Hawai`i Aquatics

Conference 2009

Aloha Beach Hotel
3-5829 Kuhio Hwy.
Makaki`u, Kaua`i
January 10-11, 2009

SPONSORED BY:

Hawai`i Audubon Society
Lynn McCrory, PAHIO Development, Inc.
PEW Environmental Group
Department of Land and Natural Resources
Marine Conservation Biology Institute
Conservation Council of Hawai`i

The Hawai`i Aquatics Conferences arose from the realization that aquatics research, management, education, and policy planning consist of many individual and generally uncoordinated efforts by people who rarely interact with one another. Holding a state-wide meeting every two years would provide a regular forum for managers, fishermen, educators, conservationists, policy makers and the general public to share information and ideas on better ways to manage integrated aquatic systems (streams and riparian areas, wetlands, estuaries, lagoons, coral reefs, and nearshore waters) and to explore various resource management approaches.

ACKNOWLEDGEMENTS

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HANALEI WATERSHED HUI
LINDA PAUL
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JOAN CONROW
HUI MAKA`AINA NA o MAKANA
SABRA KAUKA
JACQUELINE KOZAK

PROGRAM

SATURDAY, January 10

8:00 - *Continental Breakfast.*

8:30 - *Registration.*

9:00 - *Opening Pule.*
Sabra Kauka

9:05 - *Welcome and Announcements.*
Mina Morita

9:15 - *Utilizing Kupuna Knowledge in Aquatic Resource Management.*
Carlos Andrade, moderator
Cheryl Lovell Obatake
Tessie Kinnaman

10:35-*Coffee and Discussion.*

10:50 - *Presentations on Community-based Management*

Overview of subsistence fishing area organizations.
Luna Kekoa

Haena community-based management on the ground: development of rules
Jeffery Chandler

Hanalei Watershed Hui on North Shore
Maka`ala Ka`aumoana

Aha Kiole Council
Sharon Pomroy

12:15 - *Lunch*

1:30 - *Presentations on Current Issues and Species of Special Concern.*

Acanthurids and coral reef fisheries
Jeremy Claisse

Akule and opelu study
Kevin Weng

Opihi
Chris Bird

Uhu: life history, SCUBA spear fishing impacts
Katie Howard
Hawaiian monk seal update
Keiko Bonk

3:10 - *Coffee and discussion*

3:30 - *Updates on Management Tools and Rules Currently in Effect.*

Enforcement legislation update (civil enforcement initiative)
Bin Li

DOCARE Strategic Plan update
DOCARE - Kauai
Francis Mission

Management methods and options
Don Heacock

4:30 - *Break-out Groups*

7:00 - *Reception*

SUNDAY, January 11

8:15 - *Continental Breakfast*

9:00 - *Opening Pule*

9:05 - *Presentations on Freshwater Issues.*

The interface between streams and the ocean.
Bob Nishimoto

Stream protection and management: Hihiwai.
Skippy Hau

Riparian Streams.
Adam Asquith

Panel discussion on instream flow standards.

10:45 - *Coffee and discussion.*

11:00 - *Traditional Native Hawaiian fishing practices.*

Fishing koas, mauka-makai connection, pono practices
William Aila

Traditional modes of enforcement: Makai Watch.
Jeffery Chandler

12:00 - *Lunch*

1:00 - *Threats to Aquatic Ecosystems and upcoming issues.*

Effects of ocean acidification and rising ocean temperatures on corals.
Saulo Soares

Coral diseases
Greta Aeby

Threats to aquatic ecosystems and opportunities for Kauai's Future
Carl Stepath

Overview and history of West Hawaii Fisheries Council with an emphasis on current efforts
Glennon Gingo

3:00 - *Coffee and discussion.*

3:15 - Today's Ahupua`a: an open-ended discussion between panelists, and between panelists and audience. Land use, stream management, sediments and reefs will be the focus of the discussion. Issues will include dredging Hanalei River mouth, impacts of phasing out sugar and developing diversified agriculture, how to manage the land so that streams and estuaries can function, and important agricultural lands designation. Panelists: Bob Nishimoto, Gordon Smith, Matt Rosener.

5:00 - *Pau*

BIOGRAPHICAL NOTES

Greta Aeby has her Ph.D. and is an assistant researcher at the Hawaii Institute of Marine Biology. She has seen Caribbean reefs wiped out by coral disease and wants to protect Hawaii's reefs from the same fate. She hopes eventually to train scientists who are in the ocean for other purposes, and reef monitoring volunteers, how to recognize and record the signs of coral disease. Others' observations could be an early warning, bringing a closer look by disease experts.

William Aila Jr is a fisherman. He was born and raised in Waianae, has a BS in agriculture from the University of Hawai`i, has been involved in both inshore and pelagic fisheries for most of his life. He has fished commercially, including the collection of aquarium fish, and he chaired the Pelagic Fishery Advisory Panel for years. He is harbor master of Waianae Harbor. He is a member of the Hawaiian Civics Club. His focus is to make sure there will be fish for his grandchildren.

Adam Asquith received his Ph.D. in 1990 in Entomology from Oregon State and is now on the University Sea Grant College Program Extension Faculty. On Kaua'i he assists the Waipa Foundation to redevelop an entire ahupua‘a as a demonstration project and learning center. Programs on sustainable agriculture, traditional Hawaiian aquaculture, reforestation, conservation, stream research, and water management are emphasized.

Carlos Andrade is an Associate Professor at and currently serving as the Director of Kamakaküokalani Center for Hawaiian Studies. Dr. Andrade returned to the University of Hawai`i at age 43 to earn a B.A. in Hawaiian Studies at Hilo (1989), a M.Ed. in Educational Counseling (1993) and finally a doctorate in Geography at Manoa (2001). Now in his 65th year, he is a father of three, grandfather of five, has lived as a subsistence fisherman, and farmer, worked as a musician and professional boat captain. A crew member aboard Höküle`a on journeys from Aotearoa to Tonga and Samoa (1985) and from Rarotonga to Tahiti and home to Hawai`i (1993), he now teaches courses about Hawaiian perspectives in astronomy, geography and resource management as well as non-instrument navigation, meteorology, canoe handling and design.

Chris Bird investigates the physical and biological processes that determine community structure in marine ecosystems. He believes that an understanding of community processes will facilitate effective management plans which function at the scale of communities and ecosystems. His Ph.D. dissertation focused on the factors affecting community structure on the wave-swept rocky shores of the Hawaiian Islands, which have received little attention in the past. His post-doc at the Hawaii Institute of Marine Biology focuses on the design of protected areas in the Hawaiian Islands based on population genetics.

Keiko Bonk is an activist, artist, musician and politician working in the state of Hawaii. Bonk currently works as the Executive Director of the Hawaii branch of the the Marine Conservation Biology Institute (MCBI). In this capacity she is working to build a national movement to save the Hawaiian Monk Seal from extinction.

Jeffery Chandler is a lawai'a and cultural practitioner from
Wainiha and president of Hui Maka'ainana o Makana in the ahupua'a of Ha'ena.

Jeremy Claisse is a Ph.D. student at the University of Hawaii at Manoa and a member of the Hawaii Cooperative Fishery Research Unit. As a research assistant he worked on a project studying the competitive interactions of an introduced snapper with native goatfish through diet analysis and active fish tracking using acoustic telemetry.

Jeremy's dissertation research focuses on understanding how the life history and species biology of Hawaii's #1 targeted species for the commercial marine aquarium trade (the yellow tang, *Zebrasoma flavescens*) affect its fate within a marine protected area network set up along the west coast of the Big Island of Hawai'i.

Glennon Gingo attended UC Berkeley where he majored in naval science and graduated from the Naval Science Institute as part of his Naval ROTC program. He has completed the National YMCA Executive Development program and is a Certified International Trainer in Aquatics, SCUBA and fitness programs. Glennon managed and competed in the first U.S. Free Diving Team at the World Cup competition in Sardinia, Italy and is the president and founder of The International Association for the development of APNEA, AIDA-USA. Glennon continues to support the sport as a contributor to magazines such as ESPN, National Geographic Adventure, Popular Science, and Hawai`i Skin Diver. Glennon gives an extraordinary amount back to the Kona community by also volunteering his time to the West Hawai`i Fisheries Council.

Skippy Hau has been an aquatic biologist for Maui for the past 20 years with the Division of Aquatic Resources (DAR). He grew up fishing in Kaneohe Bay, but moved to Maui to become an aquatic biologist for DAR. He has studied the migrations of native stream biota for many years and works with community members to improve Maui stream biota.

Don Heacock is the District Aquatic Biologist for the Department of Land and Natural Resources. His passion is preserving aquatic ecosystems. He is also an off-the-grid homeowner, taro farmer and member of the Nawiliwili Watershed Council on Kaua`i.

Katie Howard is a graduate student at the University of Hawai`i-Manoa studying parrotfish.

Maka`ala Ka`aumoana is the Executive Director of the Hanalei Watershed Hui and a community advocate for pono process. The Hanalei Watershed Hui mission is to support and protect the ecology, cultures and sustainable economies of Hanalei.

Sabra Kauka is a Hawaiian Studies teacher and cultural practitioner on Kaua'i. She is the kumu hula of Na Pua O Kamaile halau, and the president of Na Pali Coast 'Ohana, caretakers of Nu'alolo Kai State Park. She also serves on the board of Na Kahu Hikinaakala, caretakers of Wailua State Park, and Garden Island Resource Conservation & Development.

Luna Kekoa A graduate of Kamehameha Schools and the University of Miami, Luna earned degrees in Marine Science and Biology. He is currently working with the communities of Ho'okena and Honaunau. His passion is teaching youth Hawaiian culture and sound resource management.

Tessie Kinnaman is from the ahupua'a of Koloa. She is a member of the Koloa Community Association and Hui Malama o Kane'iolo'umu. She is an active advocate for water and other public resources.

Bin Li is the administrative proceedings coordinator of the Hawaii Department of Land and Natural Resources.

Mina Morita was elected to the House of Representatives in 1997 for the 12th District, which includes Hanalei, Kilauea, Anahola, and Kapaa on Kauai and Haiku, Keanae, Nahiku and Hana on Maui. She serves as Chair of the Energy & Environmental Protection Committee and as a member of the Judiciary & Hawaiian Affairs, Consumer Protection and Commerce, Water and Land Use committees. "I know I represent the most beautiful and spectacular district in the nation. It is an awesome responsibility to balance the natural beauty and rich culture of this paradise to the needs of our communities and visitors."

Robert Nishimoto is an aquatic biologist, manager, and researcher working on the island of Hawai`i for the Division of Aquatic Resources, Department of Land and Natural Resources.

Cheryl Lovell Obatake comes from the ahupua'a of Nawiliwili, Niumalu and Kalapaki, Kaua'i. She is a member of the Nawiliwili Bay Watershed Council and Hui Malama o Kaneiolouma.

Sharon Pomroy represents Kaua`i on the ʻAha Kiʻole Advisory Committee. She learned the names and conservation practices regarding fish, limu (seaweeds) and shellfish. She also learned to dive, set and throw nets, pole fish and crab. She learned the association between specific limu and specific fish. She also learned to fish in the muliwai (where the freshwater stream meets the ocean) and the fishing ways associated with fresh water. Her learning began around the area of Waikiki, Kapahulu and Leahi and then to the Kahana side of Oahu up to Kahuku where her tutu wahine had ohana. Today, Sharon lives on a six-acre farm in Anaholoa, Kauai, where she and her family have resided since 1985.

Matt Rosener is the Hanalei Watershed Hui's staff hydrologist and holds a B.S. in civil engineering from the University of Minnesota and an M.S. in hydrology and water resources planning and management from Oregon State University. His primary areas of interest include watershed hydrology, stream dynamics, and floodplain management. Matt is registered as a professional engineer in Hawai'i, and his work experience has been in both the public sector (NRCS-Oregon) and the private sector, on the Big Island.

Gordon Smith is the Habitat Program Biologist for the Pacific Islands Office of the U.S. Fish and Wildlife Service Fisheries Resources Division and has worked on aquatic resource conservation projects in Hawaii and the Pacific for over 20 years. As a graduate student with the Hawaii Cooperative Fishery Research Unit, Gordon studied fishery resources in North shore Kauai estuaries. He went on to lead the Stream Bioassessement Program for the Hawaii Department of Health. In his current position at USFWS, he has worked on wetlands and coral reef conservation projects, the Newcomb's Snail Recovery Plan, the Newcomb's Snail Critical Habitat designation, and is presently working with conservation partners to establish the Hawaii Fish Habitat Partnership under the National Fish Habitat Action Plan.

Saulo Soares has a Master's Degree in Physical Oceanography and is currently doing Ph.D. research on upper ocean temperatures in the Eastern Tropical Pacific at the University of Hawaii-Manoa.

Carl Stepath lives in Lihue and teaches oceanography at Kauai Community College. "My job is to first help students fall in love with learning marine science education, and then help them find interesting topics to research." He received his PhD on the Great Barrier Reef from James Cook University in Australia. His specialty is marine science, geography, sustainability education, education research, and curriculum implementation. He pledges to promote learning, integrity, trust, respect and love -- helping people heal the planet, and work together. His two daughters live in Hawaii, one in Kilauea and the other in Honolulu.

Kevin Weng is an assistant researcher and SOEST Young Investigator at the University of Hawaii at Manoa. He studies behavior, migration and habitat use of marine vertebrates; biology of pelagic fishes and sharks; management and conservation of marine vertebrates and their habitats; oceanography of the focal areas of marine animals; and the use of animal-borne sensors to measure the marine environment.

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SURGEONFISH AND HAWAII'S AQUARIUM FISHERY

Jeremy T. Claisse

Surgeonfish are an important part of commercial, recreational and subsistence coral reef fisheries in Hawaii. Yellow tang, Zebrasoma flavescens, is the number one fish caught for the aquarium trade in the state, and is the most valuable inshore commercial fishery species. Around 400,000 yellow tang are taken each year off the Kona Coast of the Big Island and shipped live to the mainland. Our research has focused on understanding the biology of this species and how to apply that information for better fisheries management. In the 7 years since the protected area network along the Kona Coast was put in place to manage the aquarium fishery, yellow tang abundance has increased along with the number of fish caught and overall value of the fishery.

AKULE AND OPELU IN HAWAII

KEVIN WENG, UNIVERSITY OF HAWAII AT MANOA

Akule (Selar crumenopthalmus) and opelu (Decapterus spp.) are schooling fishes that live in nearshore waters of the tropical andsubtropical oceans. They eat zooplankton and are eaten by major commercial fishes such as tunas, marlins and sharks. Fisheries for akule and opelu are important throughout their range, including in Hawaii, for both human consumption and as a highly desirable bait to catch large fishes. Time series analysis suggested that more young fish enter the population for one or two years following a heavy rain year. Hoop net fisheries catch smaller individuals than hook and line fisheries. Stable isotope analysis showed that opelu increase in trophic level as they grow. Otolith studies provide detailed information on the age-size relationship. A stock assessment based on a dataset collected by the Hawaii Department of Land and Natural Resources found no evidence of overfishing. However, the level of confidence in the findings was low because the dataset did not include the early phase of the fishery, which is generally the most informative. The most sustainable methods avoid catching entire schools, and leave some large individuals as a spawning stock.

FISH SEX AND FISHERY MANAGEMENT: THE IMPORTANCE OF UNDERSTANDING REPRODUCTION IN UHU

Katie Howard

The reproductive biology of fish can give us important insights that help us better manage and conserve our local reef fish. Parrotfish (uhu) are protogynous hermaphrodites, meaning that they start out life as female and can later change sex to become male. This life history characteristic, plus other aspects of their reproductive biology, like size at maturity, fecundity and sex ratio, are important for us to make sure that our management decisions are effective for these fish. This talk gives the most recent information available for the reproductive biology of the redlip parrotfish, Hawaii's most popular parrotfish fishery species.

DLNR'S CIVIL ENFORCEMENT INITIATIVE AND THE CIVIL RESOURCE VIOLATIONS SYSTEM.

Bin Li

Areas covered will include types of marine resource law violations,
the importance of civil enforcement vs. criminal and other administrative enforcement options, how will this system will work, how will this system will benefit the parties, the public and the resources, and the progress in building up the system - timelines and expansions.

TRADITIONAL HAWAIIAN FISHING PRACTICES

William Aila Jr.

Native Hawaiian fishing techniques such as netting, pole and line, and handline are associated with certain cultural thoughts, spiritualism, and values. William has been researching these techniques by observing these techniques used by his uncles and friends fishing and from fishing himself. He has also researched these techniques by reading the translations of decades-old articles.

Pono fishing practices include a belief of giving back to the resource and is a necessary part of fishing. This is called *ho`i ho`i* (give, give), where offerings and care were given to the ocean, and a reciprocal relationship with the fish and marine life was practiced. Also important is recognizing the mauka-makai connections between watershed health and ocean health. Traditional enforcement practices, where communities actively ensured the proper use of resources, helped to keep resources robust and sustainable.

THE HAWAII FISH HABITAT PARTNERSHIP & THE NATIONAL FISH HABITAT ACTION PLAN

Gordon Smith

The Hawaii Fish Habitat Partnership (HFHP) and the National Fish Habitat Action Plan (NFHAP) aims to maintain, protect, manage, and restore aquatic habitat in sufficient quantity and quality to allow native species to thrive. It will address priority invasive species with a three-tiered approach combining prevention and interdiction, early detection and rapid response, and ongoing control or eradication.

This partnership and plan will develop and implement programs to obtain, manage, and disseminate scientific and technical information needed to improve the effectiveness of conservation, management, and recovery programs; and increase capacity to conserve aquatic habitats through partnership, education and outreach projects.

IMPACTS OF OCEAN ACIDIFICATION AND RISING TEMPERATURES ON CORAL REEFS.

Saulo Soares

The high levels of pCO2 in the atmosphere due to human activities have lead to increases in the global surface temperatures as well as decreases in the ocean's pH, known as ocean acidification, which has a severe impact on the ocean's carbonate chemistry. High temperatures are associated with the known phenomenon of "coral bleaching" and acidification with drops in calcification rate of corals and thus their ability to grow and function. Therefore, the predictions of rising temperatures and drop of aragonite saturation levels by scientists of IPCC can have a dramatic effect on the health of Coral Reefs worldwide.

TITLE: CORAL REEF HEALTH IN HAWAII: THREATS AND SOLUTIONS.

Greta Aeby

The reefs of Hawaii are at risk from local stressors due to human activities as well as problems anticipated with global climate change such as increases in coral bleaching and disease. The Climate Change and Marine Disease Local Action Strategy (CCMD LAS) was developed through the Division of Aquatic Resources to address some of these threats. Through the CCMD LAS we have recently developed Hawaii's Contigency Plan for Unusual Events of Coral Bleaching, Disease and Crown-of-thorns Sea Star Outbreaks. A critical component of the contingency plan is the Eyes of the Reef volunteer monitoring network. Hawaii's reefs span an enormous geographical area making it difficult for managers to detect the early onset of coral bleaching, disease or COTS events. Reef users will be essential in helping managers monitor the reefs providing the critical mass of 'eyes on our reefs' needed to detect and hence respond to events rapidly.