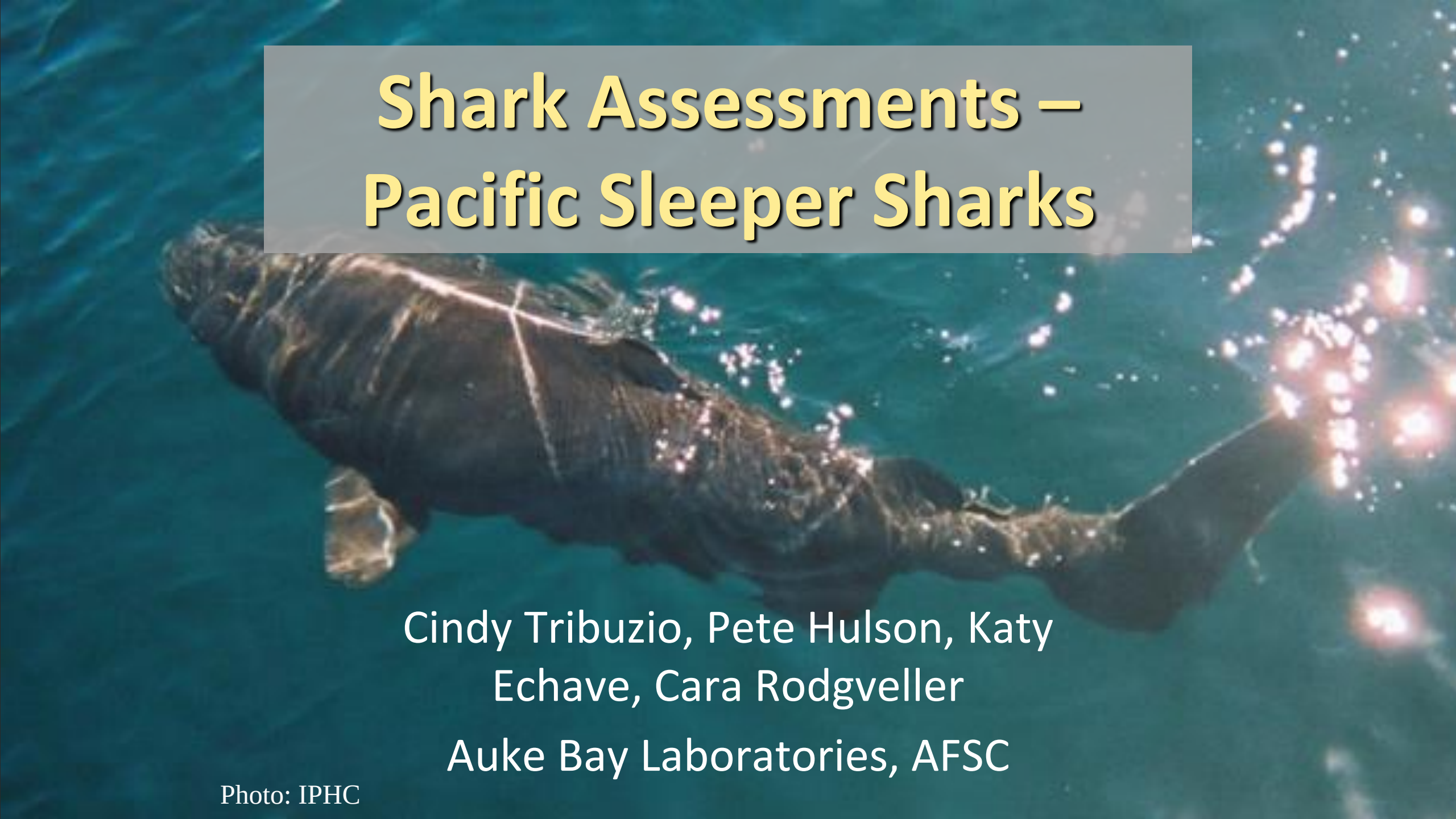
Shark Assessments – Pacific Sleeper Sharks



Cindy Tribuzio, Pete Hulson, Katy Echave, Cara Rodgveller

Auke Bay Laboratories, AFSC

Photo: IPHC

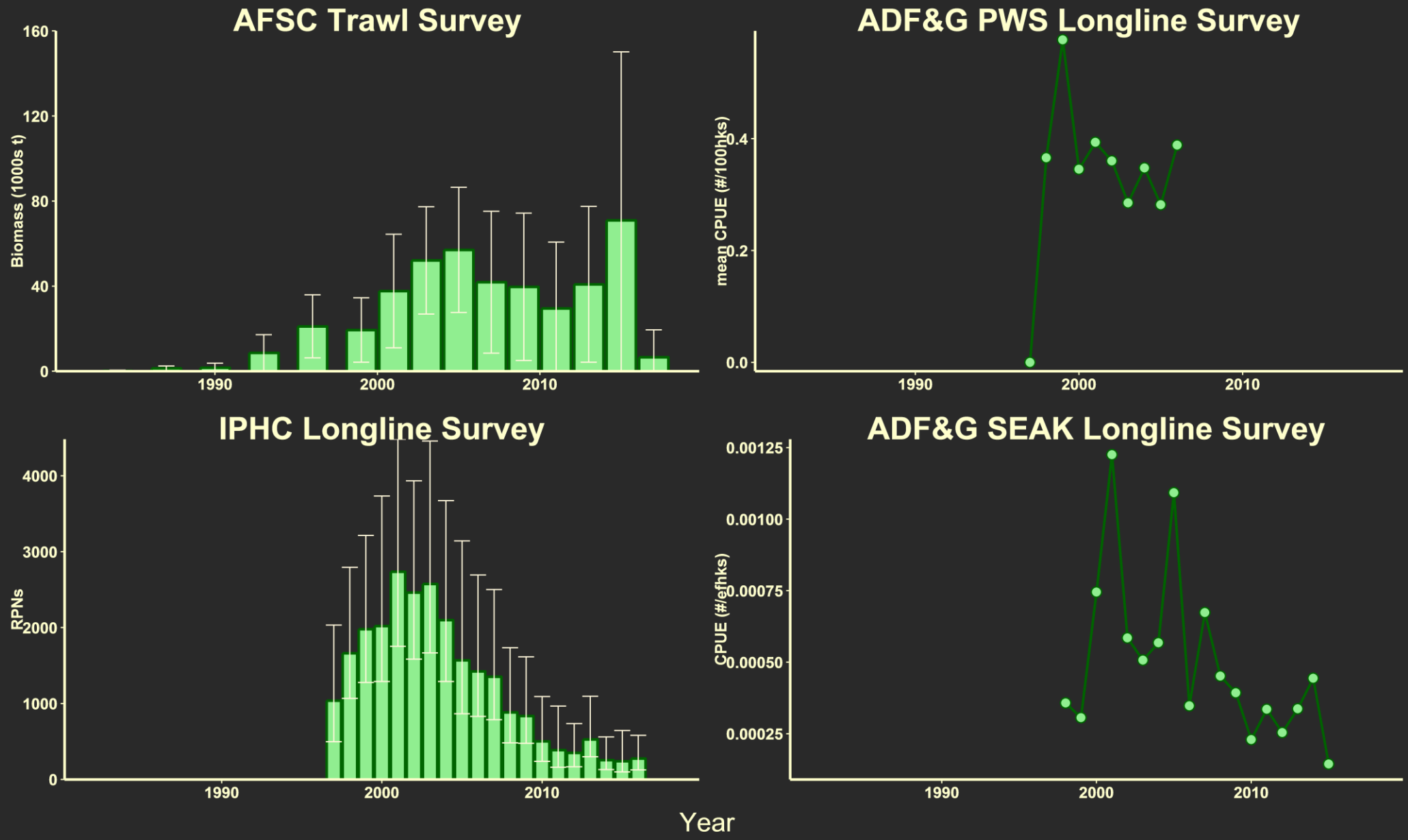
Shark Assessments

- Due to prioritization, no shark assessments
- Survey data only used for GOA spiny dogfish
  - Survey biomass was down from exceptional high in 2015
- All other species, catch only (Tier 6)
- Nothing to trigger an assessment document
- HOWEVER, concerns regarding Pacific Sleeper Sharks

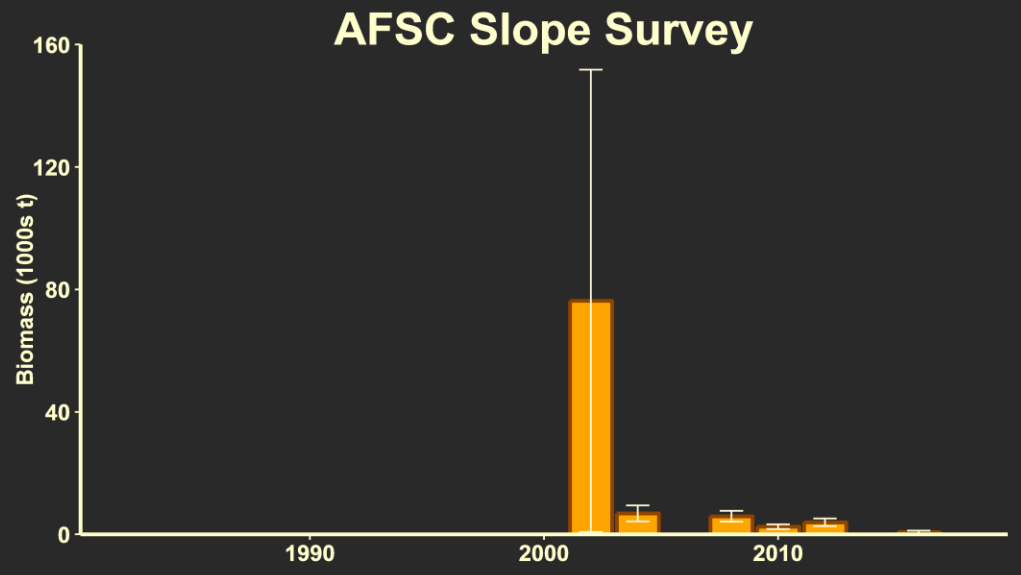
Pacific Sleeper Sharks

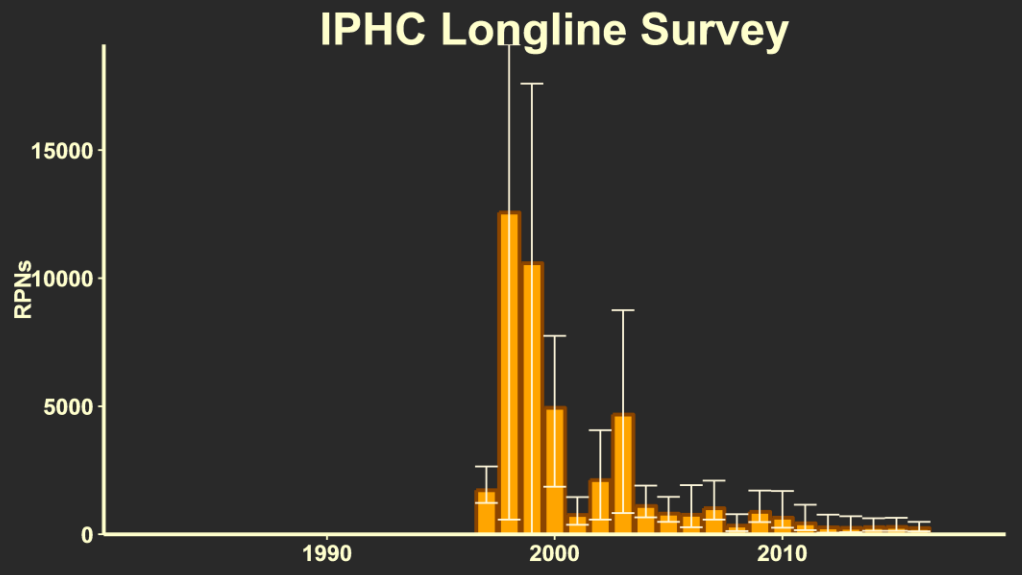
- Extremely data poor species
- Highly vulnerable to overfishing (Ormseth and Spencer 2011)
- Most susceptible to uncertainty in catch (Courtney……)
- Survey indices have been declining

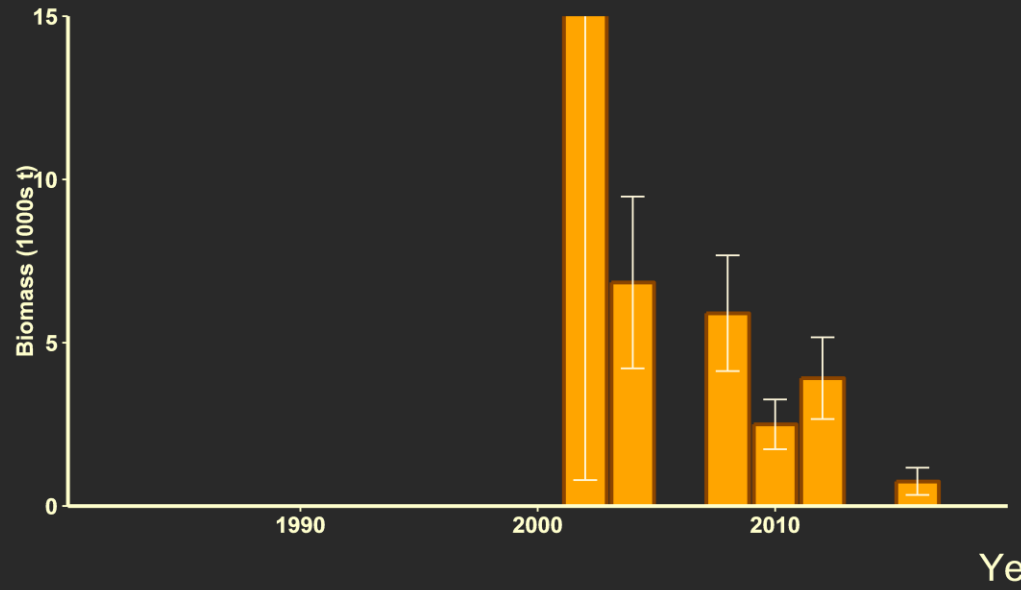
Survey Indices – Pacific Sleeper Shark GOA



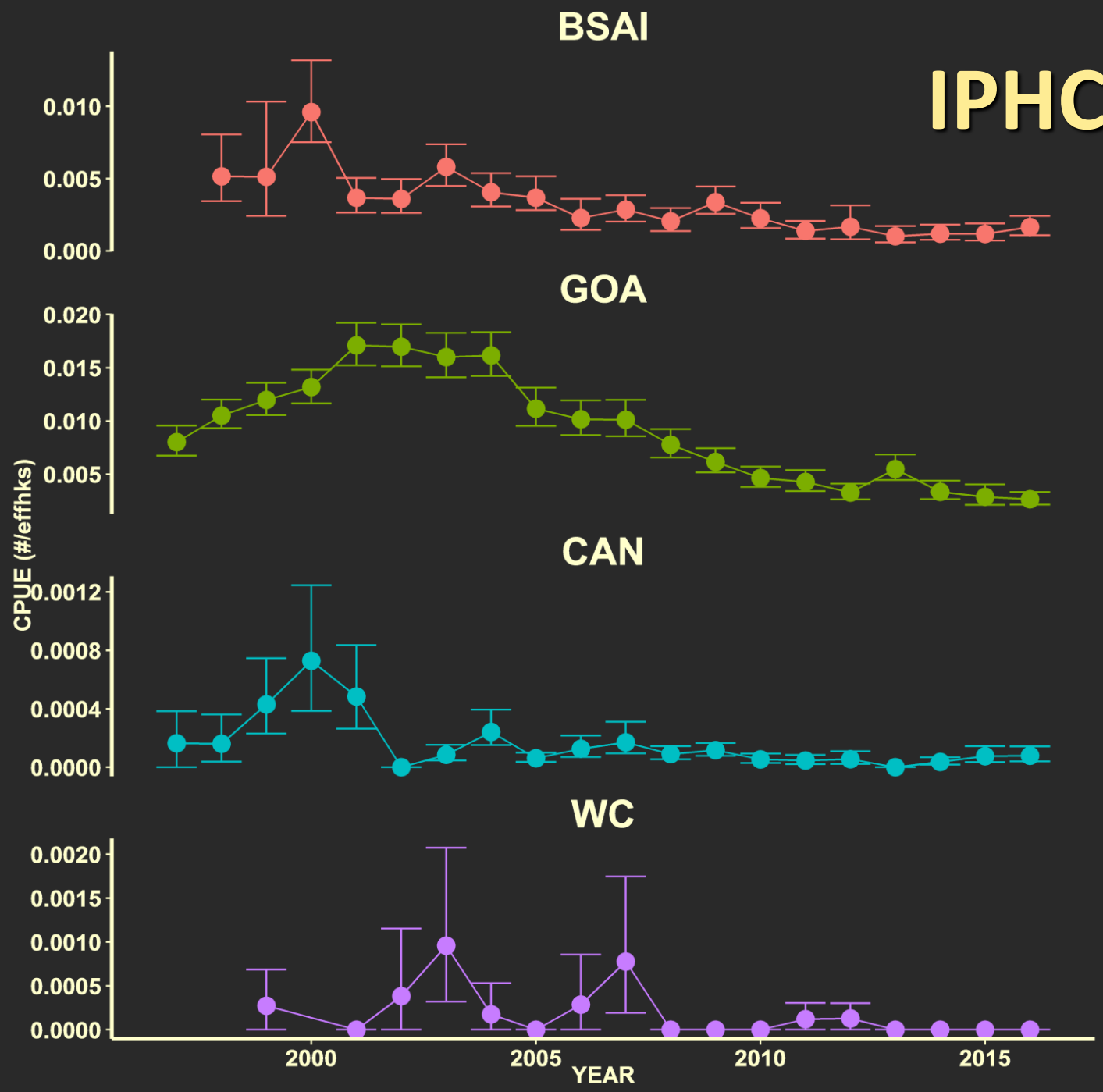
Survey Indices – Pacific Sleeper Shark BSAI







IPHC Survey - Coastwide



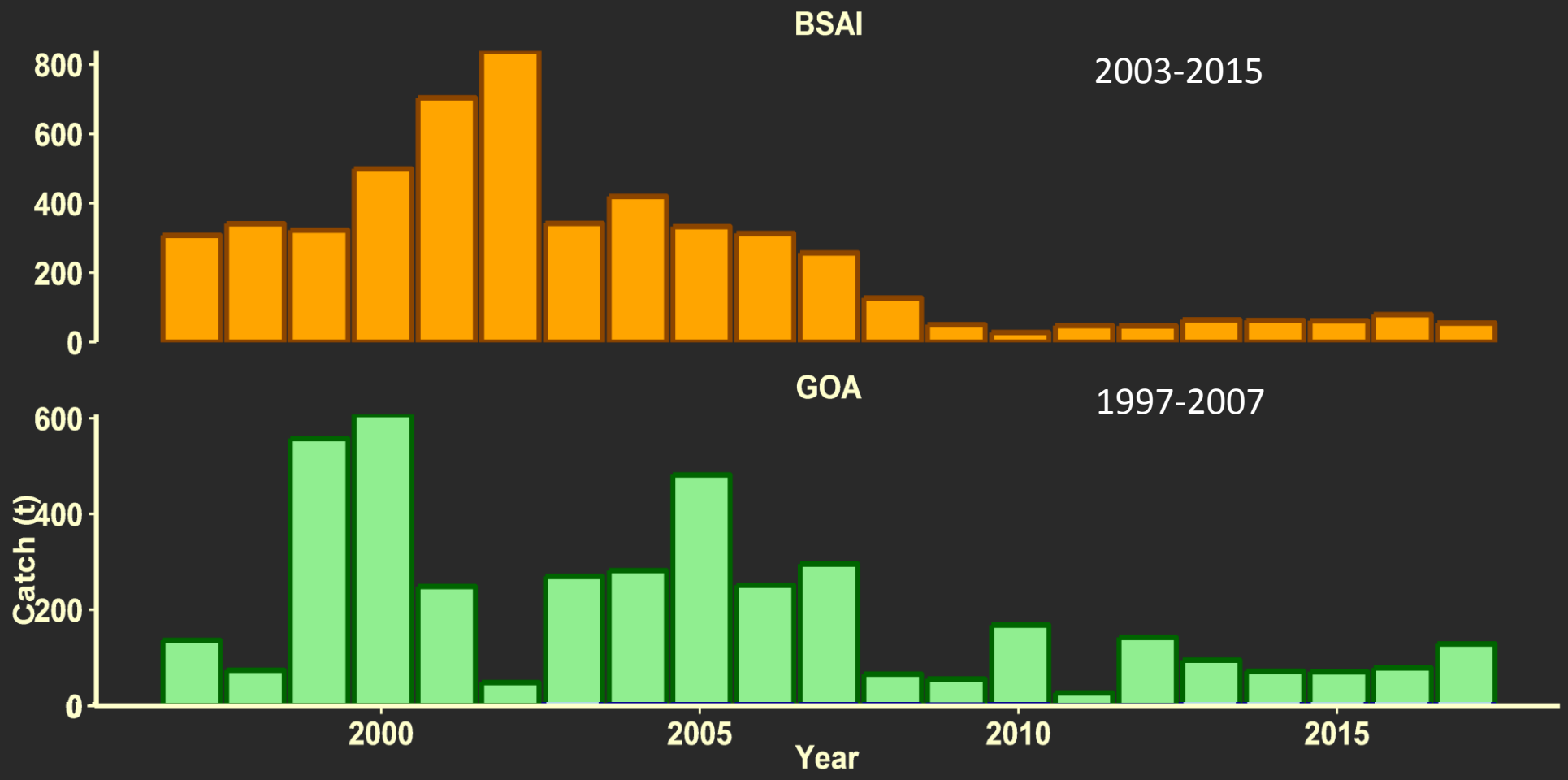
- CPUE higher in early 2000s
- CPUE declining or consistently close to zero in recent years

Pacific Sleeper Sharks

- Extremely data poor species
- Highly vulnerable to overfishing (Ormseth and Spencer 2011)
- Most susceptible to uncertainty in catch (Courtney……)
- Survey indices have been declining
- Catches have declined in BSAI, harder to determine in GOA

BSAI and GOA Catches

- Estimate catch weight used in assessment



Issues of Concern

- Declining catch
  - Survey
  - Fishery
- Accuracy of Catch
  - AVG weight
- Vulnerability

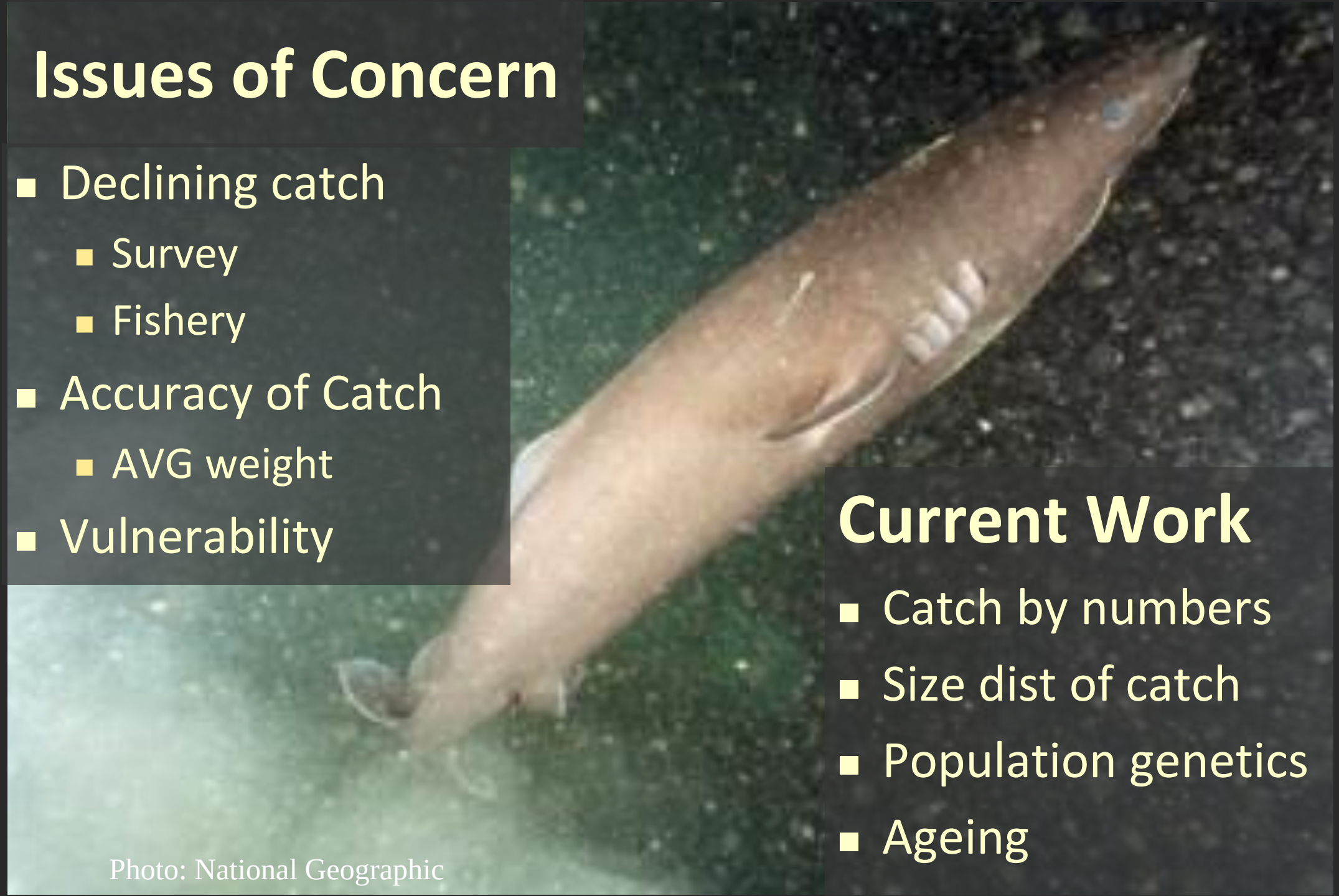


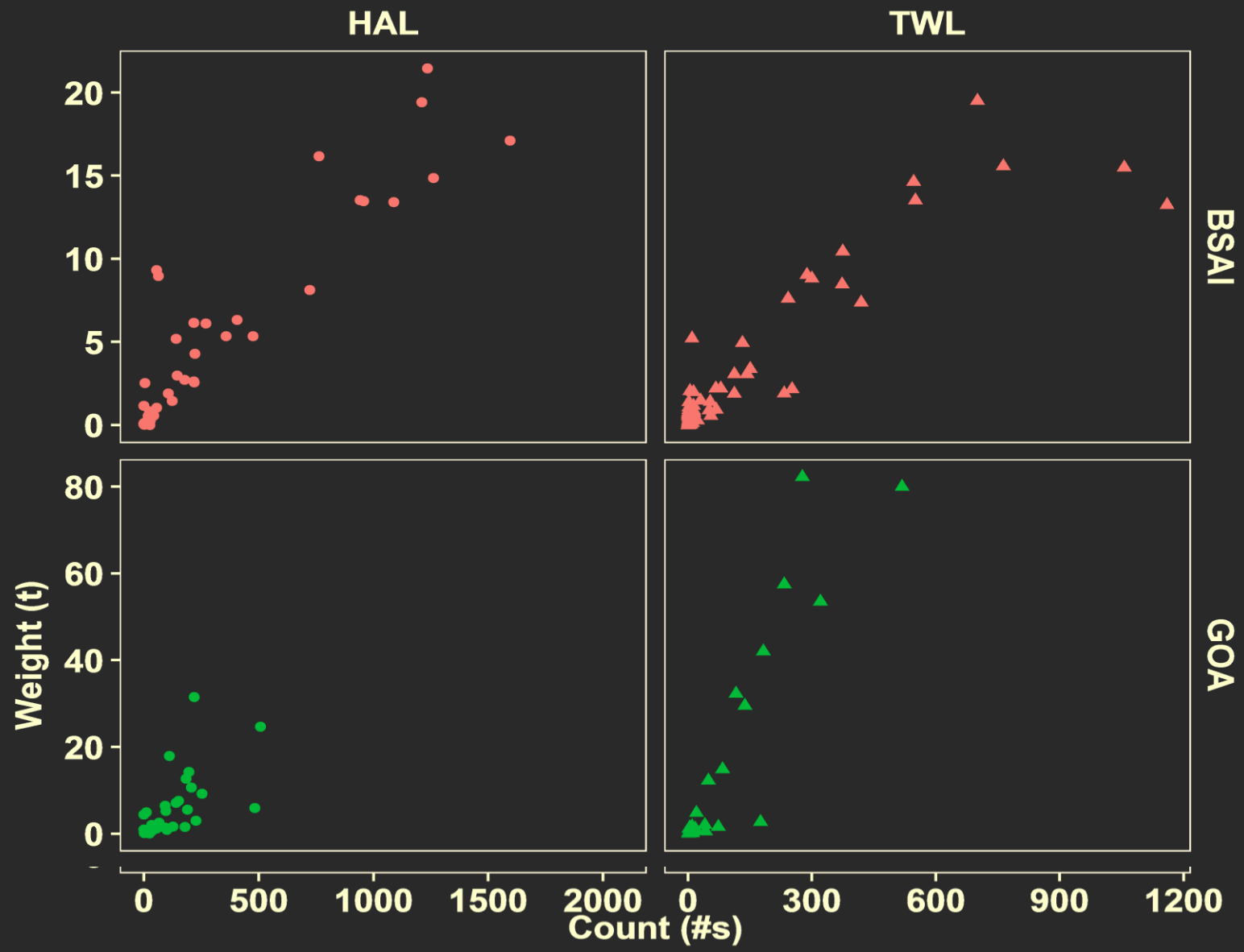
Photo: National Geographic

Current Work

- Catch by numbers
- Size dist of catch
- Population genetics
- Ageing

Catch by the Numbers (Preliminary)

- Comparison of estimated numbers of PSS caught with estimated weight
- Large numbers of small sharks in BSAI
  - Trawl and LL
- 2011-2017




It does happen….2002 Slope Survey……124 sharks in one haul
Photo: Josh Keaton

Catch by the Numbers

- Next steps
  - Continue examining catch numbers
  - CAS extend time series back to 2003
  - Are the mean weights representative of what is actually caught?

Photo: NWFSC

Accuracy of Mean Weight

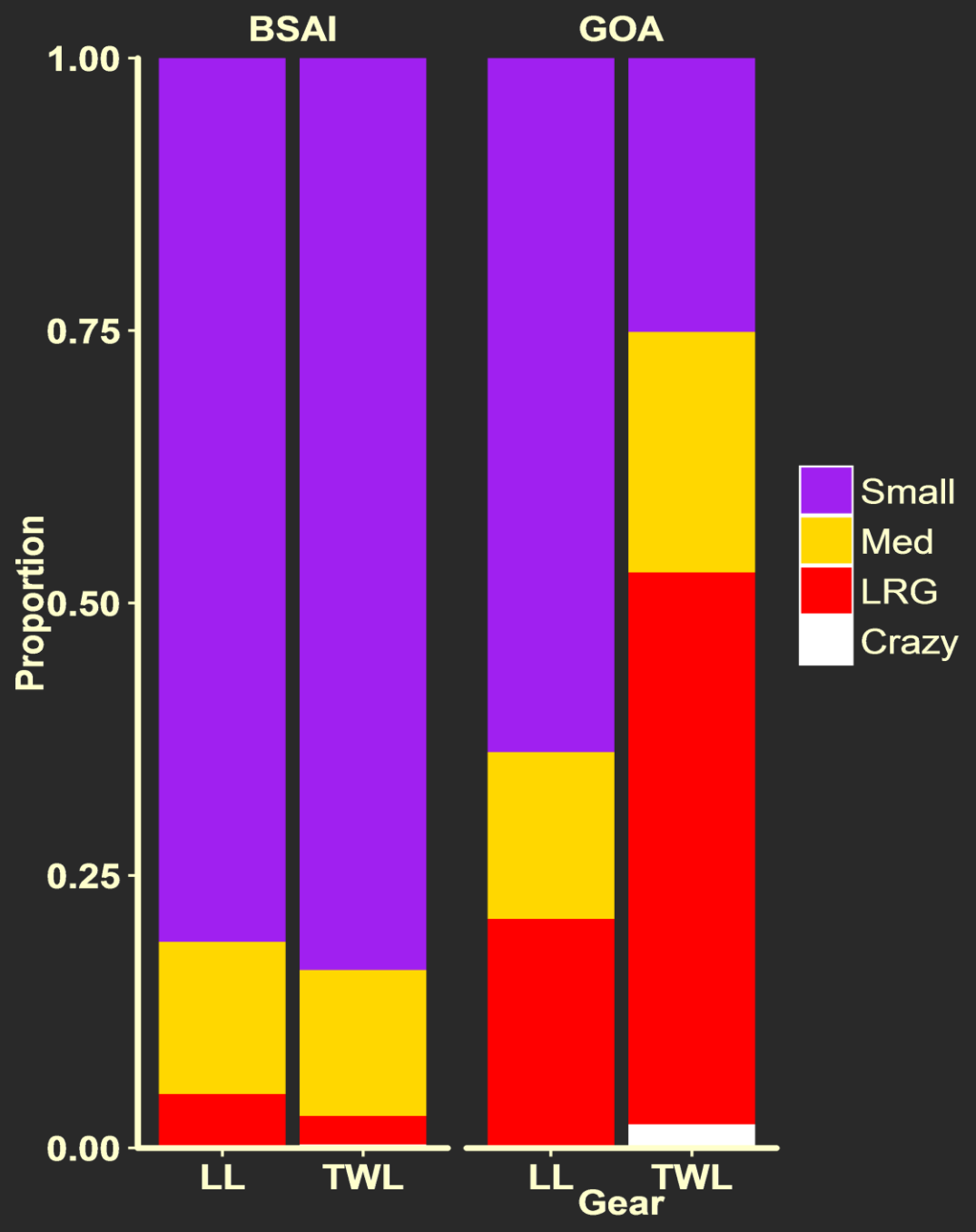
- Mean weight is used in CAS to estimate total catch
  - Likely accurate on trawl boats where L/W relationship can be used
  - LL boats are limited in what can be brought onboard and made available to observers

- OBS special project 2018 qualifying size of sleepers at the rail to compare to what is recorded
- Similar study planned for IPHC (need to apply)

Observed Weights

- Observed mean animal weight per haul

- Small: <50kg
- Med: 50-100
- LRG: 100-500
- Crazy: >500



Pacific Sleeper Sharks Genetics

- Preliminary results suggest small effective population size (need more samples!)
- 50 microsatellite markers, preliminary results indicate only 3 are variable, but low heterozygosity
- Sequence nuclear amplicons (RAG and ITS genes)
- Possibly RAD SEQ (new MiSEQ sequencer)
- Expect results for Sept 2018 PT meeting

Pacific Sleeper Shark Ageing

- All conventional methods have failed
- Collecting samples to try new methods (Infrared, radio carbon, etc.)
- Need staff time, money and samples

Photo: AFSC ABL

PT Discussion

- Author proposes bringing forth a stock structure document for Pacific sleeper sharks Sept 2018 – Joint PT
- PT support (and minutes reflect)
  - AKRO efforts #s
  - Genetics studies
  - Ageing explorations

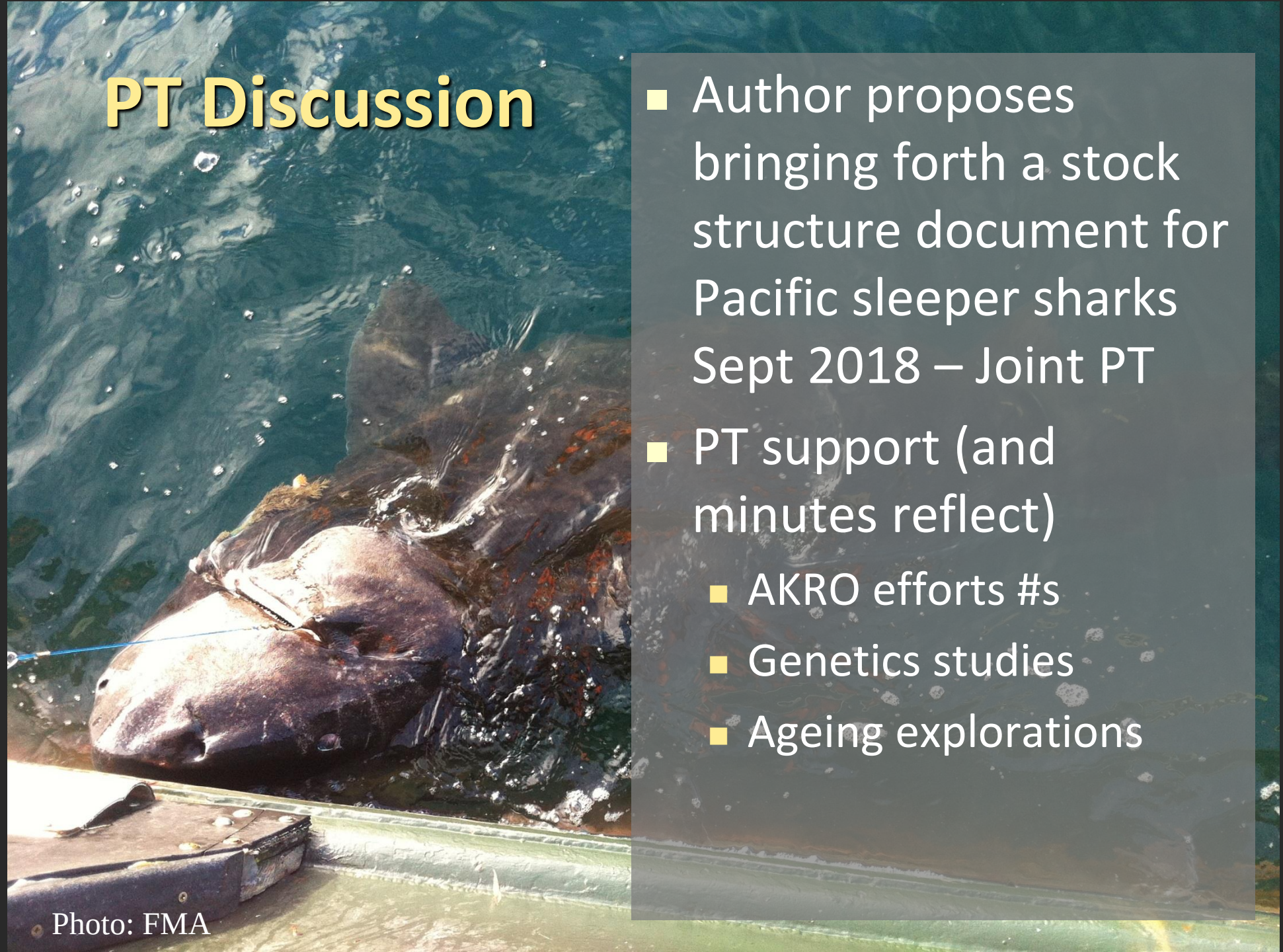


Photo: FMA

Questions???

Photo: IPHC