



A. Peter Klimley

Status of White Shark in California

Fish & Game Commission Meeting

June 4, 2014

Mandy Lewis



Presentation Overview

- Petition History
- Biology & Range
- Review Criteria
- Key Findings
- Department Recommendation



CESA Listing Process



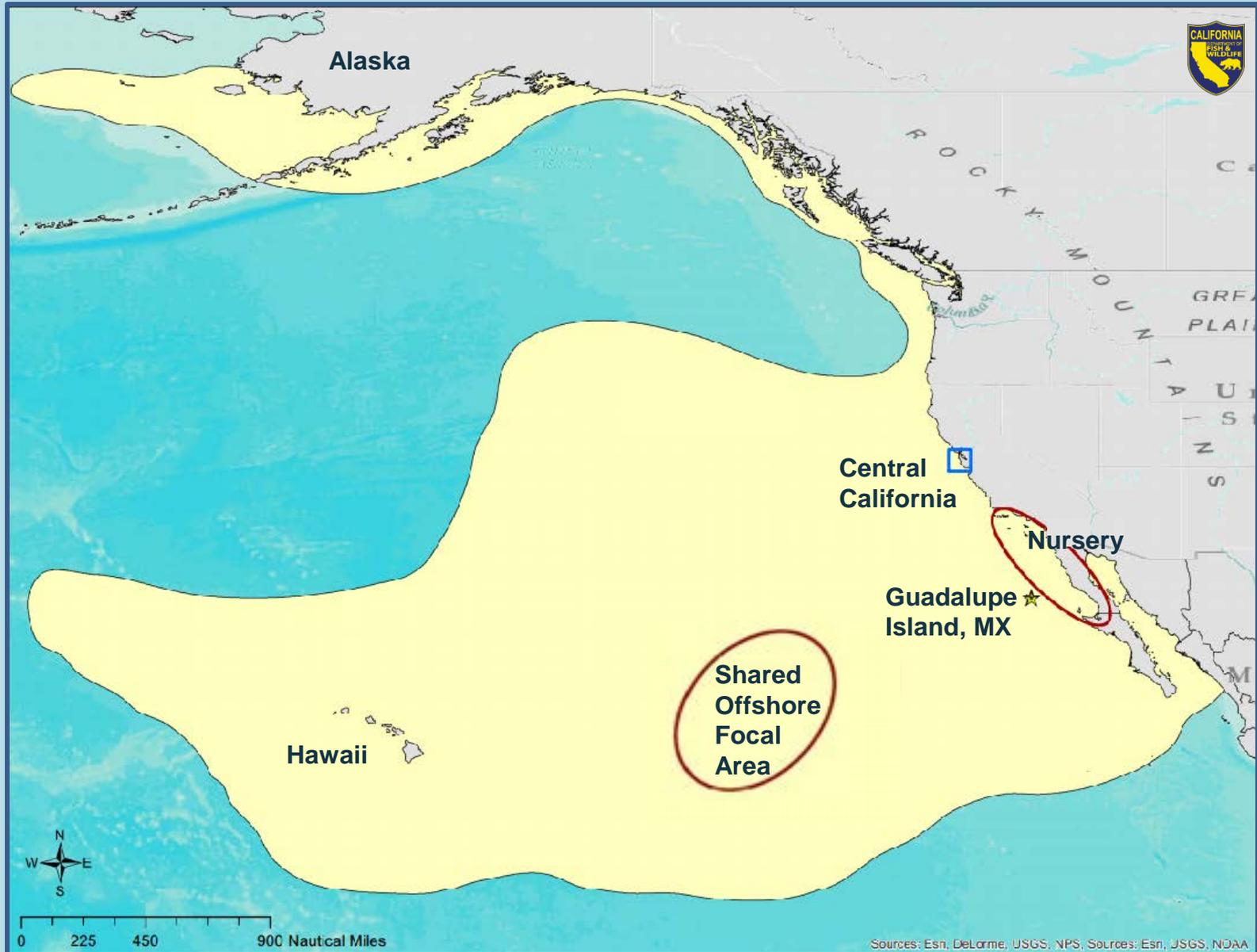
CESA Evaluation History

- **August 20, 2012** – Commission receives Petition
- **February 6, 2013** – Commission determines the petitioned action may be warranted
- **March 1, 2013** – Department initiates status review of the species
- **December 19, 2013** – Petitioners submit new information
- **April 4, 2014** – Department submits status review to the Commission
- **April 16, 2014** – Commission receives status review
- **June 4, 2014** – Commission considers listing white shark as a threatened or endangered species

White Shark Life History

- Found around the world
- Northeastern Pacific population genetically distinct
- Large predators
- Small population
- Late to mature, with few offspring
- Preferred prey changes with maturity
- Habitat varies by life stage and season

Range of White Shark in the Northeastern Pacific



NEP Population Estimates

- Two Photo-ID studies in Central CA & Mexico (Chapple 2011; Sosa-Nishizaki 2012), which when combined estimate a total of 339 adult & sub-adult white sharks
- NMFS estimates the total NEP abundance of all life stages and both sexes >3,000



Sal Jorgensen

NMFS Population Estimate

Analyzed expanded Photo-ID datasets & employed other methods to estimate population size.

- Accounted for bias in sex ratio and probability of an individual's detection.
- Leading scientists conducted the NMFS species review.
- Petitioners critiqued the NMFS estimates and findings.



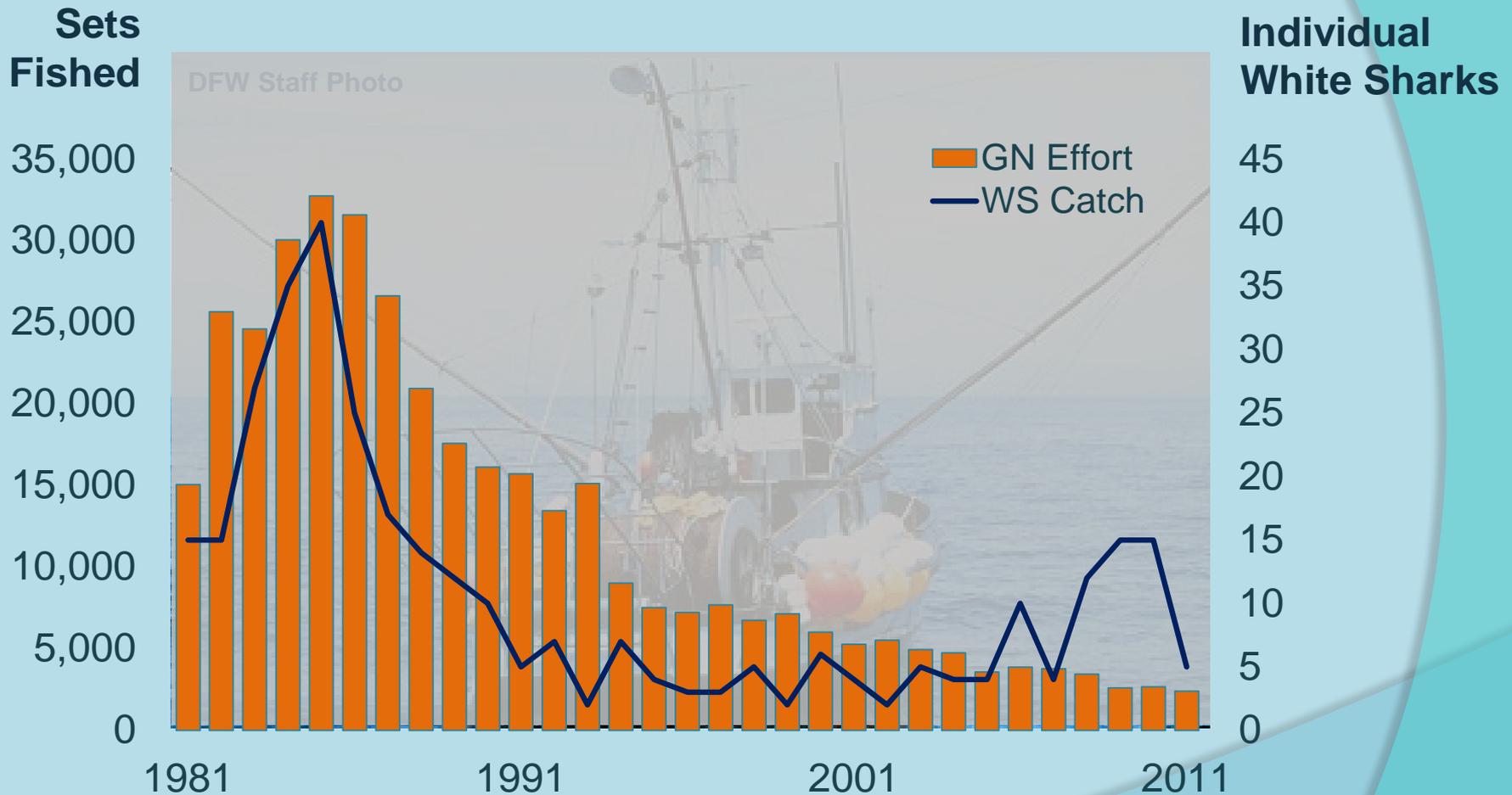
Population Trends

Lacking historic population estimates, independent trends suggest an increasing population.

- Photo-ID studies at Guadalupe Island show a significant increase in the number of sharks from 2001-2011.
- Increases in white shark attacks on pinnipeds and sea otters have been observed.
- Increasing incidental catch rates are consistent with an increasing population.



Interactions with California Commercial Gill Net Fisheries



**** Data from required CDFW gill net logbook data (sets) and commercial landing receipt data. Includes all sets, inside and outside state waters (3 nm). All data are preliminary and subject to further verification and validation.**

CESA Review Criteria & Key Findings

A species shall be listed as endangered or threatened, if it is determined that the continued existence of the species is in serious danger or threatened by one or more of the following factors (CCR Title 14, § 670.1).

- Present or threatened modification or destruction of its habitat
- Overexploitation
- Predation
- Competition
- Disease
- Other natural occurrences or human-related activities



Present or threatened modification or destruction of its habitat

The habitats utilized by white sharks are potentially threatened by several factors.

- Environmental Contaminants
- Marine Debris – Ingestion or entanglement
- Climate Change & Ocean Acidification



Scot Anderson

Overexploitation

The status review analyzed interactions with commercial and recreational fisheries in California waters and in other areas.

- Directed take prohibited in California since 1994.
- Most common fishery interactions occur with commercial gill net fisheries.
- Net fisheries are prohibited in almost all state waters.



Overexploitation

Current Regulations & Protections

- White sharks in the NEP are widely protected through state, federal and international efforts
- Prohibitions on take of white shark in Mexico are more stringent today
- Gill net interactions off California declined steadily through the 1990s & remained stable until 2005



Tom Mason

Predation, Competition, Disease & other Natural Occurrences or Human-related Activities

These criteria do not pose a significant risk to the NEP population of white shark at any life stage.

- Apex predators
- Generalist feeders and resilient to the loss of specific prey items
- Generalized immune system makes disease a rare occurrence



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CDFW Recommendation

Listing the NEP population of white shark as threatened or endangered is not warranted at this time.

Thank You!



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Questions?

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