

Challenges for the Central North Pacific green turtle: present and projected



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How Did We Get Here?

1974 Hawaii issues regulations for turtle

1998 Green turtle critical habitat Puerto Rico

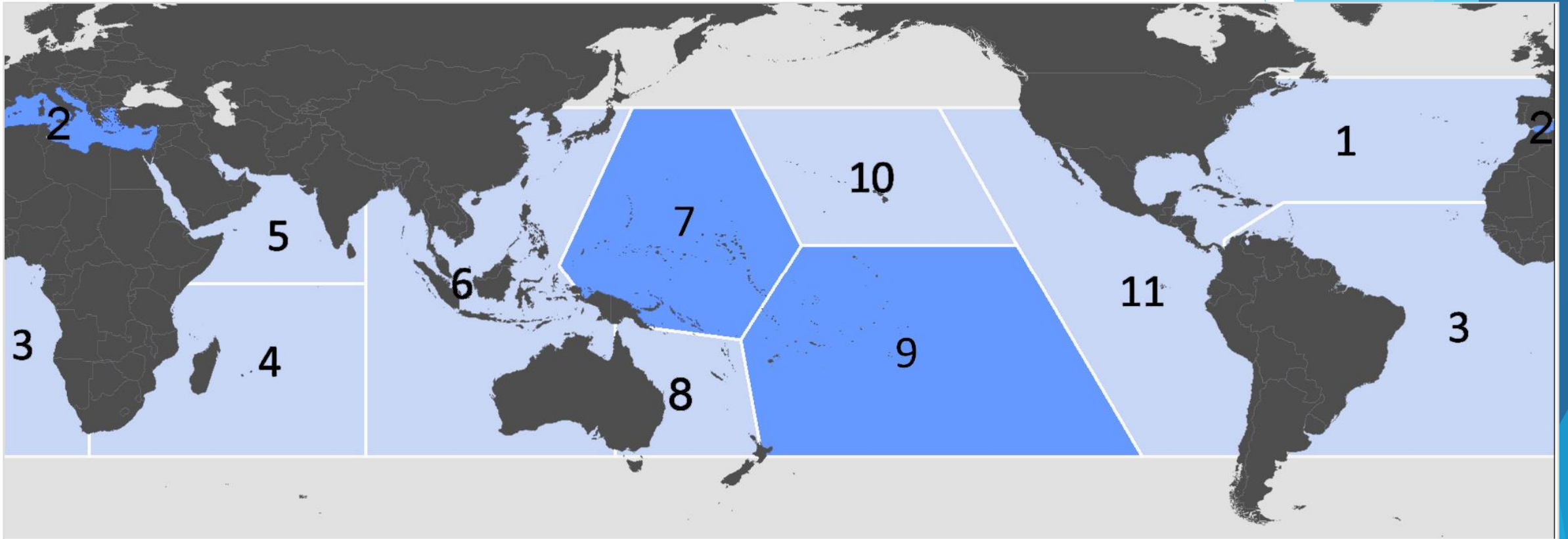
2015 Petition finding by FWS & NOAA

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What Do the Policymakers Say?



Threatened (light blue) and endangered (dark blue) green turtle distinct population segments (DPSs):
1. North Atlantic, 2. Mediterranean, 3. South Atlantic, 4. Southwest Indian, 5. North Indian, 6. East Indian-West Pacific,
7. Central West Pacific, 8. Southwest Pacific, 9. Central South Pacific, 10. Central North Pacific, and 11. East Pacific.

Central North Pacific DPS Considerations

Central North Pacific Green Turtle DPS

- Population parameters
- Conservation efforts
- Extinction risk assessment
- Factors that affect the DPS

Central North Pacific DPS

Threats

Central North Pacific Green Turtle DPS

- Population parameters
- Conservation efforts
- Extinction risk assessment
- **Factors that affect the DPS**

Central North Pacific Green Turtle DPS

- (A) destruction, modification, or curtailment of habitat
- (B) over-utilization for commercial, recreation, scientific, or education purposes
- (C) disease or predation
- (D) inadequacy of existing regulatory mechanism
- (E) other natural or manmade factors

Central North Pacific DPS

Threats: Habitat Loss

Central North Pacific Green Turtle DPS

- Population parameters
- Conservation efforts
- Extinction risk assessment
- **Factors that affect the DPS**



Central North Pacific Green Turtle DPS

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Proposed Ruling: Habitat Impacts

Factors of destruction, modification, or curtailment of habitat

- Nesting habitat loss (NWHI)
- Coastal development & construction (MHI)
- Vehicle & pedestrian traffic (MHI)
- Beach pollution (MHI)
- Tourism (MHI)
- Climate change (MHI)*
- Marine construction (MHI)*
- Anthropogenic contamination for forage areas(MHI)*
- Resort development activities (MHI)*
- Increased vessel traffic (MHI)*

* Increasing or persistent threats

Recommendations for Proposed Ruling

Factors of destruction, modification, or curtailment of habitat

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Factors of destruction, modification, or curtailment of habitat

- Nesting habitat loss (NWHI) **& (MHI)**
 - Coastal development & construction (MHI) *
 - Vehicle & pedestrian traffic (MHI) *
 - Beach pollution (MHI) *
 - Tourism (MHI) *
 - Climate change **& natural disasters** (MHI)*
 - Marine construction (MHI)*
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 - **Residential recreation**
- * Increasing or persistent threats

Review of Findings

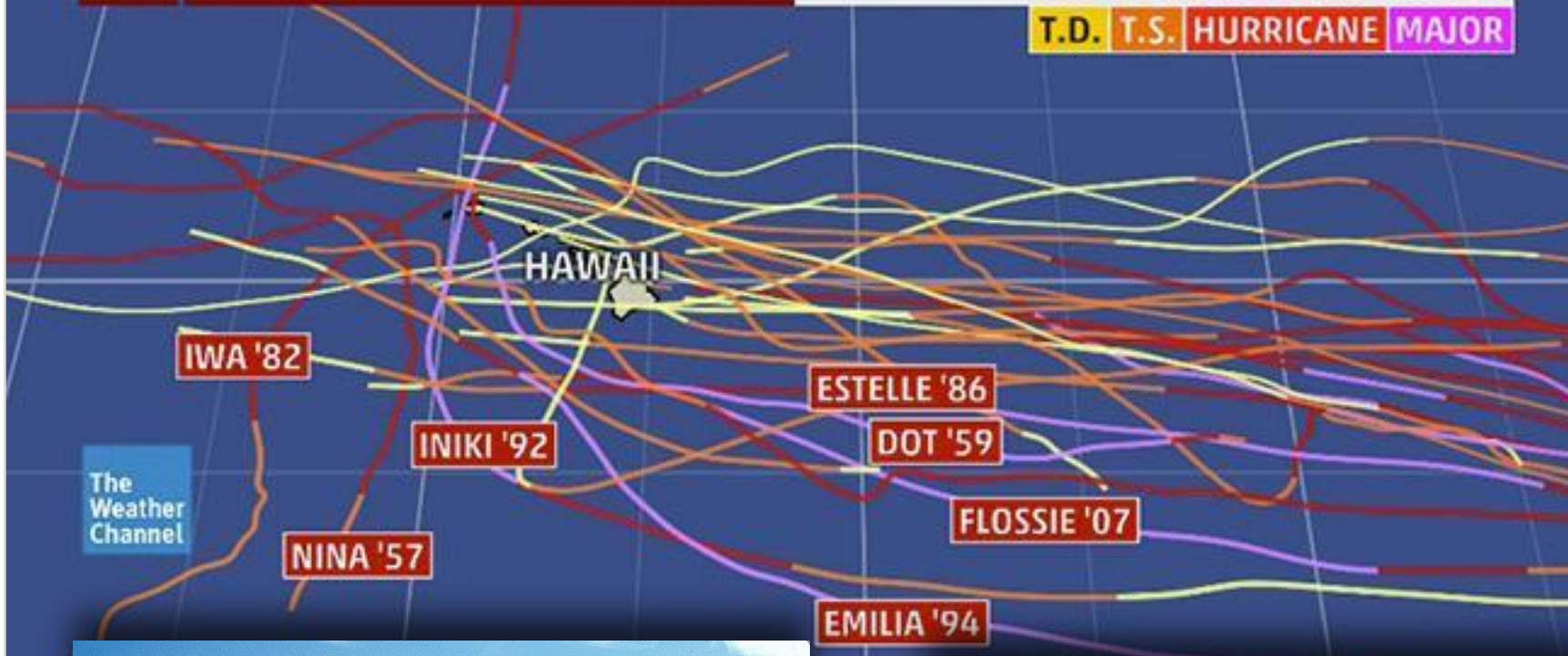
- **Include residential recreation as a factor affecting the Central North Pacific DPS**
- Include natural disasters in the effects of climate change
- Re-designate increasing and persistent threats to include: (1) coastal development & construction, (2) vehicle & pedestrian traffic, (3) beach pollution, and (4) tourism
- Reconsider the MHI for nesting habitat loss



NAMED STORM TRACKS

NEAR HAWAII (1950-2013)

T.D. T.S. HURRICANE MAJOR



Review of Findings

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Population & Tourism Expected to Continue Rising

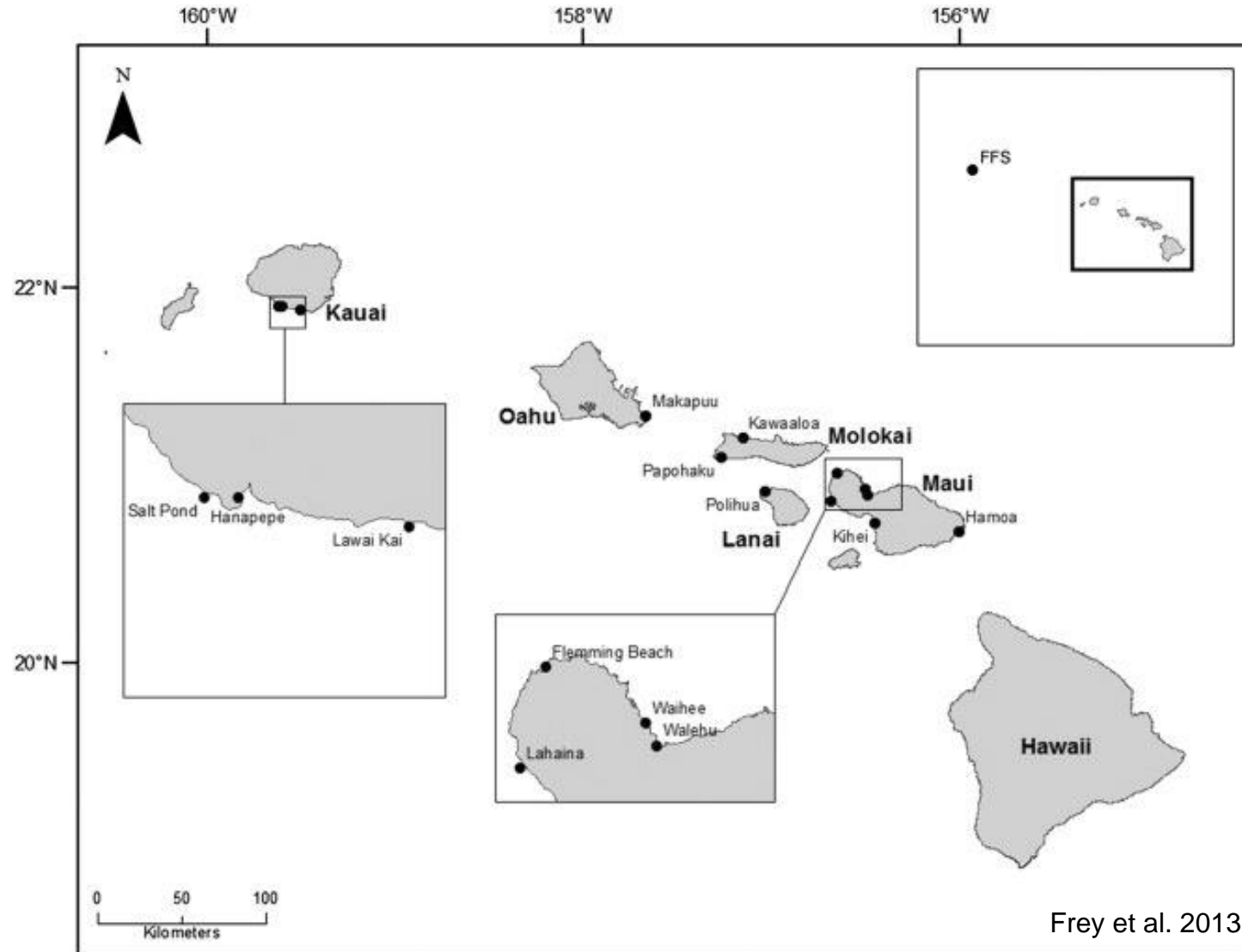
- Population and Economic Projections for the State of Hawaii, Department of Business, Economic Development and Tourism (2012)
- Visitor Statistics, DBEDT tourism forecast, State of Hawaii (2015)
- Project ADA Beach Improvements (2013)



Review of Findings

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- **Re-designate increasing and persistent threats to include: (1) coastal development & construction, (2) vehicle & pedestrian traffic, (3) beach pollution, and (4) tourism**
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Nests Present in Main Hawaiian Islands



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Central North Pacific DPS

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Where Do We Go From Here?

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DEADLINE JUNE 22, 2015
Request for comments

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Evaluating Distinct Population Segments (DPSs)

- ▶ Historical & current population stats & trends
- ▶ Historical & current distribution
- ▶ Migratory movements and behavior
- ▶ Genetic population structure
- ▶ Current or planned activities that may adversely affect green turtles
- ▶ Conservation efforts to protect green turtles
- ▶ Extinction risk & analysis



Thank You.

Acknowledgements:

Senior Seminar Class 2015

Karla McDermid Smith

Resources:

Frey Amy, Dutton Peter, Balazs George (2013) Insights on the demography of cryptic nesting by green turtles (*Chelonia mydas*) in the main Hawaiian Islands from genetic relatedness analysis. *Jour Exper Mar Bio Eco* 442:80-87