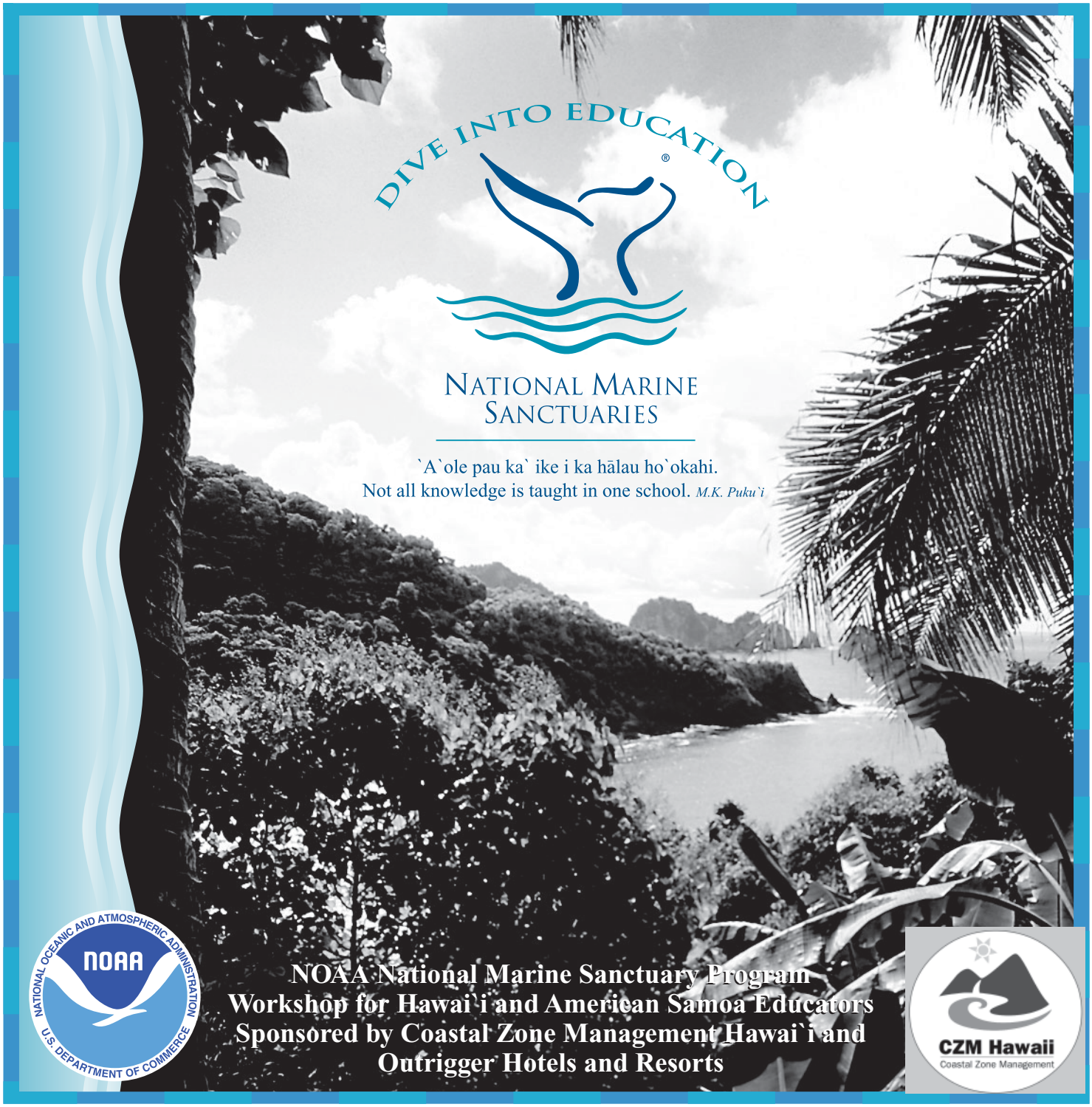

DIVE INTO EDUCATION®
NATIONAL MARINE SANCTUARIES
`A`ole pau ka` ike i ka hālau ho`okahi.
Not all knowledge is taught in one school. M.K. Puku`i
NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
NOAA National Marine Sanctuary Program
Workshop for Hawai`i and American Samoa Educators
Sponsored by Coastal Zone Management Hawai`i and
Outrigger Hotels and Resorts
CZM Hawaii
Coastal Zone Management

National Oceanic and Atmospheric Administration

National Oceanic and Atmospheric Administration (NOAA) conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touches the lives of all Americans. NOAA manages a system of 13 national marine sanctuaries and one coral reef reserve in the Northwestern Hawaiian Islands. National marine sanctuaries are America's ocean and Great Lakes treasures. Sanctuaries promote conservation while allowing compatible commercial and recreational activities. National marine sanctuaries conduct science and education activities and work with the public to manage and protect these special areas of the marine environment.

Vision for National Marine Sanctuary Education

The vision for National Marine Sanctuary Program education is that our education team will be the foremost trainers, facilitators and messengers to the nation about marine sanctuaries.

National Marine Sanctuary Program Education Mission

To promote public understanding of our national marine sanctuaries to empower citizens with the necessary knowledge to make informed decisions that lead to the responsible stewardship of marine, natural and cultural resources.

Dive into Education Workshop

The mission of the Dive into Education Workshop is to provide resources and training to Hawai'i educators to support marine science education. The workshop will be tailored for grades K-4, 5-8, and 9-12, and will include exciting sessions from fish bingo and beach monitoring to learning about the annual Sanctuary Ocean Count held in Hawai'i.

Friday, February 20, 2004
Bishop Museum

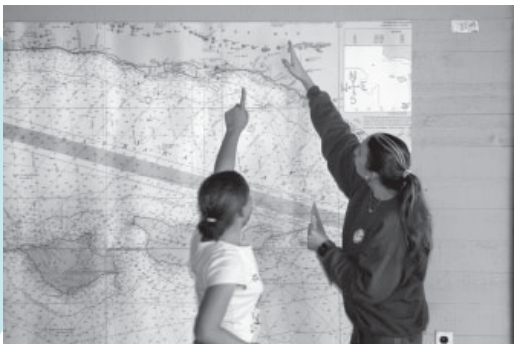
3:00 - 6:00 pm Registration Open in Bishop Museum outside Atherton Hālau

	Open to All	Open to All	Open to All	Open to All
3:30 - 4:15 pm	Rivers to Reefs (Hale Kea)	Reef Rendezvous (Paki 1)	Albatross Activities (Paki 2)	Learning Ocean Science Through Ocean Exploration (Atherton Hālau)
4:20 - 5:05 pm	Integrated Humpback Whale Activities (Hale Kea)			
5:10 - 5:55 pm	Navigating Change (Hale Kea)	Sanctuary Ocean Count (Paki 1)	Use of Near Real-Time Data (Paki 2)	Watershed Woes (Atherton Hālau)

6:00 - 6:30 pm Evening Reception
Pupus and Drinks in the Atherton Hālau

6:30 - 7:45 pm Evening Reception Presentation

7:45 - 8:30 pm Exhibits and Mingle
More Pupus and Drinks in the Atherton Hālau



Friday, February 20, 2004
Bishop Museum

Hawai`i Sanctuary Ocean Count

Jean Souza, Hawaiian Islands Humpback Whale National Marine Sanctuary

Learn how the popular Sanctuary Ocean Count is conducted and how to adapt it for student participation. This is a shore-based humpback whale count and documentation of whale behavior. Dolphins, Hawaiian monk seals, sea turtles and sea birds are also counted.

Reef Rendezvous

Mary Tagliareni, Shelley Du Puy, Cathy Sakas, Florida Keys, Flower Garden Banks & Grays Reef national marine sanctuaries

Learn basic coral biology, unique adaptations corals have developed for survival, compare Caribbean and Pacific reefs. K-12 hands-on activities conducted during session. Classroom resources provided.

Albatross Activities: Pacific Ocean Wanderers in Our Backyards

Andy Collins, Northwest Hawaiian Islands Coral Reef Reserve and Jennifer Stock, Cordell Bank National Marine Sanctuary

Participants will do three activities focusing on the natural history of Albatrosses native to the northeast Pacific Ocean. Handouts and a CD will be distributed.

Learning Ocean Science Through Ocean Exploration: A NOAA Curriculum for Grades 6-12

Paula Keener-Chavis, NOAA Office of Ocean Exploration

From bioluminescent deep-sea corals to deep vent worms, learn how to bring exciting ocean discoveries to students using the Ocean Exploration curriculum and CD-ROM of NOAA's Ocean Explorer website.

Integrating Humpback Whale Activities

Patty Miller, State of Hawai`i Department of Education, Joylynn Oliveira and Christine Brammer, Hawaiian Islands Humpback Whale National Marine Sanctuary

Join the Hawaiian Islands Humpback Whale National Marine Sanctuary staff as they share creative ways to incorporate humpback whales into your curriculum through science, math, art and language arts.

Navigating Change: Hokule'a Brings Messages from the Northwestern Hawaiian Islands

Andy Collins, Northwestern Hawaiian Islands Coral Reef Reserve, Troy Antonelis, State of Hawai`i, Dept. of Land and Natural Resources, Ann Bell, US Fish & Wildlife Service and Tom Cummings, Bishop Museum

During this session educators will learn about the amazing coral reef ecosystems and inspiring cultural stories of the Northwestern Hawaiian Islands. Educational tools and instruction will be offered to allow teachers to implement *Navigating Change* in their classroom.

Rivers to Reefs: The Effects of Watersheds on Offshore Environments

Cathy J. Sakas, Gray's Reef National Marine Sanctuary

Whatever goes down the drains in your homes and neighborhoods ends up in the ocean. Through beautiful video footage and a hands-on activity the message of how watersheds influence offshore habitats is made clear. Hand-outs will be available.

Use of Near Real-Time Data in the Classroom

George I. Matsumoto, Monterey Bay Aquarium Research Institute

Real data? Real-time data? Near-real-time data? Come and learn what the Ocean Research Interactive Observatory Networks (ORION) is and what it will mean to teachers and students interested in the oceans.

Watershed Woes

Patty Miller, State of Hawai`i Department of Education, Lynn Nakagawa and Chris Chung, Coastal Zone Management Hawai`i

Coastal Zone Management Hawai`i will introduce you to ways to make creative working watershed models to be used in some problem solving activities with your students.

Saturday, February 21, 2004
Coconut Island

7:30 - 7:45 am	Meet at Windward Community College's Main Parking Lot						
8:00 - 9:00 am	Bus and Boat Transport to Coconut Island						
	Grades K-4		Grades 5-8		Grades 9-12		Open
9:00 - 9:45 am	In Water: Coral Reef (Beach)	Finding Nemo (Dock)	Sanctuary Sandbox (Classroom 2)		Ocean Tides (Classroom 1)		Dive into Hawai`i Fishwatching (Lawn)
9:50 - 10:45 am			Coconut Island Tour		Each One Teach One (Lawn)		Loggerhead Sea Turtle Migrations (Classroom 2)
10:45 - 11:45 am	Coconut Island Tour		LiMPETS (Beach)	Water Quality (Dock)			Oysters on the Half Shell (Classroom 2)
11:50 am - 12:30 pm	Design a Fish (Classroom 1)				Coral Reef Surveying and Monitoring (Lawn)		Intergrated Humpback Whales (Classroom 2)
12:30 -1:15 pm	Lunch on the lawn under a coconut tree						
1:15 - 2:05 pm	Adaptations from the Depths (Classroom 1)		Think Like a Humpback (Lawn)		Coconut Island Tour		Mock Shipwreck (Lawn)
2:10 - 2:55 pm	Life in a Coral Reef (Classroom 1)		From Whaling to Watching (Classroom 2)		Safety and Shoreline Ecology (Dock)	LiMPETS (Beach)	Using Scientific Data (Lawn)
3:00 - 3:45 pm	Seagrass...It's Alive! (Lawn)		Maps for a National Marine Sanctuary Tour (Classroom 2)				Black Death (Classroom 1)
4:00 - 4:30 pm	Boat and Bus Transport						
4:30 pm	Return to cars at Windward Community College Thank you for your participation in the Dive into Education Workshop!						

Saturday, February 21, 2004
Coconut Island

In the Water - Coral Reef Ecology
Mark B. Heckman, Waikīkī Aquarium/University of Hawai'i Mānoa
Reef snorkel to explore reef ecology and Marine Protected Area issues. Participants must be experienced snorkelers and bring own gear. Limit 10 participants.

Finding Nemo
Rosia Tavita and Allamanda Amituana`i, Fagatele Bay National Marine Sanctuary
Participants will get an opportunity to explore new and fun ways to teach their students about our precious coral reef ecosystem through developing and creating their own "Finding Nemo" board/beach game.

Sanctuary Sandbox and Marine Scene Investigation
Anne Smrcina, Stellwagen Bank National Marine Sanctuary and Erin Baumgartner, University of Hawai`i
With sites around the nation, the national marine sanctuaries serve as repositories of sands that illustrate a wide range of coastal and marine geological processes. Come explore the fascinating world of earth science using sanctuary sands and activities developed by the University of Hawaii's Curriculum Research & Development Group; then help solve a "Marine Scene Investigation" that uses sand "evidence" from a mystery sanctuary.

Ocean Tides: Gaging the Moon Tide
Michiko Martin, NOAA National Marine Sanctuary Program and Ken Casey, NOAA National Oceanographic Data Center
This activity will investigate the role of the moon in generating different types of ocean tides, specifically the tides experienced in Hawai`i.

Dive into Hawai`i Fishwatching with Fish Bingo
Laura Francis and Julie Bursek, Channel Islands National Marine Sanctuary
Learn to identify the top 20 fish species found in the waters off O`ahu through a fun and interactive fish identification talk and fish bingo game.

Each One Teach One: An Outdoor Teaching Method
Robert Steelquist, Olympic Coast National Marine Sanctuary
"Each One Teach One" is a flexible teaching technique that allows one or two field instructors an opportunity to "invest" individual students with unique knowledge that they, in turn, share with other students. Limit 12 participants.

Loggerhead Sea Turtle Migration Tracking Project
Cathy J. Sakas, Gray's Reef National Marine Sanctuary
Satellite tags have been affixed to the carapaces of Loggerhead Sea Turtles to monitor and track their movements throughout the year. Information received from the satellite tags can be used in classrooms to make science come to life through tracking the turtles. The presenter will show you how to manipulate the data to make interesting lessons from hard science.

Design a Fish
Anne Smrcina and Shelley Du Puy, Stellwagen Bank and Flower Garden Banks national marine sanctuaries
Fish come in a plethora of shapes, sizes and colors. In this activity we will look at fish anatomy and study how the fish's form helps it to function in its habitat. Participants will select specific ocean habitats and use creative and critical thinking skills to design newly "discovered" fishes that call these niches home.

LiMPETS: Long-term Monitoring Program and Experiential Training for Students
Chela Zabin, Hawai`i Intertidal Project, Jennifer Saltzman, Farallones Marine Sanctuary Association, Claire Johnson, NOAA National Marine Sanctuary Program, Dawn Hayes, Monterey Bay National Marine Sanctuary and Julie Bursek and Laura Francis, Channel Islands National Marine Sanctuary

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The LiMPETS network and Hawai`i Intertidal Project will introduce teachers to rocky intertidal and sandy beach monitoring protocols to be used with their students, as well as discuss upcoming opportunities for Hawai`i educators.

Water Quality Monitoring

Dawn Hayes, Monterey Bay National Marine Sanctuary and Seaberry Nachbar, NOAA National Marine Sanctuary Program

This hands-on session will expose participants to several common water quality measurements (i.e. transparency, temperature, pH, alkalinity, salinity, conductivity, and dissolved oxygen).

Coral Reef Surveying and Monitoring

Andy Collins and Jeff Kuwabara, Northwestern Hawaiian Islands Coral Reef Reserve

This session will show teachers the techniques coral reef researchers use to sample and monitor coral reefs. Simple materials will be used so that teachers can reproduce the techniques in their classrooms.

Oysters on the Half Shell

Carol Preston, Gulf of the Farallones National Marine Sanctuary

A series of lively activities will be presented that investigate the structure, biology and natural history of oysters and other molluscs.

Integrating Humpback Whales

Patty Miller, State of Hawai`i Department of Education, Joylynn Oliveira and Christine Brammer, Hawaiian Islands Humpback Whale National Marine Sanctuary

Join the Hawaiian Islands Humpback Whale National Marine Sanctuary staff as they share creative ways to incorporate Humpback Whales into your curriculum through science, math, art and language arts.

Adaptations from the Depths

Shelley Du Puy, Flower Garden Banks National Marine Sanctuary

Use camouflage to illustrate how animals adapt to their environment. Hands-on activities appropriate for elementary grades will be conducted. Classroom resources, including visuals, provided.

Think Like a Humpback

Carol Preston and Jennifer Stock, Gulf of the Farallones and Cordell Bank national marine sanctuaries

This is an active game to be played outside. Participants will role play the natural history life cycle of a humpback whale. Handouts will be distributed.

Mock Shipwreck

Kate Thompson, Thunder Bay National Marine Sanctuary and Underwater Preserve

Come and learn what techniques archaeologist use underwater to develop site plans of shipwrecks. A mock shipwreck will be utilized to provide teachers the tools they need to take the techniques and methods back to the classroom to teach students geometry, archaeology, and some history of the cultural resources found within the Hawaiian waters, as well as the rest of the National Marine Sanctuary Program.

Life in a Coral Reef

Patty Miller, State of Hawai`i Department of Education and Rosia Tavita, Fagatele Bay National Marine Sanctuary

Teach your students about coral reef ecosystems with creative models. Join us for make-it-take-it ideas to get your students involved in building creative coral reefs.

From Whaling to Watching

Carrie McDougall, NOAA Office of Education and Sustainable Development

Learn about tracking whales and how satellite data are allowing scientists to understand their migration patterns.

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Also, learn a hands-on activity that compares toothed and baleen whale feeding styles. Take-home materials will be provided.

Safety and Shoreline Ecology
Mark B. Heckman, Waikīkī Aquarium/University of Hawai'i Mānoa
A review of the identification and biology of shallow reef and shore life leads to appropriate and safe fieldtrips – for the students and the reef.

Satellite Oceanography: Measuring Sea Level from Space
Michiko Martin, NOAA National Marine Sanctuary Program and Ken Casey, NOAA National Oceanographic Data Center
Measuring differences in ocean surface elevation is a challenging task, but sensing instruments aboard satellites have made it easier and more accurate. This activity uses TOPEX/Poseidon satellite altimetry data to investigate the relationship between sea surface and sea floor topography.

Seagrass....It's Alive!
Mary Tagliareni, Florida Keys National Marine Sanctuary
Learn seagrass biology, and the role seagrass plays in the Coral Reef Ecosystem. K-3 hands-on activities conducted during session. Classroom resources provided.

Maps for a National Marine Sanctuary Tour
Claire Johnson, NOAA National Marine Sanctuary Program
What is latitude and longitude and how can they be used to locate the nation's network of ocean and Great Lakes treasures? This activity provides an excellent review of principles that engage students in how to use geography to read maps that ties in the ocean connection.

Black Death - Oil Spills in the Ocean
Jennifer Saltzman, Farallones Marine Sanctuary Association
Oil pollution is a constant threat in the ocean. Learn about the effects and events of an oil spill and the impact of oil on marine organisms with hands on activities.

Workshop Sponsors

Special thanks to Coastal Zone Management Hawai`i for offering scholarships for neighboring island teachers that covered airfare and transportation and Outrigger Hotel and Resorts for offering a discounted rate on rooms at the `Ohana Waikīkī Tower.

CZM Hawaii
Coastal Zone Management

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Acknowledgements
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