

# **INTEGRATING MARINE MAMMAL HEALTH & ECOSYSTEM DATA**

CONSERVATION • OCEAN HEALTH • POLICY • PUBLIC HEALTH

# WHY NOW?

## Cumulative Impacts

climate change  
emerging infectious diseases  
habitat loss  
oil spills  
prey changes  
early warning systems  
species mortality events  
public health



## Health, Science & Environment

### Dolphins exposed to Deepwater Horizon oil spill had more health problems than others



## What is killing California sea lion pups? Why unusual event is a concern (+video)

Scientists say the sea lions reveal 'important things about what is going on in our oceans.' Food shortages and disease are being looked at as possible causes of the 'unusual mortality event' in California.

By Gloria Goodale, Staff writer / April 10, 2013



Rescued California sea lion pups are seen at the Pacific Marine Mammal Center in Laguna Beach, California in this March 13, 2013 file photo. NOAA has declared a recent wave of sea lion beachings an 'unusual mortality event.' Officials are investigating its cause.

REUTERS/Mike Blake/Files

[+ Enlarge](#)



Official Website of the  
**NORTH SLOPE BOROUGH**  
Charlotte E. Brower, Mayor

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## RINGED SEAL AND WALRUS UME

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### 2011 RINGED SEAL AND WALRUS DISEASE UNUSUAL MORTALITY EVENT (UME)

Onsite Coordinator: [Raphaela Stimmelmayer](#)

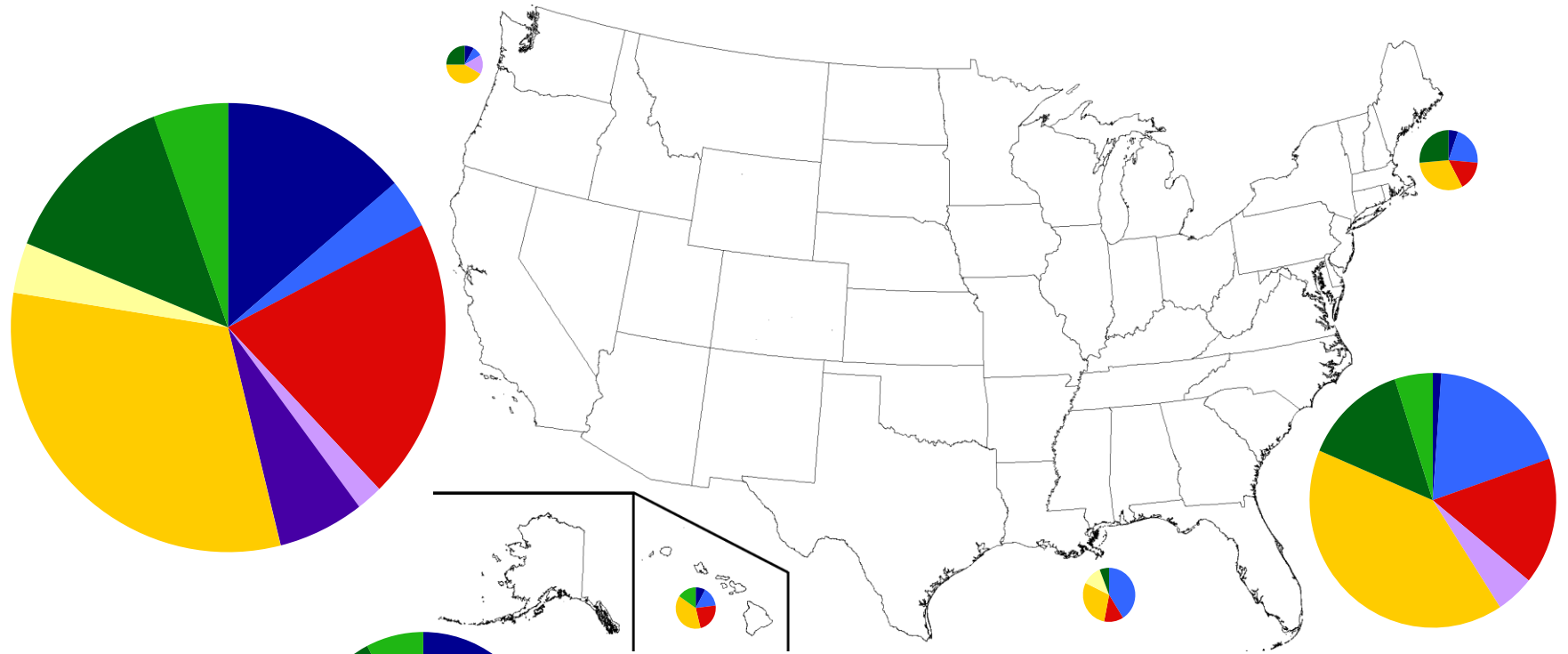
Offsite Coordinators: Joel Garlich-Miller (USFWS), Aleria Jensen (Alaska Marine Stranding Network/NOAA)

Collaborators: Ice Seal Committee, Walrus Commission, USFWS, NOAA/NMFS, Dr. Steven Raferty

Funding: Prescott Grant (NOAA), NSF

# PUBLISHED IMPACTS ON MARINE MAMMAL HEALTH

1991-2014:60  
declared Unusual  
Mortality Events

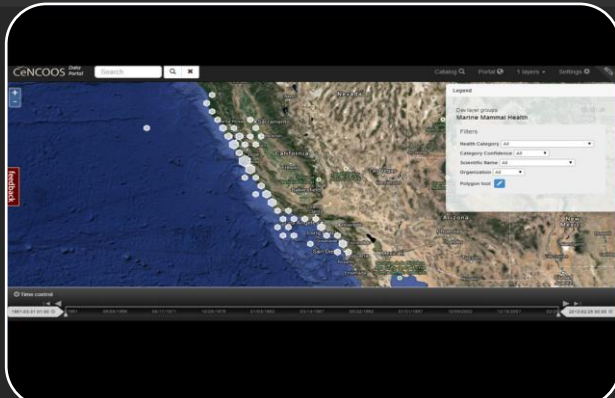


- Infectious - leptospirosis
- Infectious - morbillivirus
- Biotoxin
- Neoplasia - other
- Neoplasia - urogenital carcinoma
- Contaminants - non-oil
- Contaminants - oil
- Trauma - human interaction
- Trauma - natural

# NMFS MARINE MAMMAL HEALTH & STRANDING RESPONSE PROGRAM



Formally established in 1992 under Title IV of the Marine Mammal Protection Act



Collect & share reference data on **marine mammal health & health trends**

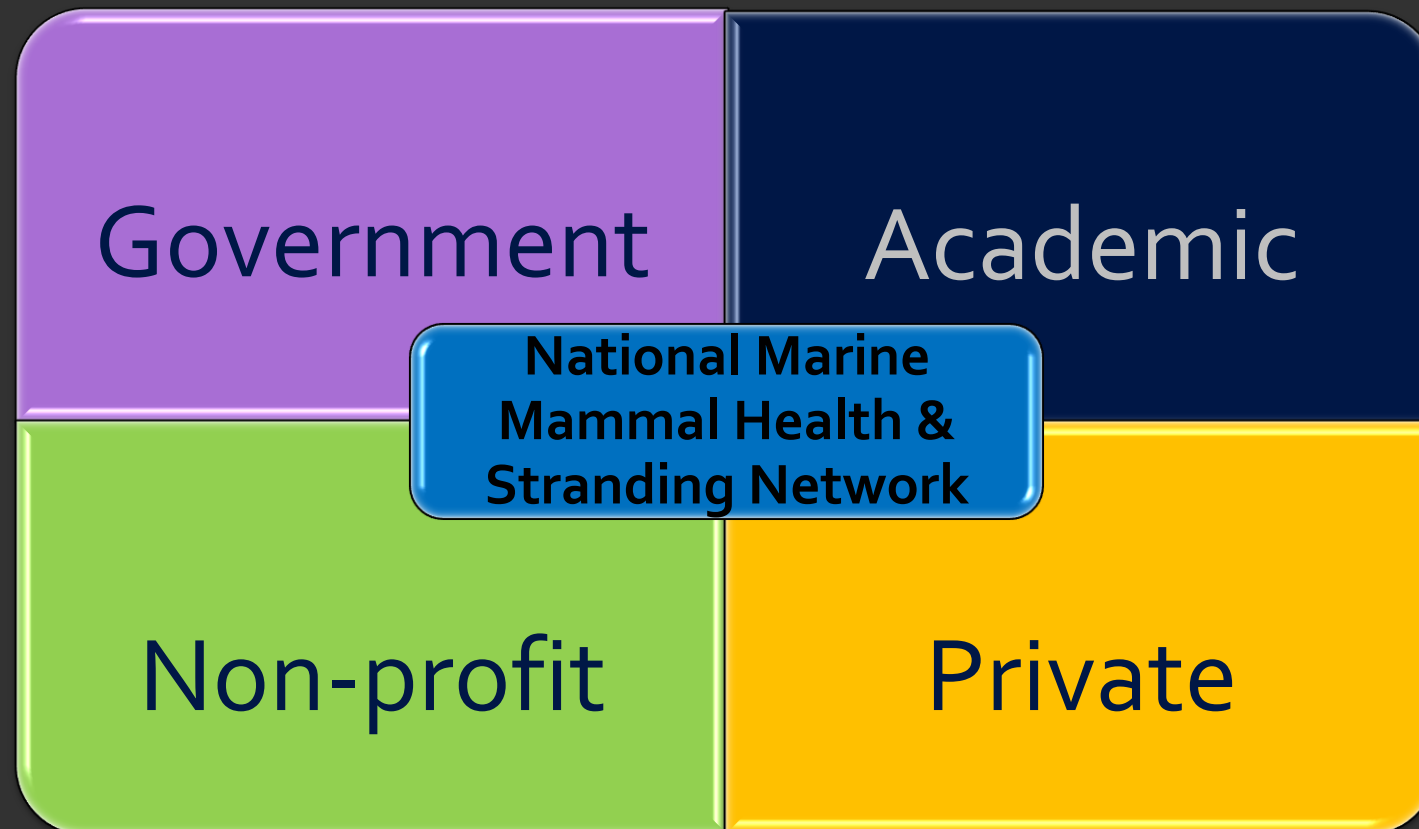


**Correlate** marine mammal health with **environmental variables** (physical, chemical & biological)



Coordinate effective **responses to unusual mortality events**

# NATIONAL MARINE MAMMAL HEALTH & STRANDING NETWORK



# BUILDING PARTNERSHIPS



- MMHSRP brings stranding, investigation, and funding teams together.
- Examples of **public-private partnerships** from the 2013 Southern California Sea Lion UME

## The Investigative Team

Santa Barbara Marine Mammal Center, Channel Islands Marine & Wildlife Institute, California Wildlife Center, Marine Animal Rescue, Marine Mammal Care Center at Ft. MacArthur, Pacific Marine Mammal Center, **SeaWorld San Diego**, The Marine Mammal Center, North Coast Marine Mammal Center, National Marine Mammal Foundation, NOAA Fisheries Southwest Regional Office, NOAA Fisheries Southwest Fisheries Science Center, NOAA Fisheries Alaska Fisheries Science Center, NOAA Fisheries Office of Protected Resources, **Colorado State University**, **University of Georgia**, **University of California at Davis**, **University of Florida**

## Additional Funding and Support

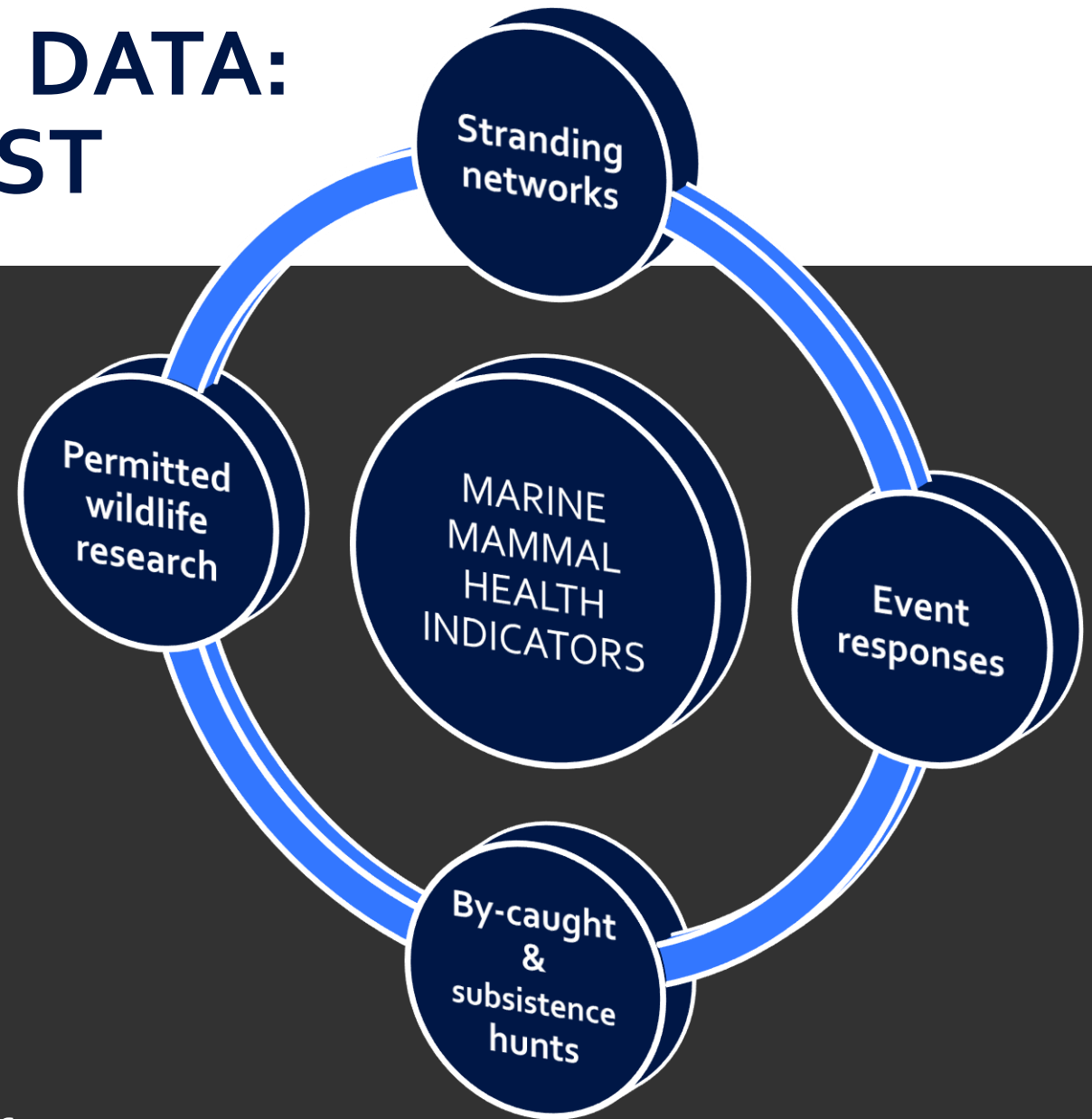
NOAA Fisheries Prescott Grant Program, NOAA Fisheries Emergency Prescott Grant Program, Marine Mammal Unusual Mortality Event Fund, The Waitt Foundation, Betty White Rapid Response Wildlife Fund/Morris Animal Foundation, Campbell Foundation, Code Blue Foundation, Disney Worldwide Conservation Fund, Doris Day Animal Foundation, Donald Slavik Family Foundation, A. Gary Anderson Family Foundation, Rockwell Collins, Deacon Charitable Trust, Los Angeles Fish and Game, Navy Marine Mammal Program, **Six Flags Discovery Kingdom**, **Mirage**, **GulfWorld Marine Park**, **Pisces Seafood International**, **Lineage Logistics**, **Island Packers**, **The Wharf**, **Santa Barbara Surgery Center**, **Henry Schein Animal Health**

 non-profit  private  federal  academic

# MARINE MAMMAL HEALTH DATA: NATIONAL TREASURE CHEST

## Multiple sources of valuable marine mammal health data:

- ✓ Routine strandings
- ✓ Live mammal health assessments
- ✓ Population surveys
- ✓ Rehabilitation care
- ✓ Subsistence hunter reporting
- ✓ Contaminant & pathogen research
- ✓ By-caught mammal health assessments
- ✓ Mass strandings & unusual mortality events
- ✓ Routine, long-term efforts having high payoff



# JOHN H. PRESCOTT MARINE MAMMAL MAMMAL ASSISTANCE GRANT PROGRAM



## The John H. Prescott Marine Mammal Rescue Assistance Grant Program



Program Report  
FY 2001-2010

*A Decade of Support  
to Save and Conserve  
Stranded Marine Mammals*

NOAA  
FISHERIES  
SERVICE  
Science, Service, Stewardship



- **Emergency & General Grant Programs**
  - Recovery & treatment of stranded marine mammals
  - Data collection from living & dead stranded related to marine mammal health
- **FY01-FY13**
  - 864 applications, 483 awards
  - 10 to 21 states funded per year
  - 50+ peer-reviewed, scientific publications
- 5-75% of funding for stranding response (matched)
- Examples: Discovery of influenza in seals, domoic acid causing epilepsy, *Coxiella* in pinnipeds, detection of ship strikes to adjust shipping lanes
- Movement toward consistent surveillance



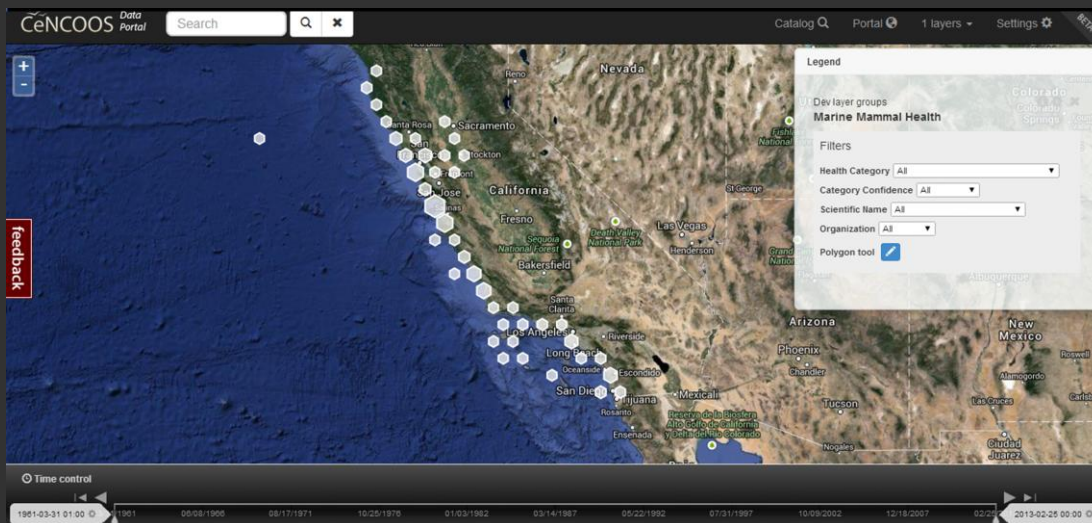
# DATA INTEGRATION: MARINE MAMMAL HEALTH MAP

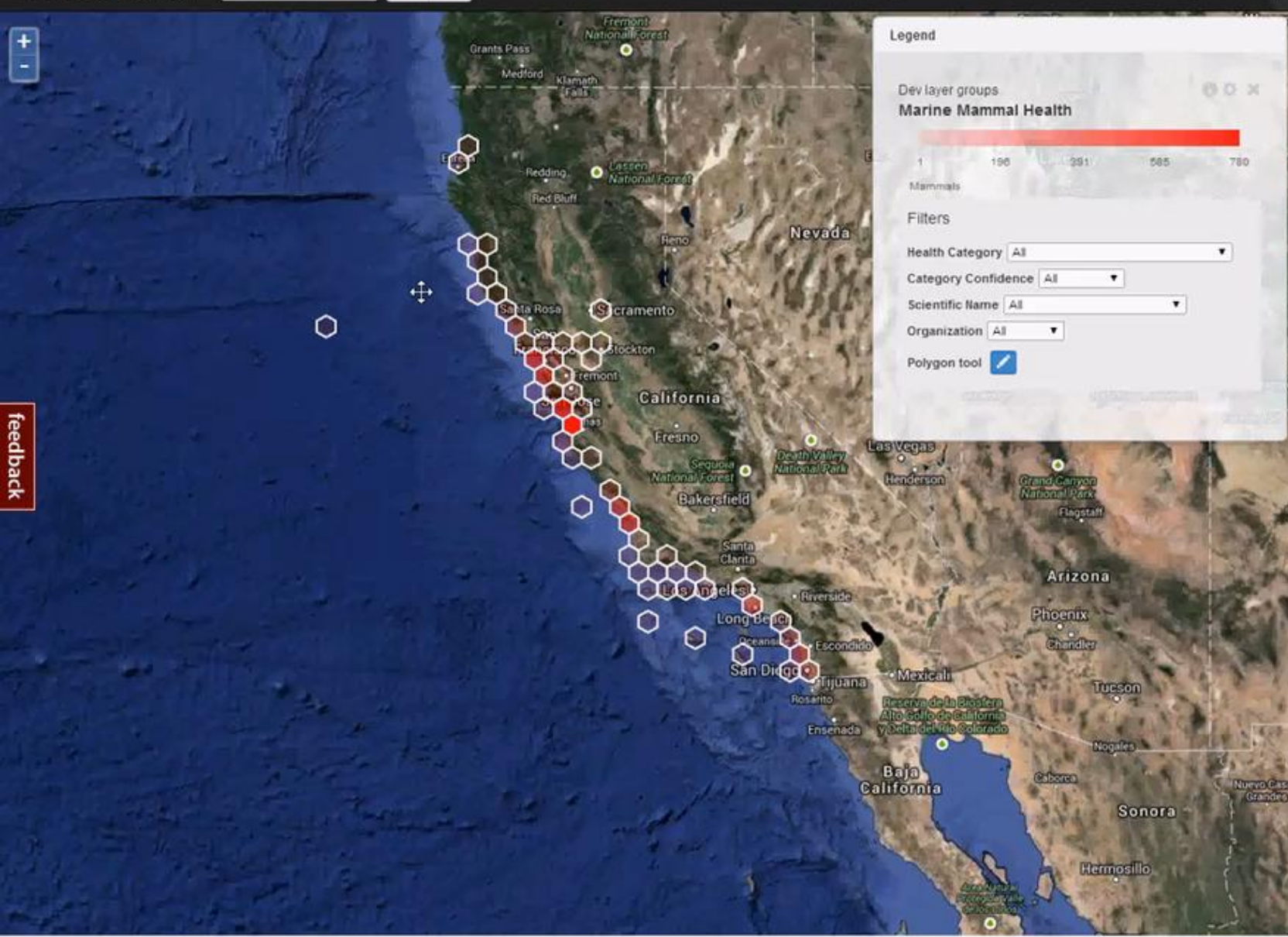


- Collaboration with IOOS/CeNOOS/SCOOS
- West Coast pilot study completed
- April 2014 cross-disciplinary workshop – West Coast Governors Alliance on Ocean Health
- **Together, we can do, discover, & act more than apart**

## MISSION

- Combine marine mammal health data to identify and track trends across regions to **answer scientific, policy, and public questions** and to increase communication and consistency among each other
- Apply an **ecosystem-based approach** using high quality data **to provide bigger-picture situational awareness and predictability** based upon coinciding changes in ocean, prey, and marine mammal health
- **Engage and educate the public** about the relevance of marine mammal and ocean health to their interests, health, and welfare
- Aligned with MMHSRP





**Legend**

Dev layer groups

**Marine Mammal Health**

1 190 391 585 780

Mammals

**Filters**

Health Category All

Category Confidence All

Scientific Name All

Organization All

Polygon tool

feedback

+Data

Time control

1961-02-31 00:00 1961 09/25/1967 03/22/1974 09/16/1980 03/14/1987 09/08/1993 03/05/2000 08/31/2006 02/24/2013-02-24 23:00



# MARINE MAMMAL HEALTH MAP DEMO

# THANK YOU!

- Marine Mammal Commission – including **Dr. Frances Gulland** & **Dr. Samantha Simmons**
- NMFS Marine Mammal Health and Stranding Response Program – including **Dr. Teri Rowles**
- National Marine Mammal Stranding Network
- Working Group for Marine Mammal Unusual Mortality Events
- Rob Bochenek – Axiom Consulting & Design, CeNOOS
- Tenaya Norris, Claire Simeone, Matt Thorstensen – The Marine Mammal Center
- Kerri Danil, Susan Chivers – Southwest Fisheries Science Center
- Judy St. Leger, Erika Nilson – SeaWorld San Diego
- Lauren Palmer – Marine Mammal Center at Fort MacArthur
- Michelle Berman – Santa Barbara Museum of Natural History



**Humpback Whale** (*Megaptera novaeangliae*)

Credit: Robert Pitman, NOAA