## Scientific Study and Evaluation Program (SSEP):



Legislation enacted to support research, investigation, and evaluation of applied oil spill prevention and response programs, best achievable technologies, and adverse effects of oil spills

# Today's Overview

### **SSEP Program Overview:**

✓ Process/procedures

#### **Project Examples:**

- ✓ Applied research
- ✓ Response technologies
- ✓NRDA techniques/methods
- √ Baseline monitoring
- √Wildlife rehabilitation

#### **Future Plans:**

- ✓ Presentations
- ✓ Webpage
- √ Biannual report



# SSEP Project Selection Process

- Request for Proposals
- Proposal Concepts Submitted by OSPR Sponsor
- Review by:
  - Technical Review Committee
  - ✓ OSPR Management
- Final Selection by Scientific
   Branch Chief and Administrator
- Final Presentations
- Annual Report



# Total No. of Projects and \$ to Date

- Grand total dollars to date: \$1,852,539
- Total number of projects to date: 29



# List of Projects

#### FY 03/04 Projects

- 1. Natural and Man-made Oil and Gas Seeps near the Santa Barbara Coast,
- 2. Using CODAR Radar to Generate Ocean Surface Currents in Real Time,
- 3. Using Aerial Imaging to Map Oil Spills,
- 4. Physiological Impacts of Washing Sea Otters,
- 5. Effects of Dispersed Oil on Salmon Smolts,
- Using RADAR Satellite Imagery to Track Oil Spills

#### FY 04/05 Projects

- 1. Common Murre Population Recovery from Spills
- 2. Monitoring Dispersant Applications
- 3. Satellite Radar Surveillance and Monitoring
- 4. Environmental Sensitivity Index Mapping
- 5. ID Area of Debris Accumulation along SF Bay Shoreline
- 6. Fate of Beach Cast Birds
- 7. Novel Wildlife Hazing Techniques
- 8. Sunken Vessel Pollution Project

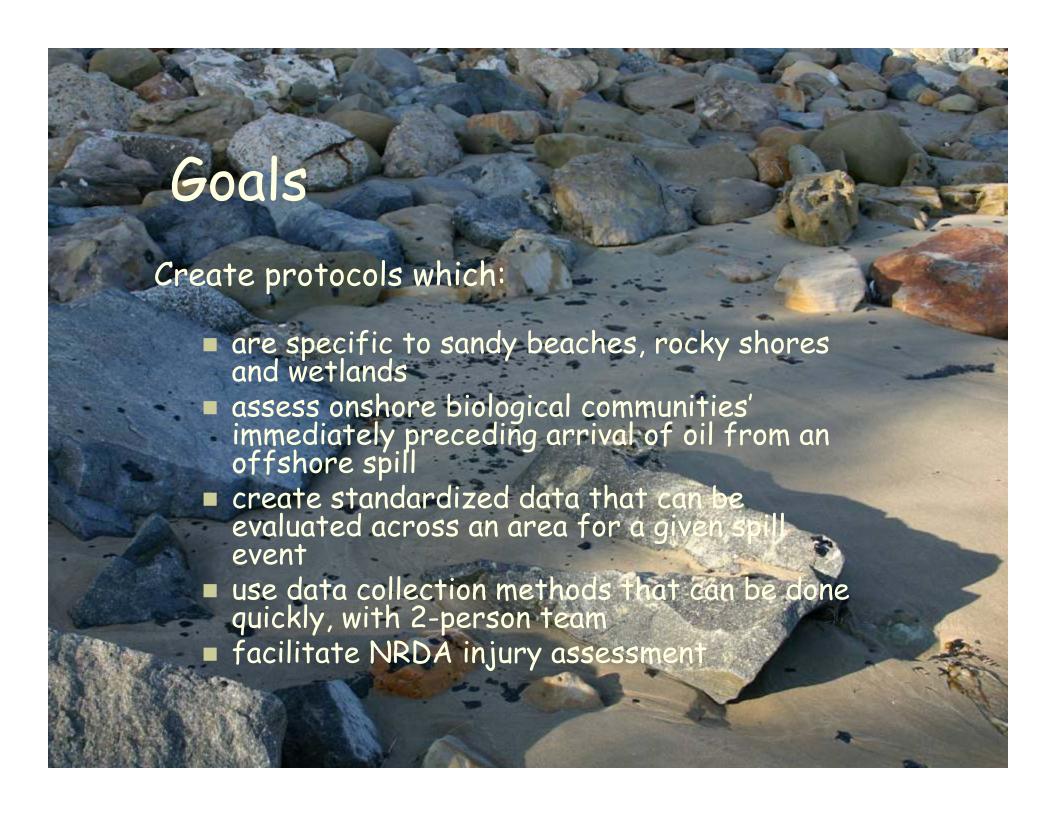
#### FY 05/06 Projects

- 1. Validation of RaPID Assay TPH Test Kit
- Use of Sand Crabs to Monitor Petroleum Pollution
- Estimating Abundance/distribution of Marbled Murrelets
- 4. Coastal Biophysical Inventory of Marine Resources
- Experiment to Protect Least Terns
- Central Coast Marine Bird Health Study
- 7. Coastal Habitats Quick Response Go- kits
- 8. Effects of PAHs on Japanese Quail

#### FY 06/07 Projects

- 1. Physical Effects of Dispersants on Wildlife
- 2. Toxicity of Dispersants on Salmon
- 3. Fish Oil Filtration from Rehabilitation Pools
- 4. Brown Pelican Roost Site Atlas
- 5. Sea Otter Aerial Count Study
- 6. Sandy Beach Restoration Study Using Wrack
- Oiled Marsh Recovery Rates: Tools for FRT & NRDA





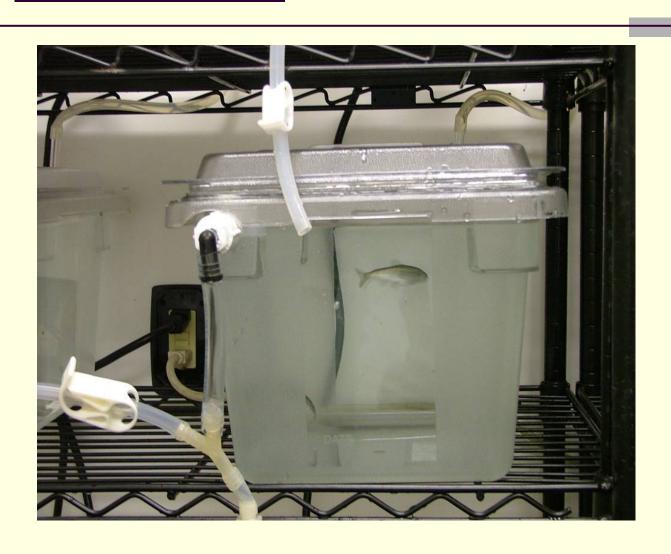
# PROJECT: ACUTE AND CHRONIC EFFECTS OF CRUDE AND DISPERSED OIL ON CHINOOK SALMON

PROGRESS REPORT

# EFFECTS OF CRUDE AND DISPERSED OIL ON CHINOOK SALMON: FLOW-THROUGH SYSTEM



# EFFECTS OF CRUDE AND DISPERSED OIL ON CHINOOK SALMON: FLOW-THROUGH SYSTEM



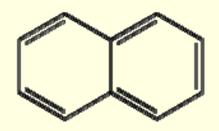
## PROJECT: Effects of Polycyclic Aromatic Hydrocarbon Ingestion on Japanese Quail



Regina Donohoe, OSPR
Julie Yamamoto, OSPR
Papinya Sirimongokol, UCDavis
Roseline Holt, UCDavis
Kirk Klasing, UCDavis

Basis: PAHs are primary persistent chemicals from oil spills. Very little information on their toxicity to birds.

Objective: Investigate the effects of naphthalene on the health and reproduction of a surrogate bird species (quail).



# **PROJECT:** Fates of Beach-cast Birds: Scavenging, Rewash, and Searcher Efficiency:



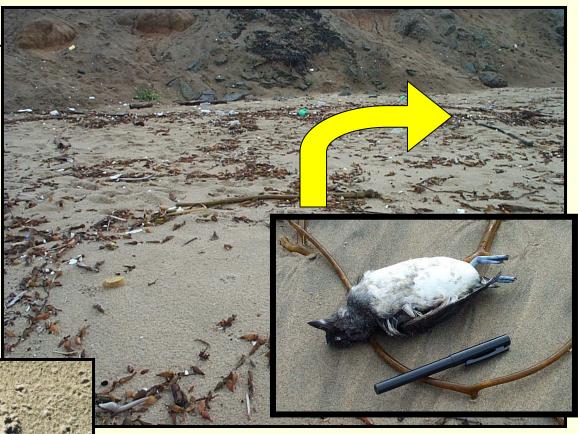
R. Glenn Ford, R. G. Ford Consulting Inc., Portland, OR

OSPR Sponsor: Dr. Steve Hampton

## Fates of Beachcast Birds: Scavenging, Rewash, and Searcher Efficiency By Glenn Ford

OBJECTIVE: to study the effects of scavenging, wave re-wash, and searcher efficiency on bird carcass retention on beaches, which is critical to estimating bird mortality.

One day old carcass from Humboldt coast scavenging study

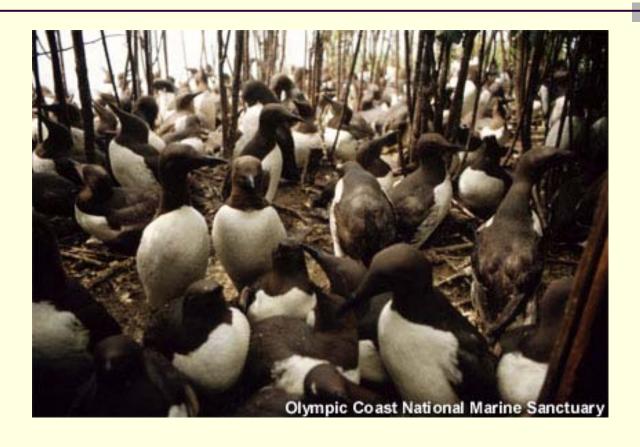


Cassin's Auklet on a beach littered with kelp and other debris

Analysis and Publication of the Results of Studies



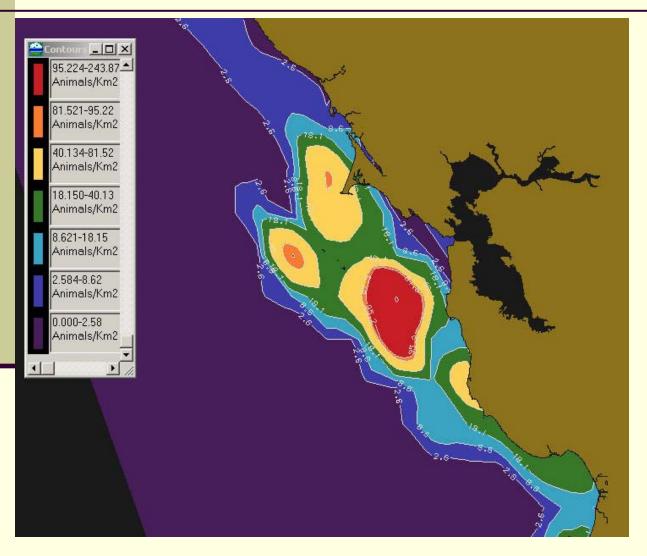
# **PROJECT:** Common Murre Population Recovery from Oil Spills: Demographic Parameters and Density Dependence



Dr. William Sydeman, Marine Ecology Division, PRBO Conservation Science Mr. Derek Lee, PRBO, Marine Ecology Division, PRBO Conservation Science OSPR Sponsor: Dr. Steve Hampton PROJECT: Compilation of At-Sea Seabird Survey Data for California

By Glenn Ford (R. G. Ford Consulting Inc. )

OSPR Sponsor: Steve Hampton



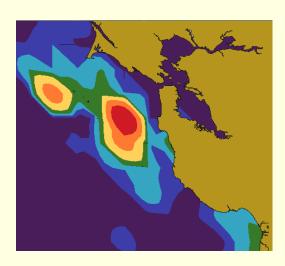
OBJECTIVE: to update and improve the database and software that enables quick analyses of seabird abundance off California during any month of the year.

Average at-sea densities of Common Murres during the months of December, January, and February, based on many years of survey data.

# Historical Bird Survey Data: Coastal Distribution of Common Murre

Source: CDAS/MMS database

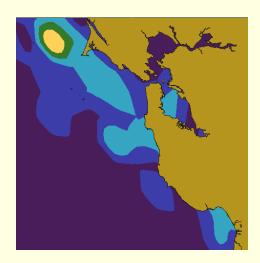
#### JAN-FEB



red = 125-594 birds/km2

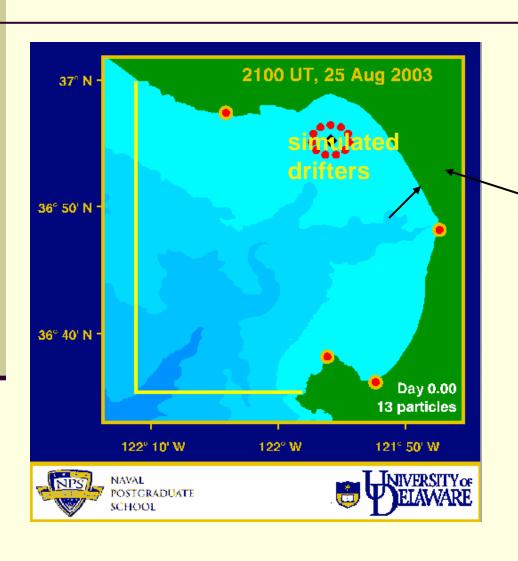
- orange = 67-125 birds/km2
- yellow = 31-67 birds/km2
- $\blacksquare$  green = 15-31 birds/km2
- I. blue = 7-15 birds/km2
- $\blacksquare$  d. blue = 2-7 birds/km2

#### MAR-APR



yellow = 43-66 birds/km2 green = 26-43 birds/km2 l. blue = 12-26 birds/km2 d. blue = 2-12 birds/km2

## PROJECT: <u>Using CODAR Radar to Generate</u> Ocean Surface Currents in Real Time



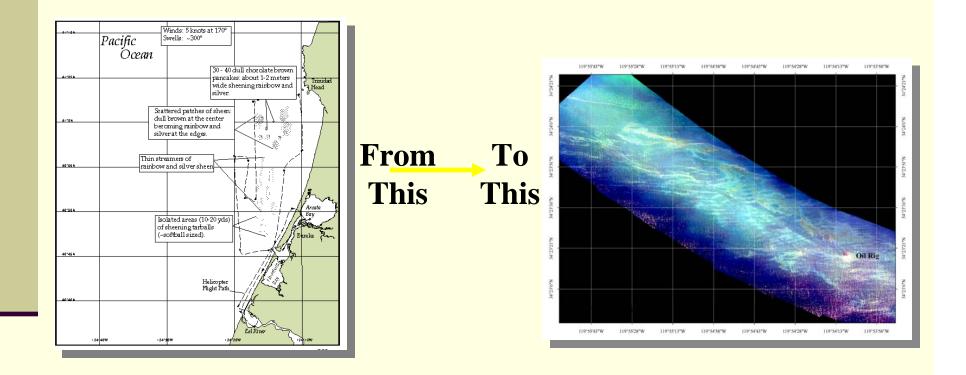


CODAR predictions compare well with physical drifters



## **Project Objective:**

Develop operational <u>aerial imaging technology that would enable real-time</u> <u>oil spill mapping</u> on water and oil impact detection on land with an easily deployable, portable sensor

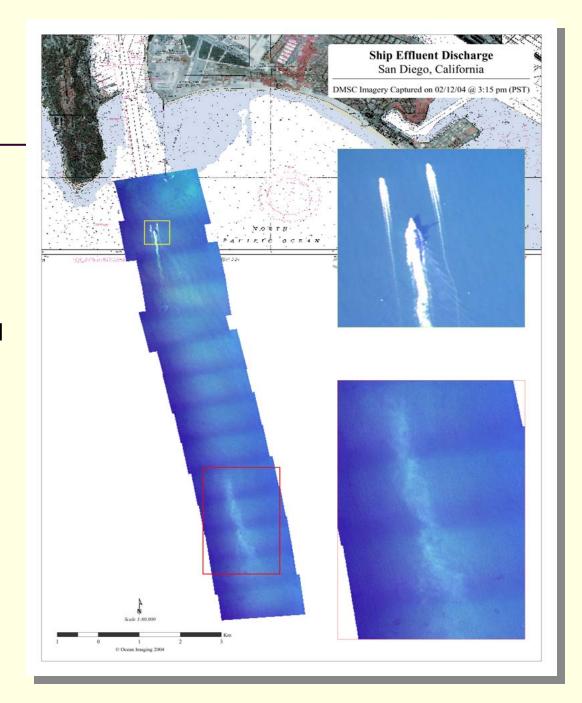


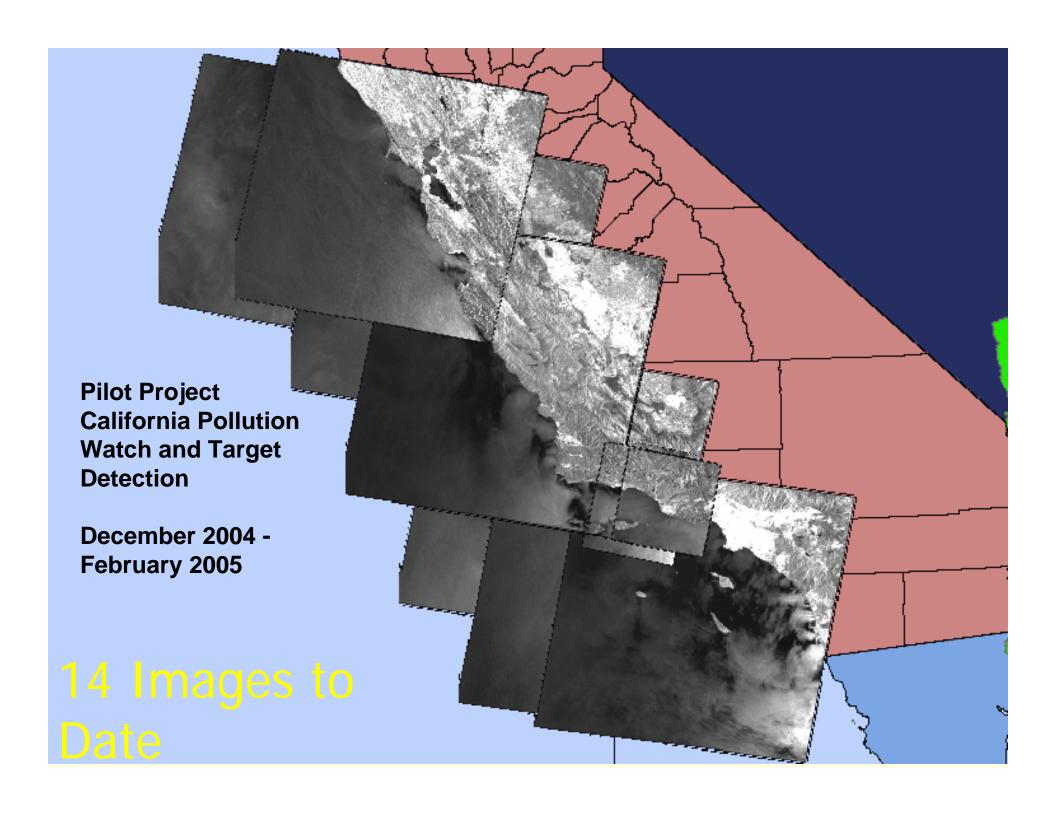
PROJECT: A COST-EFFECTIVE AERIAL IMAGING SYSTEM FOR OIL Slick Mapping and Vegetation Injury Assessment

# Using RADAR Satellite Imagery to Track Oil Spills

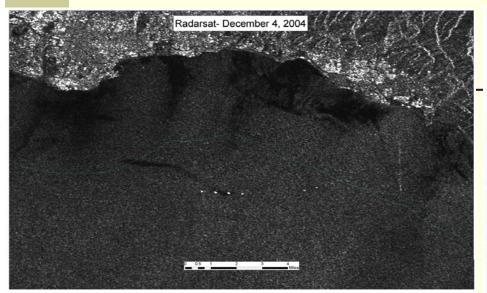
### **Bilge Dump, San Diego**

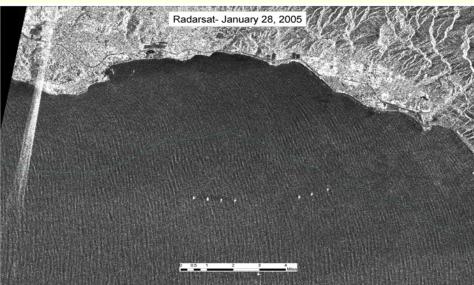
Satellite and aerial imaging can, in principle, provide a convenient means to detect and precisely map marine and terrestrial oil spills and seeps, and to monitor the environmental effects of oil impacted soils.

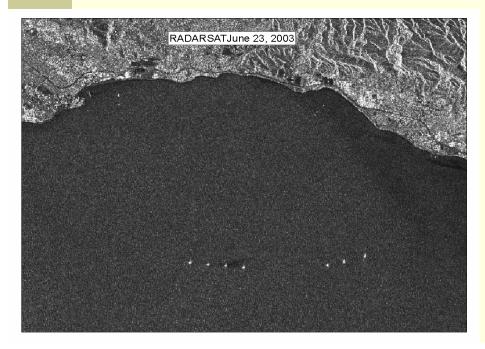




### Platform A – Dark areas have smooth surface water – oil slick?









**NEW PROJECT:** Comparison of At-Sea and Aerial Survey Methodologies for Estimating Abundance and Distribution of Marbled Murrelets

By Laird Henkel and Glenn Ford

UC Santa Cruz

OBJECTIVE: to evaluate the ability of aerial surveys to accurately count Marbled Murrelets on the water during various sea-states. This knowledge is critical for spill response planning and mortality estimation.



Marbled Murrelets, one of the most endangered seabirds in California, require specialized survey techniques.

# Future Plans

- Annual project briefings and presentations
- Web page
- Annual report



