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PRBO Conservation Science



# California Current Forage Fish Management

Jennifer Martin

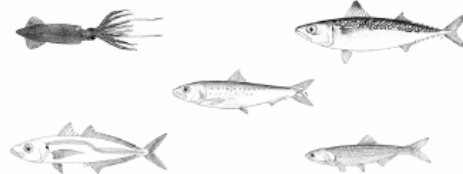
PRBO Conservation Science

- Ecological, Management and Commercial Use Context
- Project Goal and Approach



**STATUS OF THE PACIFIC COAST  
COASTAL PELAGIC SPECIES FISHERY  
AND  
RECOMMENDED ACCEPTABLE BIOLOGICAL  
CATCHES**

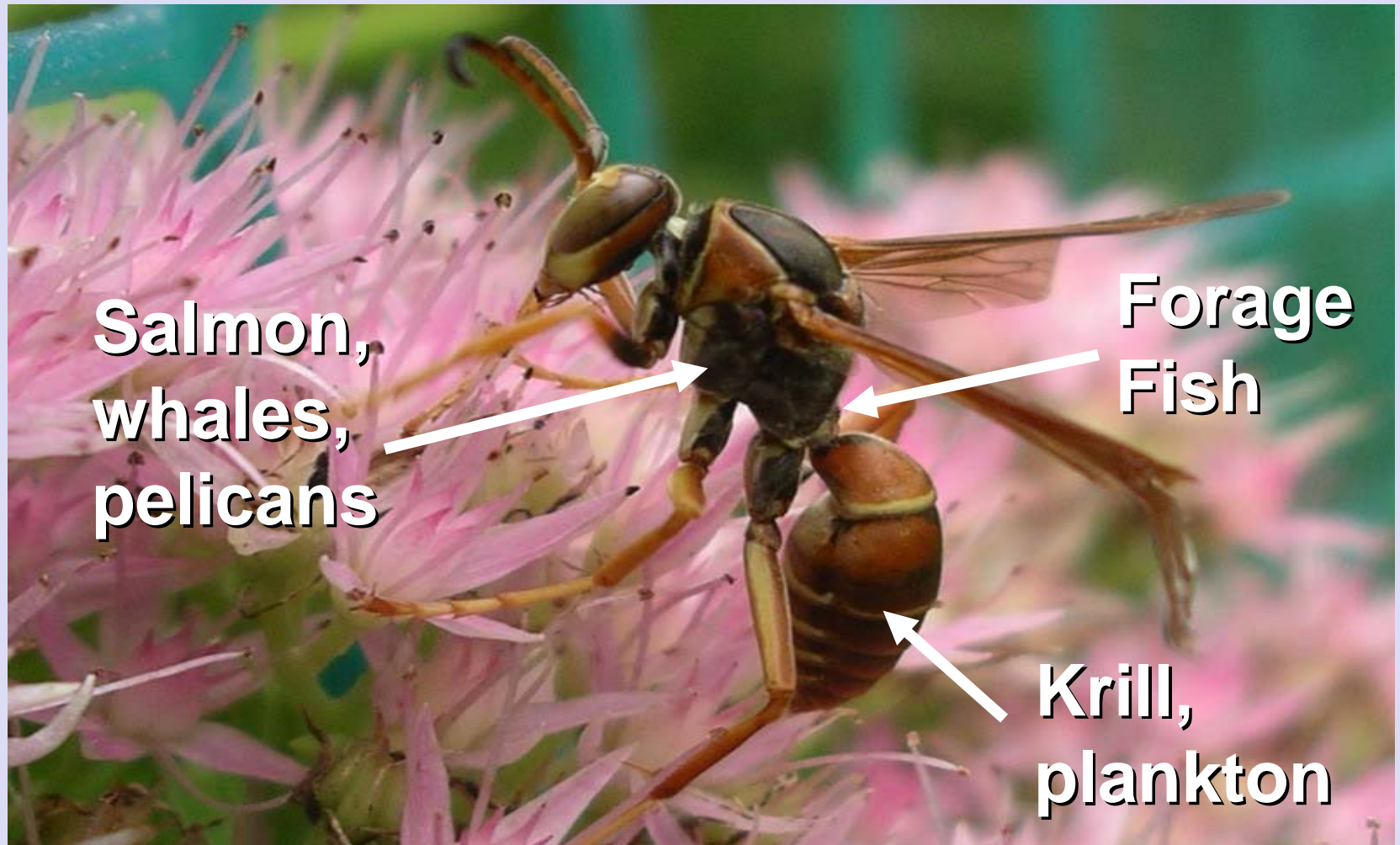
**STOCK ASSESSMENT AND FISHERY EVALUATION  
2007**



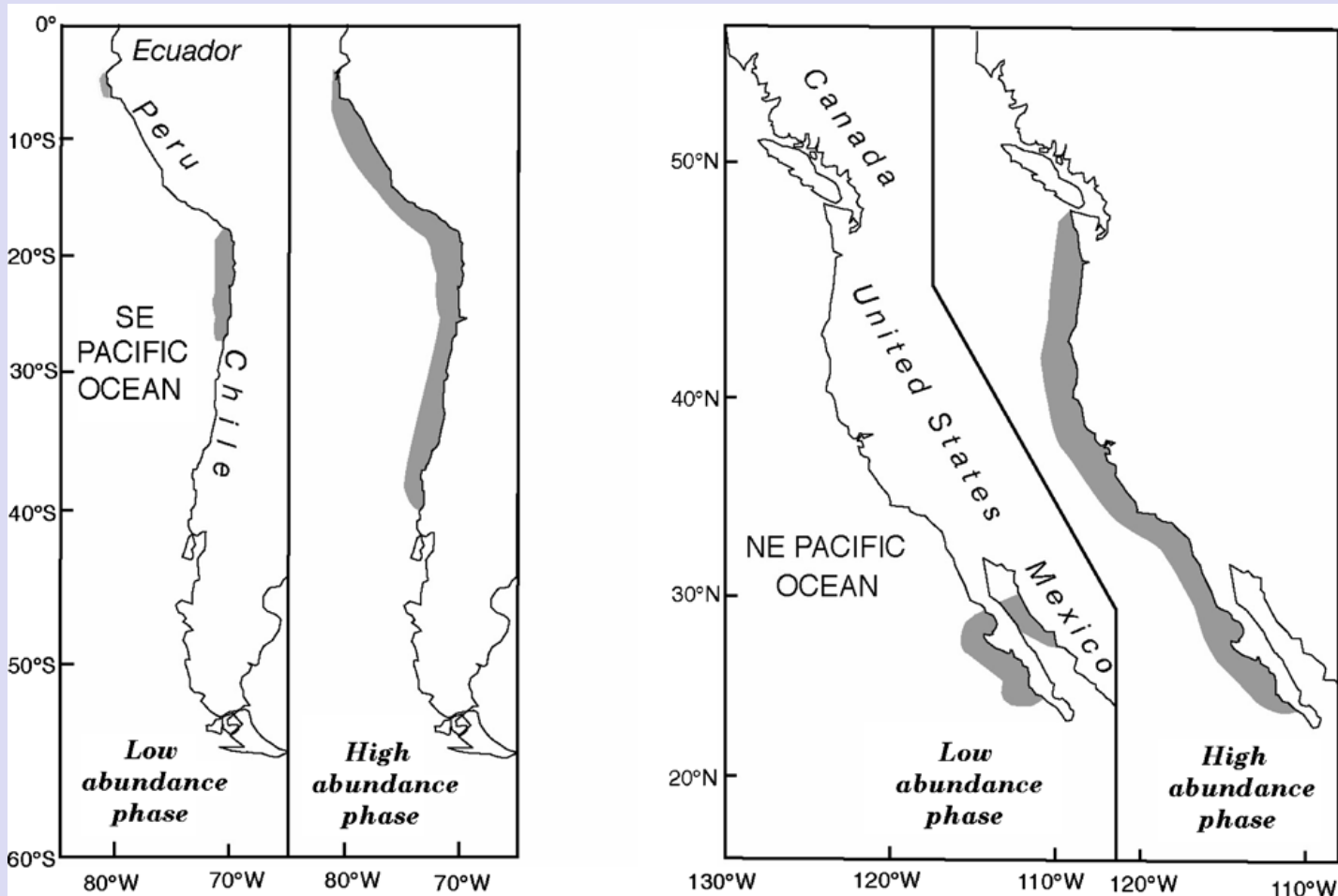
**PACIFIC FISHERY MANAGEMENT COUNCIL**  
7700 NE AMBASSADOR PLACE, SUITE 101  
PORTLAND, OR 97220  
503-820-2280  
[www.pcouncil.org](http://www.pcouncil.org)

**JUNE 2007**

# California Current ecosystem – “wasp waist” trophic structure



# Changes in distribution with low and high abundance of Pacific sardines



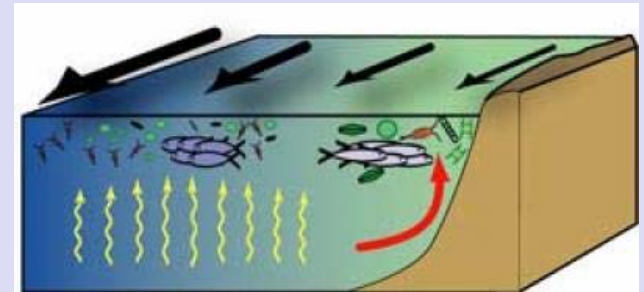
A. Bakun / Progress in Oceanography 68 (2006) 271–288



# Climate Change

***Scripps scientists peg wind as the force behind fish booms and busts***

***Climate mechanism could explain 1940s crash that led to demise of Cannery Row***

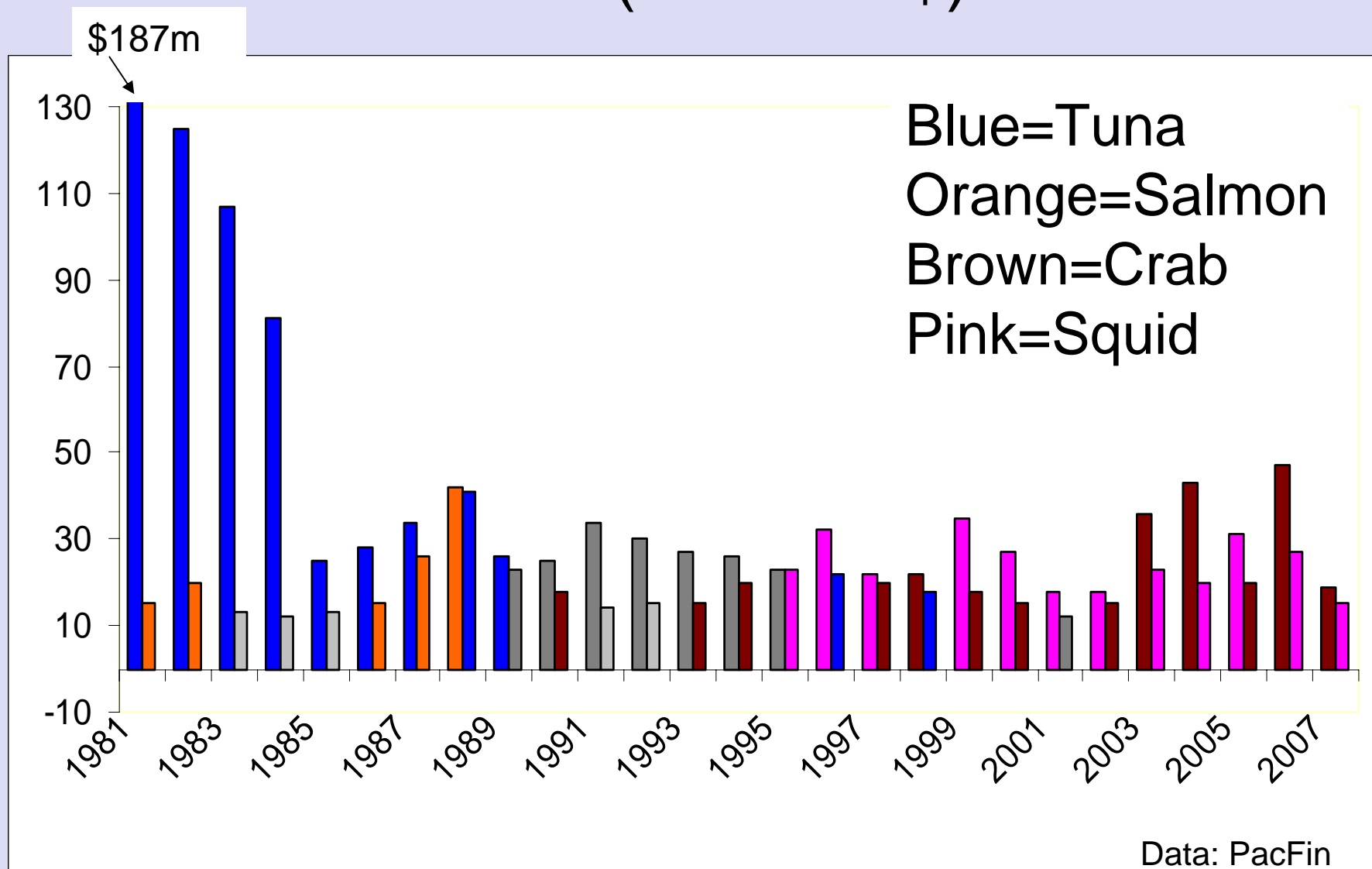


“I think there’s no question that both fishing and natural forcing are responsible for the historical fluctuations in fish not only off California, but off Peru, Japan, South Africa and Spain. It’s important to realize that nature is a large player in this equation, if not the dominant one.”

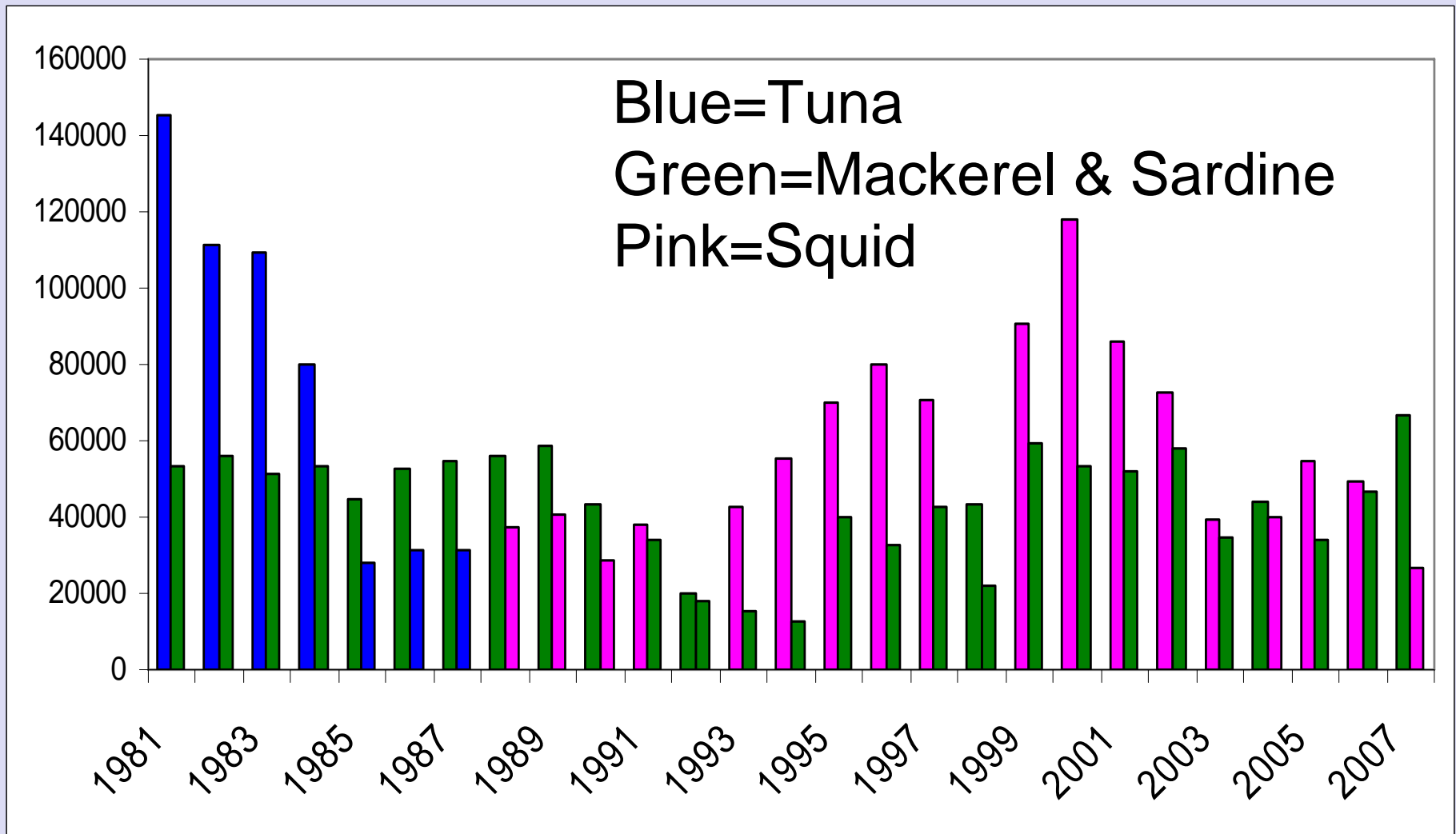
- Ryan Rykaczewski.

5-Feb-2008. Scripps Institution of Oceanography, University of California, San Diego

# California harvest – Top two species by value (millions \$)



# California harvest – Top two species by volume (metric tons)



# Aquaculture

Salmon farm off  
British Columbia



Photo: BC Salmon Farmers Assoc.

Tuna pens off California



Photo: NOAA

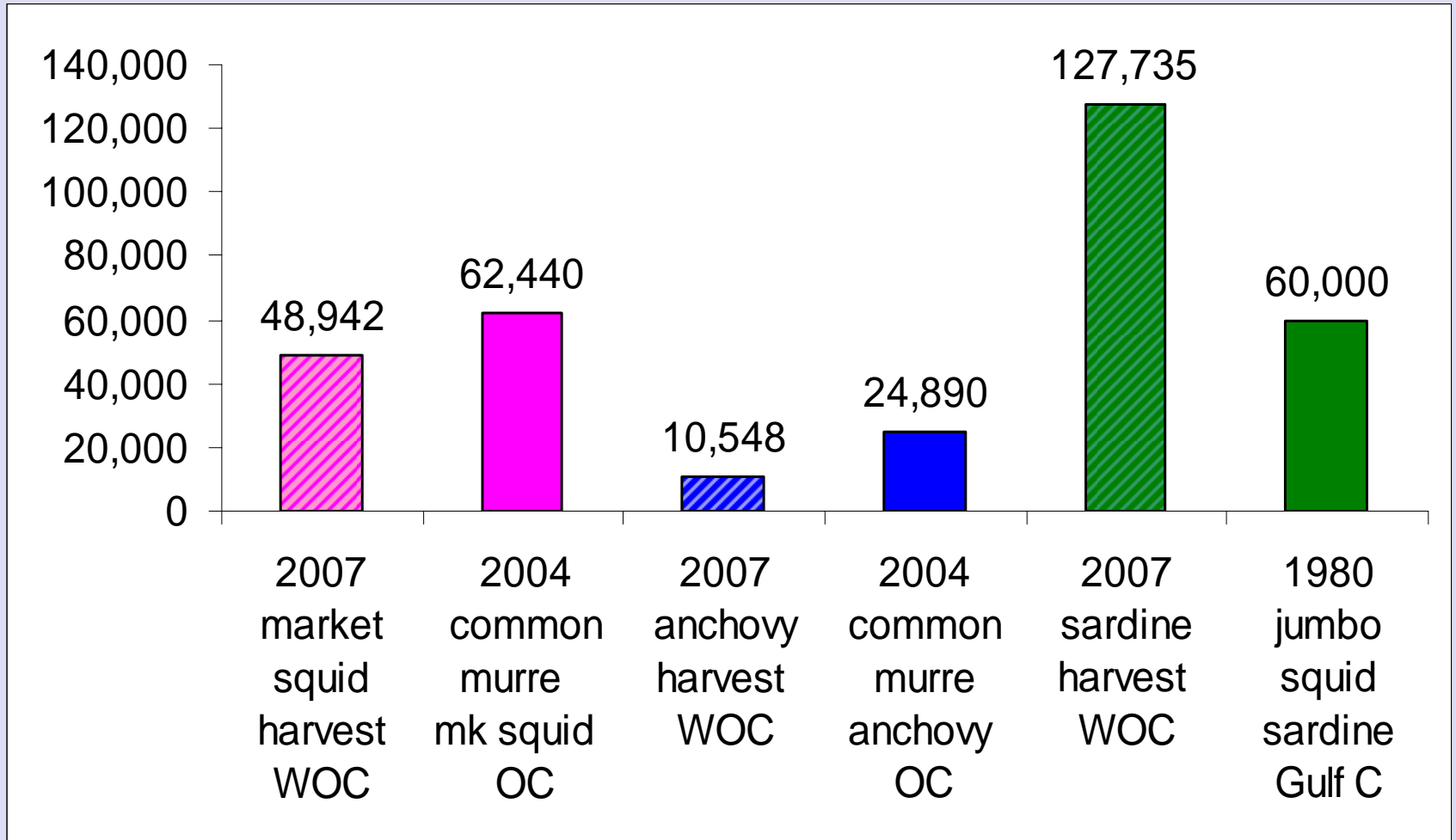


# Mine!



Pixar-Finding Nemo

# Food for thought



Weight = metric tons; W=Washington; O=Oregon; C=California

Harvest data: PacFin; Murre data: PRBO; Jumbo squid: Ehrhardt, NM 1991

## To summarize...

- Forage fish occupy a critical role in the food web.
- Management does not adequately account for ecological variables.
- Commercial demand is increasing.
- Changing climate.

Precautionary, ecosystem-based management practices are needed to prevent a crisis for marine fisheries, wildlife, and ecosystems.

# **California Current Forage Fish Management Project**

## **Goal:**

**Establish fishery management policies that prioritize protection of forage fish for their role in the ecosystem, in order to ensure adequate availability of food resources for wildlife.**



# California Current Forage Fish Management Project

## Approach:

- Convene a diverse group of stakeholders
- Conduct joint fact-finding, learning and social interactions to improve knowledge and relationships
- Produce an Action Plan that the group will strive to implement
- In partnership with the Marine Fish Conservation Network.





# California Current Forage Fish Management Project

## Action Plan:

- Identify shared goals to manage forage fish using an ecosystem-based approach
- Develop recommendations for policy changes to reach the goals
- Articulate strategies for pursuing policy recommendations
- Identify information needs to support effective and adaptive management
- Build collaborative partnerships for implementation



**Thank you!**

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# **California Current Forage Fish Management Project**

