incredible progress in the last several years towards cooperating with citizens groups, landowners trying to move forward with visions of trails in the gulches and restoring watershed for fish. There are a lot of hopeful signs happening with the city. They have learned a lot from Arcata and Arcata learns from them, there is a lot of sharing going on between staff.

Is there a framework for agency roles with multiple agencies have various jurisdiction over the basin?

Mark Wheatley: In terms of which agency has jurisdiction, it is a complicated issue. One overarching overlay is the coastal jurisdiction as all this is within the coastal zone. The role of the Coastal Commission and implementation of the individual coastal plans, and the local agencies and government entities all involved with implementing their local coastal plan. This is a question that came up in the planning process. In the end we may get a great plan but how does that interface with the existing local coastal plans that are in place.

David Hull: Project implementation depends on whose property it is. Submerged lands belong to the state who has given jurisdiction to the City of Eureka who would be the lead agency in leases and CEQUA. On a lot of the bay the Harbor District has that jurisdiction. On the north bay the City of Arcata has jurisdiction. Beyond the CEQUA process, permit need to be obtained; one from the Harbor District no matter whose land it is on, the Coastal Commission is next in line which gets feedback from Fish and Game and other state agencies depending on the project, then there is the Corps of Engineers which is the federal equivalent of the Coastal Commission and gets feedback from federal agencies. There is a lot of duplication; the staff try to work together to coordinate as much as possible.

Jeff Barret: The question gets at one of the core issues that this Symposium is all about, which is linkages. There is an almost total decoupling of the way permitting and regulating by agencies takes place on private timber lands as opposed to what goes on in the bay. I will put in another pitch for conferences like this because this is the only exposure that some people will have to what is going on in the bay, timberlands or agriculture. Right or wrong, in regards to timberland management, there is a lead agency that ultimately has the regulatory authority to make decisions. The other agencies give input to the lead agency. I think from a landowner's point of view this is a good system; there's ultimately one entity where the buck stops there. This may spare the landowner from the endless bureaucracy and duplicate permits.

Sungnome Madrone: The State Resources Agency is having a workshop on streamlining the permit process for small restoration projects using the timber harvest plan review process as a model. Because of the cumbersome nature of CEQUA the timber industry and the government created a compromise in the 70's that is called the functional equivalent to CEQUA. This has been refined and reworked for cumulative impact analysis. The idea is this process could be applied to restoration projects so there is an umbrella CEQUA permitting.

The ag land between the Bayside Post Office and the cutoff is subject to flooding. One rancher has already quit and the adjacent landowners are worried about the use of their property. The culverts are too small to handle the amount of runoff during the rainy season and fill has been added to the area. Who is responsible for maintaining these culverts?

Katherine Ziemer: It's a county road so Caltrans or the County Public Works would be dealing with the culverts. It's not the landowner. That's in the planning process to have culverts large enough to divert storm water at the time when the most amount of rain is falling.

Sungnome Madrone: The Army Corps of Engineers is responsible for the fill issue depending on where the fill is and what it's doing.

Is there still any chance of public acquisition of the beach forest near Samoa that was sold by Louisiana Pacific? It's a beautiful place for future public use and continuing wildlife habitat.

Mark Wheetley: This is a question for the Coastal Conservancy. Even though ownership had been transferred, there was still talk with Simpson Timber, who acquired the property, about selling the property. A Coastal Conservancy employee said there are not any talks regarding this property at this time but we are open for communication.

Nina Hapner: The Wiyot people would like to be involved when there are talks about that property. That is an area of real concern for our people.

We need to be aware of all the environmentally damaging moves being snuck in behind the scenes by the Bush administration. While we have this patriotic feeling, questioning is considered unpatriotic. How can we decrease the time it takes to get through all the regulatory restrictions, permits, costs without losing needed environmental protections?

Mark Wheetley: With volatile discussions, controversy is good in terms of arriving at some healthy decisions and that is a huge asset to this area. That's what this Symposium is all about. We have a lot of different perspectives around Humboldt Bay and everyone is very accommodating and respectful of all the different perspectives. We need to continue that tone because that is how we get to good solutions. All the people involved are solutions oriented and I hope we maintain that.

Jeff Barrett: One of the ways is to find out what really matters. With resource concerns either on public or private lands, there's a tendency to think lots of things are a problem. Then you spend time on things that ultimately were not important. What would be more destructive is taking away time from issues that really mattered. On timber lands a good way to find out what really matters is watershed analysis. The goal of watershed analysis on timber lands is to take a look at what is going on and find out what the big and small issues are; then to develop management plans to address the big issues. So, if you know what's going on then you can set a plan and that will expedite the permit process and funding for restoration projects that have the highest potential to do good.

Tim McKay: If you are concerned about streamlining environmental rules and regulations, you need to be involved in the political process. The politicians react to what they think the public believes, not necessarily what is "true" or the best science. You need to talk to the elected officials. Never give them the opportunity to say, "No body told me there were concerns about this issue". Engage them fully in the process, participate yourself. A quote from Ben Franklin, "People willing to give up their liberty to protect themselves, don't deserve liberty".

There's a new group called McKinleyville Creeks which is beginning to deal with the urban streams between McKinleyville and Fieldbrook and the interface with residential and timber lands. How can we deal with the conflicts between these areas?

Jennifer Rice: Now is the time to get involved with the County General Plan process and bring up issues of urban growth boundaries which are widely used in other areas to identify the community opinion on development. During public meetings, citizens have voiced their concern about managing from the watershed perspective and starting with this as the base data. Agencies are regulated from the perspective of watershed management but they are not operating from this. Changing the way we plan our communities and their design from the baseline issues is something to become involved in.

Katherine Ziemer: There are 10 acre parcel size and then you go into the 160 acre parcel sizes. We try to keep that separation so that in the 160 acres you can actually have managed timber or agriculture operations and over in the community residential area, you'll have the home and the families and the dogs and the variety of things – the services that you need. Those buffer areas are so important to continue to maintain a separation between the productive land and then to separate from the community. So those buffer areas might be what you're talking about and the importance of keeping buffer areas can keep your agriculture and timber much more productive.

Jeff Barrett: I agree but, I think you're really facing a tough problem. I think it's really the problem that Humboldt County is facing. People that own timber lands and people that own agricultural land presumably own those lands because they like them and also because they can achieve some kind of a reasonable economic return for those land uses. As we grow as a county and more people move into the state, I heard they are estimating another 10 million people move to California in the next 20 years, those land owners are going to have a lot of other options for their lands and many of them can be a lot more lucrative than agriculture, or even forestry. So, the community has an interest in trying to help land owners with forests and ag lands to make that a viable alternative, and yet, speaking for forestry a lot of what we do frankly doesn't always endear us to our neighbors. We can ruin your view sheds, at least temporarily until the trees grow back, our trucks driving down the road are a traffic hazard, people worry about their kids getting run over on their bicycles, we use forest chemicals in some cases, so there's a lot of reasons that a lot of folks in the community might not want – at least of first blush – those kinds of land uses as neighbors. I guess one of the things that this conference has been good about is getting people to focus on choices. If it's not going to be timber lands or ag lands, then it's going to be some other land use and I think there is no easy solution.

Tim McKay: I heard a comment about the buffering of private interests from the community, but there's also a buffering of the public interest from the exclusive economic interest, which I think is pretty obvious. But, in the question you raise about the restoration of creeks in McKinleyville, certainly the Clean Water Act is an important thing to utilize. The Environmental Protection Agency actually has done a lot of work in other communities, there are a lot of groups that are doing stream restoration, in Arcata and other places, so there's a rich body of experience and practice I think that's both local and outside the area drawn.

Sungnome Madrone: One of the other real interesting things about McKinleyville is I could draw a parallel with this symposium, and this is the third symposium. The first one was in '82, then '96 and today. The first two were titled "Humboldt Bay Symposium" but this one is titled "Humboldt Bay and Watershed Symposium," so we've made the connection. We've evolved as a community to realize that it isn't just the bay and, if all we focus is on that, we're not treating the whole watershed. In McKinleyville, they have a creeks plan. It's called a Drainage Master Plan. In 1980 or in the early '80's, McKinleyville did a master plan for drainage. So the creeks were looked at as drains, places to move storm water from development, from impermeable services. So when we get to the point – hopefully very soon – where McKinleyville has a watershed plan for its

creeks rather than a drainage plan, then we'll get a long ways towards, what your committee and others want to see in McKinleyville.

Julie Neander: We have done a lot with our creeks down in Arcata with citizen's groups and school groups and also writing grants, getting a lot of funding to do different things, and I would be more than happy to share that with you. Feel free to call or we can chat afterwards.

Tim McKay: Arcata has a policy whereby they actually tax the impervious surface to fund the storm water management. So, that actually is an incentive towards reducing your impervious surface. You might want to look at that if you become incorporated.

I've notice that most of the participants here are the local up to the state level. We have another layer at the federal level that we really haven't talked very much about that. Each of these agencies has their own interests and perspectives and sometimes they're conflicting. Quite often it depends on what the – who's the President, I guess, which party is involved. It's too bad that we have a conflict, let's say, between say the Fish and Wildlife Service and the Forest Service and – so, I wonder if here's any thought about how we can get together at the Federal level better than we've been doing? We change administration and all of a sudden environmental laws that had been passed are either subverted or watered down, or whatever. So, to me, this is something that has in the past been debated. Of course, obviously, eventually, the Army Corp of Engineers tried to bring thoughts together and interests that I'm not so sure as to the watershed how that works well, but at least gain some perspective.

Mark Wheatley: One thing Dave Hull neglected to mention when he was talking about the work up to and beginning this development of the Bay Management Plan was that for almost a year, they spent time with all the relevant and participating federal, state, and local agencies around the bay. It's hard enough to kind of get a download of a bunch of information – this is sort of a one-stop-shop for a mixed bag of stuff and maybe in the future we might want to think about forums that have real focus. We can get a lot more interchange of information. That process in advance of the development of the Bay Management Plan was very useful because everyone doesn't know what every other agency at all those levels of management, both responsibilities and what kinds of tools they have in their tool bag. So that didn't get mentioned and I think that was a really smart move on behalf of the Harbor District to do that in advance and that's

Tim McKay: At some level, all politics is local. So, as long as you have a really active local citizenry, you can even find Republicans in Humboldt County that really care about the environment. I think a model for federal, state, local advisory committee is what came with the Pacific Northwest Forest Plan, the pacts. So when I hear that this is the third or, the fourth at least with a smaller number of people who are involved in agencies, it's probably important to meet, every 6 weeks as opposed to once every 3 years or 4 years. Just to have the people talk about what their agency is doing, what's in the budget? What are our plans? What's on our list of permitting roster? Really, has a vast impact on what goes on.

What do you perceive that these smaller acres be used for as buffers?

Katherine Ziemer: When I spoke about the buffer zones, I was not speaking about those being productive ag lands. I was speaking of the buffer zones to have an area between the ag lands and the communities. I realize there are some ag production, some organic farmers on 10 acres, you could do grapes on 10 acres – those are viable, but they're not agricultural production suggestions. Each piece of property is unique and so there really isn't a minimum size for an ag piece of property. If you're raising cattle, it depends on whether you're going to be in Loleta or Kneeland. If you're in Loleta, you might get by with 60 acres. Kneeland, you might need 600 acres to run cattle. So all of those things are conditioned on what kind of crop. When I was talking about those buffers, I was saying that is a residential area. That is not an agricultural unit to raise a family and make a living off of.

What do you see being done with the buffer zones?

Katherine Ziemer: The buffer zones would be residential. There wouldn't be a lot of ag production on those pieces of property. So it would be your ranchettes. Someone might have a couple of horses. It would be an area where you wouldn't have as much population as you go out toward the productive timberland or the productive ag land. It's almost land in a holding pattern. They are not going to be making their living off of agriculture. They may have some hobbies. They may have a hobby farm. They may raise some grapes or you could possibly have blueberries, strawberries, something in that nature. But it's not going to be their main source of income. They will be working outside that particular acreage on a – what we call a real job – but out in the community and then they come back and have this as their hobby. When you get out into the 160 acre minimum, 600 acre minimum, those become the people's livelihood.

I don't agree, some people are making a living off small acreages and some are making a lot of money.

Katherine Ziemer: That's good, that would be the ideal. It's hard to expect that to happen, depending on their ability to manage their property. They could make a living off of 2½ acre, 5 acre, a 10 acres but you really can't expect that to happen in every case. But you do expect that to happen when you have a 160 acre minimum or a 600 acre minimum. You expect that to be ag-related or timber.

I liked seeing the different perspectives come together in open discussions and the point that was made, I believe by Cheryl about having equal representation at the table, and others talked a lot about that with HBWAC. Often in these processes, the individuals that represent certain development interests are at the table automatically with support for doing that because it's in their economic interest to be part of that process. Whereas those individuals that might be representing other issues or interests that don't have a direct economic benefit to them – it's hard to finance or provide support for those individuals to be involved. When we talk about these fair and open processes with having equal stakeholders at the table, often those stakeholders aren't financed equally and can't participate in an equal fashion. What can be done to address this?

Jennier Rice: I would take one stab at this saying that Jeff's recommendation that HBWAC and groups like, be expanded and that be used as a model in other areas of planning. I would really like to see the larger local governments be more inclusive in their planning processes and really reach out to the community, make more of an effort from the government stand to include the various perspectives. What we've had to rely on is the folks who pay attention and get the information are the ones who have the most involvement. So, I think having more inclusive processes and involving more of the diversity of community from top down is could help.

Julie Neander: You really have to have an active citizenry. I know from working for local government you can come in and you can have these economic interests that have more money behind them, or more, plans or documents, but if the people come out full-force and talk about the other issues and raise their concerns, you've got elected officials who are supposed to listen to their populace. Don't underestimate the value or power of that, even if you don't have a well researched study. The other thing is that there are advocacy groups that you can support and then really ask them to take that up for you.

Tim McKay: The Federal Forests Advisory Committee can be a model. It specifies a certain representation from various groups, be they tribes or other federal agencies, or state agencies, or elected officials, or environmental groups or timber people. They do have a small budget to provide for at least travel expenses. So, I think that that's something that maybe any advisory group should be hoping to look for is to have at least enough of a budget that the out-of-pocket costs in terms of travel expense can be met.

Jeff Barrett: I see there are almost two levels to the question: one is how do you ensure that the public has an opportunity to provide input to the process and to have their voice heard. That has to be pretty easy and pretty straight forward. I don't know, since I'm on the timber company side of things, whether or not the public would think commenting on timber harvesting plans is simple or not. It sounds simple. You can get a free copy of a THP from CDF and you can submit a letter to CDF with your comments and the public can go to the second review meetings, if they want. But it might be that the actual process of that is pretty tough. But, there's a second level there which I'm reading into the question which I'm reading as how can members of the public be co-equal managers of private lands when there are private lands with economic interests. If that's in the question, I would have to just stand up for private land owners and say that's probably not a realistic expectation. The way things work is, if you own private timber lands or if you own private agricultural lands, the law is set up with an understanding that in most cases you're going to be allowed to make some economic use of those lands. And it's really the public's role to come in and provide input on how they want to see those lands managed, which is subtly different, but still different from the public being a co-equal partner in deciding that management.

Synopsis and Overview of the Symposium

Chris Dewees
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I'll keep this relatively short. I only have 13 pages of notes. I thought I'd go through every talk and summarize it so you all know what happened. First of all, I'm not a stranger to this area. I got my Master's Degree at Humboldt State between 1968 and 1970. My first job was helping George Allen organize his office and, from what I hear, it never has happened but we tried. I was thinking about how things have changed. I come up here reasonably often, but I thought back to what it was like in 1968 to '70 versus what it's like now. I made a little list of a couple things that have changed – and a couple things that are the same.

To start out with, of course the waterfront has changed, especially in the last couple of years. But then way before that – 30 years before that – the bridge and Woodley Island and all of that happened. I remember the passion of that discussion when I was here. Passion would be sort of a mild word for it.

The demographics have changed some. When we came, I brought my young family up here. The mill workers were starting to leave. It was one of the many downturns you saw in Steve Hackett's graphs yesterday. Mill workers were beginning to leave and they were being replaced primarily by a combination of drop outs from the Bay Area. Children of the '60's were heading out into the wilderness, getting out of the urban environment. We lived off 299, out on Essex Gulch area and gradually, as the mill workers and the rental houses around there left, the people from the Haight Ashbury moved in, or from other areas in the Bay Area, and they just came up to change their lifestyle. So that was a real change.

The other thing that has changed is that the Wiyot were not even mentioned when we were students here. I mean, we knew about the tribes and the Klamath and we knew about that – we were fisheries students and so we knew about that – but there was no mention of the Wiyott. So that has really changed. Now when I look around the Humboldt Bay area, I see a little more diversity in terms of Hispanics – there were no Mexican restaurants in 1968. There's obviously more of a Hispanic influence.

The other thing that's happened that is more relevant to this meeting, is a sensitivity and interest in habitat – fisheries habitat and watershed groups. Back then, it was how to produce more fish, to put them out in the ocean so there'd be more fish available. The Fish Action Council starting back then. That was just the start of things happening with salmonids in the watersheds – and that's really changed. You now have very active programs throughout many of your watersheds.

The other big change, of course, is the Endangered Species Act. That has brought discussion, pain, interest, and intensity to your discussions. That was not even on the horizon in 1968.

Now, some things remain the same. The billboards are the same, many of the same billboards. Terry's had the idea of collecting the billboards, and putting them in a billboard museum at the old Montgomery Ward store. You know when you're getting close to Eureka when you see those billboards.

The other thing is the grad students in the natural resources areas at Humboldt State, still must depend on natural resources for subsistence. It's more difficult now, but we used to consider rock fish the hamburger of the sea. That's changed. Rock fish, some species of rock fish, are in big trouble. But we used to sustain ourselves down at the various places around the bay – secret fishing spots we had like the PG&E outfall and other areas like that where we were able to harvest lots of fish.

The other thing that's the same is the passion, the passion that you people have shown in the last couple of days. That hasn't changed. There was the passion – as I mentioned earlier about Woodley Island, about the bridge, the passion for the bay, about what are the pluses of that proposal back then, what are the minuses, what are the environmental issues, what's the future of the bay going to be. Those discussions were very emotional, very passionate, and very difficult. You still have that passion from the bay. That is obvious to me. You're sitting here on a relatively beautiful day. You've endured – they say your mind can only absorb what your rear end can endure. You've endured several days of passionate discussions and questions about issues surrounding Humboldt Bay. So, the passion is there.

Some of the words I heard over the last 2 days, are words like “seduce.” The Mayor of Eureka used the word “seduce”, “Celebrate the bay”. We heard “love fest” today, that brought me back to the “60's again. “Complexity”, there was a lot of words dealing with complexity of all the issues. “Cultural sensitivity” or lack of same. So those were some of the words I heard.

Some of the views I saw were a lot of youth involved – a lot of young people have been here and that's really good. There's a good mixture of ages and experiences here. Also, I have seen examples, especially with the posters, of how much is going on in the watershed and around the bay. These are things that weren't happening before and this makes it very clear to people of what's going on around the bay and I think that's a great part of this symposium.

As a marine fisheries specialist, I saw a relative lack, except for one talk, about the influence of the ocean on the bay. As we heard, the bay is heavily marine influenced and I would have liked to have seen a little more of that connection. There's the other 70% of the earth's surface that's outside the jetties and you are connected to the rest of the world through the ocean. Your bay is the nursery area for lots of flat fish, for surf perch, staghorn sculpins, for crab. That's very important for what goes on outside the bay, too. So, that would be one area that would seem to be missing.

Finally, before I get into some other things, I wanted to get back to the passion thing. I got some water out of the bay and I thought since our organizers, Yanna and Susan, had done such a great job, that we ought to pass this around. Everybody can touch it and sort of have the feeling that it's theirs. Don't drink it. Yeah, it's very clean.

A lot of major issues came up. Land use policy came up over and over and over. What to do with the bay front. With these different cities and different constituencies, how are we going to deal with land use planning and policy? A lot of those plans are already going forward. There was a lot of talk about how you're going to balance economic development and diversification of economic strength in the community. The economic talk yesterday showed that there's been a transformation over the last 30 years from a lumber dominated economy to one that's more service oriented. Things are changing and you need to look at ways to diversify your economy and live within environmental constraints.

Education was another area. Go back to Mayor Fleming's talking about seducing people about the bay. You have opportunities with this waterfront to do a lot of educational work, to make it obvious to local people who aren't here sharing your passion yet, tourists, and others about what this bay is about. It's a hard bay. It's a little bit difficult to get out into the bay and see it if you're coming from out of town and I think that you could use your waterfront, really develop waterfront facilities to do a lot of education.

Watershed management and endangered species issues will continue to be difficult and cumbersome. We have the difficulties mentioned with the agencies, federal, state and local conflicts. You're going to continue to have to deal with those issues and it's obvious from the questions and the discussions the last two days.

But you do have some advantages here compared to the rest of the state. You have a relatively stable population in terms of numbers. You're not in a place where you have explosive growth at this time. You have a small enough population of 100,000 or less in the Humboldt area where one group or one individual can feel they can make a difference. If you're in the rest of the state, imagine yourself in San Francisco or in Los Angeles, and you're concerned about your environment. It is really difficult, nearly impossible, to make a difference. Here, as groups and individuals, you can have a sense that you're actually getting somewhere and being a real participant in your bay issues. So that's a really good advantage.

The other thing you've established with this Symposium is the link between the watershed and the bay. That was missing before, that is critical. There are all sorts of issues that go all the way back up to the ridge. It's been a great theme for this conference. The other thing you can look at in the future is incentives. You have to come up with creative to get done what the community wants done.

As a Cooperative Extension employee, we sponsor 4-H. I think we should do 4-E's in terms of Humboldt Bay. 1) Empathy – obviously there are conflicts, different points of view, backgrounds, goals of people and groups. I think you need to put yourself in the other person's shoes; you need to see things from their point of view. Nat Bingham was a commercial fisherman from Ft. Bragg who was incredibly successful at molding coalitions dealing with fisheries, forestry and farming issues. He had that ability to empathize with other people. Nat helped reduce the rhetoric between farmers and fishermen when the winter run salmon were listed as an endangered species by making the connection as a fisherman being a food producer like the farmers. There were less signs stating "water for people, not fish". He started the

formation of a lot of watershed groups working cooperatively with landowners and ag producers throughout the Sacramento Valley. 2) Effort – keep sustaining your good work. It's obvious there are some great things going on. Keep up the effort, passion of the different watershed groups. 3) Education – you need to inform people about what you're doing and not just the people who are here. The people here are obviously motivated. You need to let the general public know what's going on; education through youth, working with schools, with tourists, elected officials to keep them up to date and understanding what's going on. 4) Evaluation – learn from what you're doing, evaluate what's happening, figure out what works, what doesn't work. For forty years people were taking woody debris out of stream, now they're putting it back in. If you don't evaluate those things you wouldn't know to change those practices. Take time to step back and evaluate the changes and what you're doing, see what happens.

I congratulate you on your energy and enthusiasm for Humboldt Bay, it's a great place.