BSAI Shark Assessment

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Photo: IPHC

Responses to PT/SSC Comments

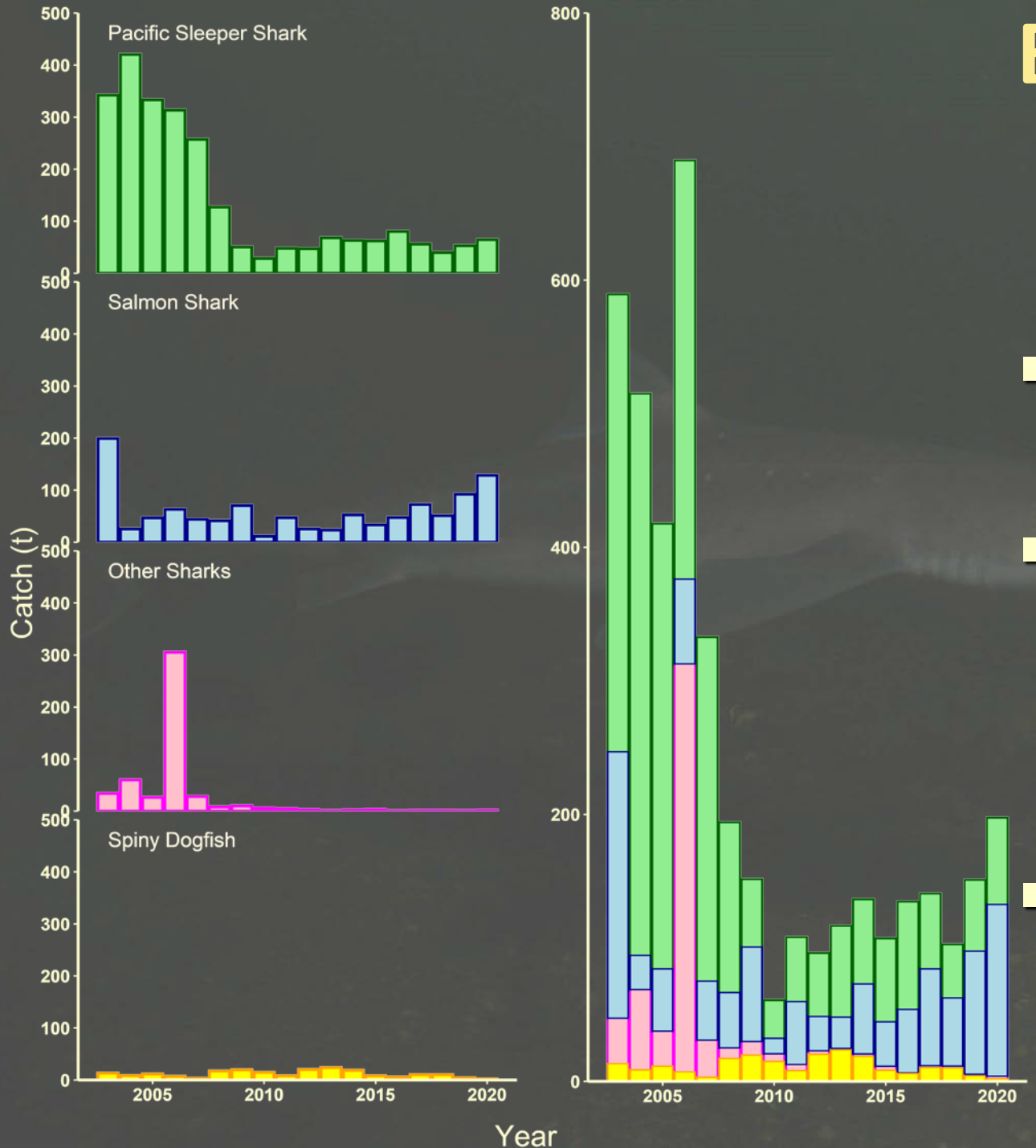
- Major comments (paraphrased):
  - Stock structure and genetics
    - Ongoing, >400 samples collected in prep for genomics
    - Stock structure doc pending genetics work
  - Catch by numbers
    - Updated 2010 - 2019, unlikely to get back to 2003
    - Analyses ongoing
  - Projects to estimate age and improve catch estimation
    - Pilot ageing study ongoing, proposal submitted to NPRB
  - Data-limited - ongoing

BSAI Sharks


Photo: Doug Perrine, dougperrine.photosshelter.com

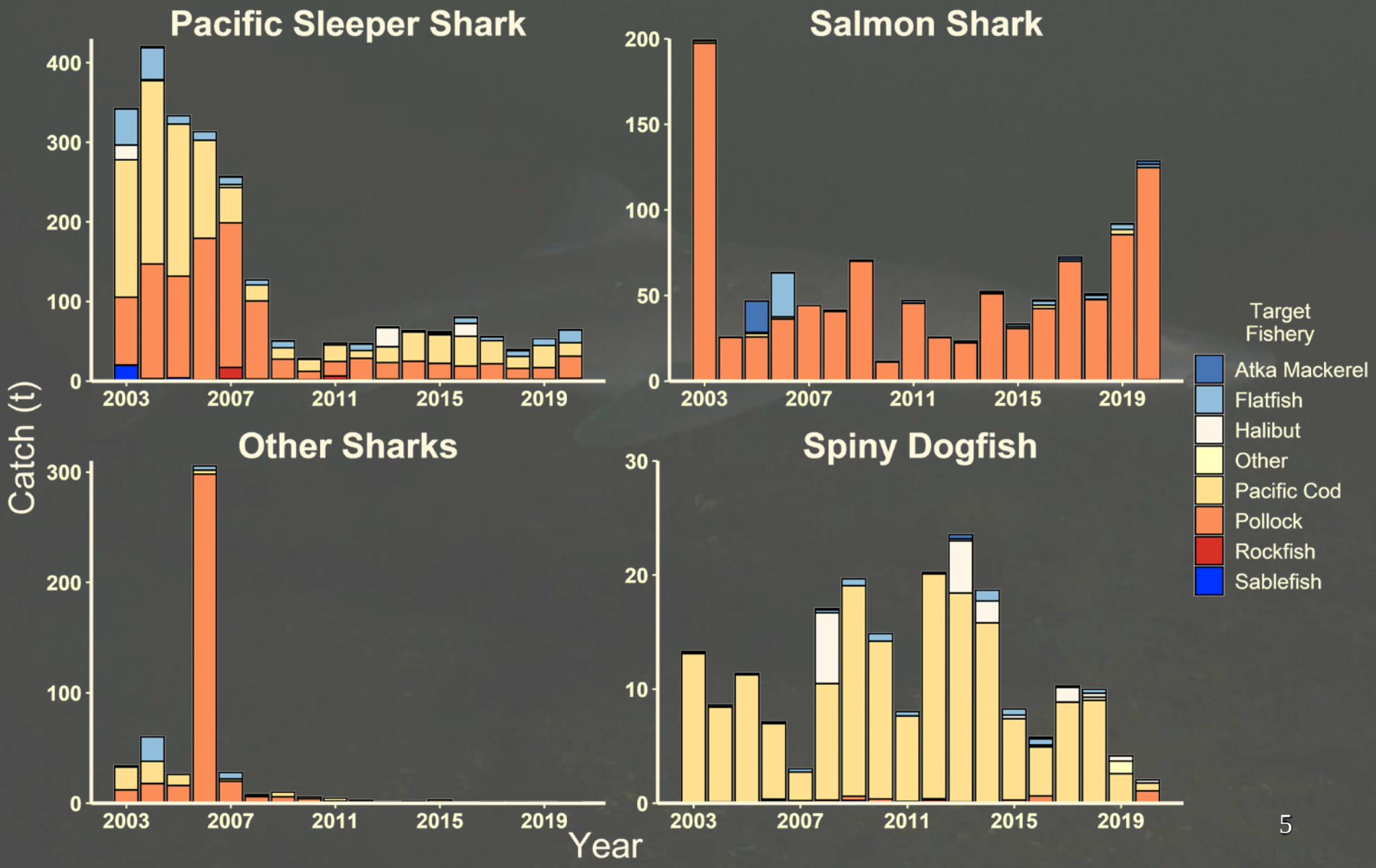
- Changes to input data:
  - Updated catch data for 2019 and 2020 (as of Oct 13, 2020)
  - Survey data updated
    - Biomass estimates from 2019 EBS shelf surveys
    - RPNs for 2019 IPHC longline survey
- No changes to assessment methodology

BSAI Shark Complex Catch

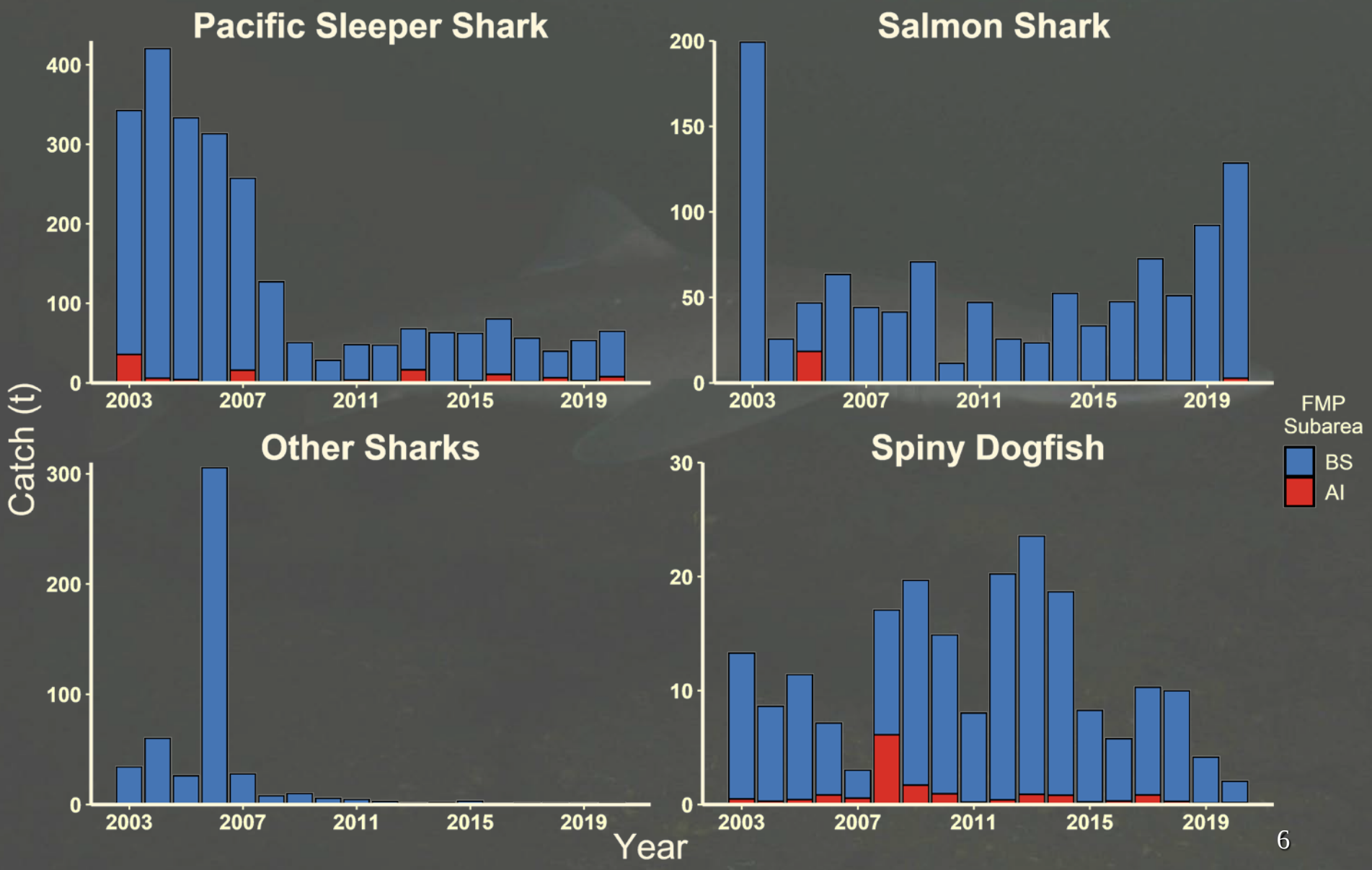


- Large salmon shark year
- Nearly all from PTR pollock fisheries
- PSS also from PTR pollock fisheries

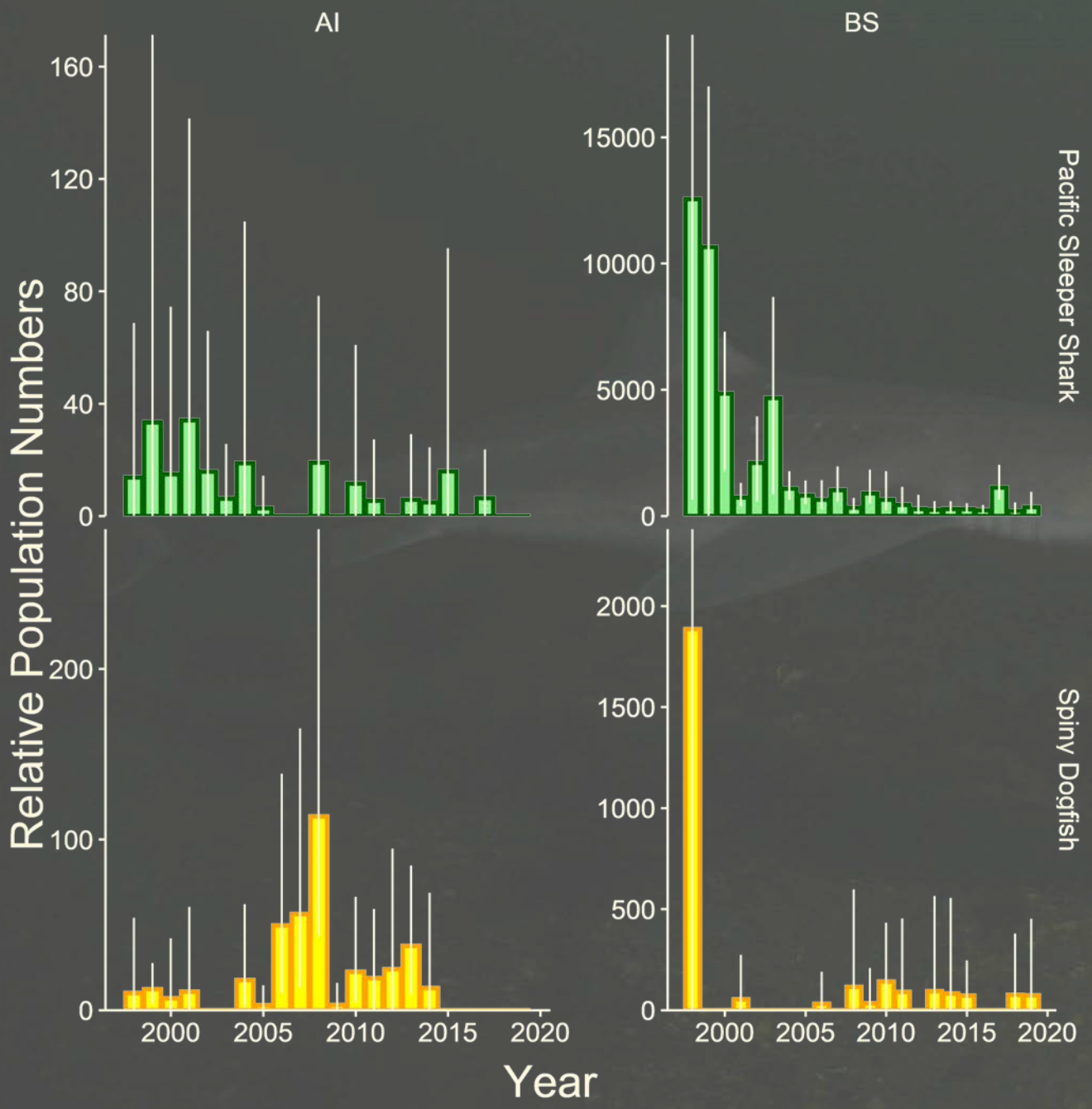
Catch by Target Group



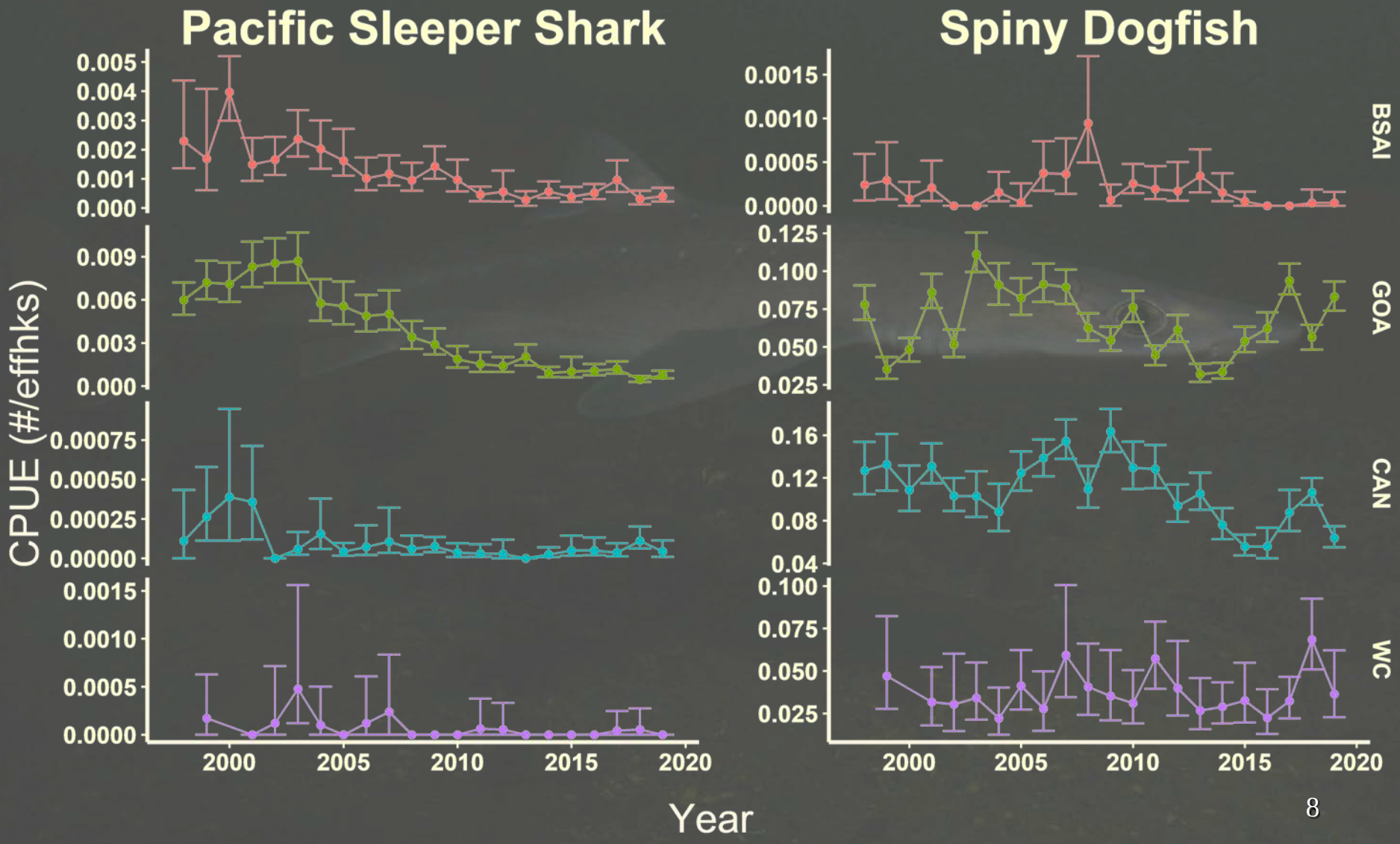
Catch by Area



IPHC RPNs


AI
BS
Pacific Sleeper Shark
Spiny Dogfish
Relative Population Numbers
Year
0
40
80
120
160
5000
10000
15000
100
200
500
1000
1500
2000
2000
2005
2010
2015
2020

IPHC Coastwide



ABC and OFL Recommendations

- ABC/OFL set for complex as a whole, not the sum of individual species
- All species are currently Tier 6 (Model 16.0)

ABC and OFL Recommendations

Quantity	As estimated or specified last year for: 2020	2021	As estimated or recommended this year for: 2021	2022
Tier	6	6	6	6
OFL (t)	689	689	**689**	689
maxABC (t)	517	517	517	517
ABC (t)	517	517	**517**	517
Status	As determined last year for: 2018	2019	As determined this year for: 2019	2020
Overfishing	No	n/a	No	n/a

Risk Table

- Assessment – related considerations
  - Tier 6 model does not incorporate any biology or trend information
  - Sharks are low productivity species, potentially highly vulnerable
  - Catch scalar methods are high risk

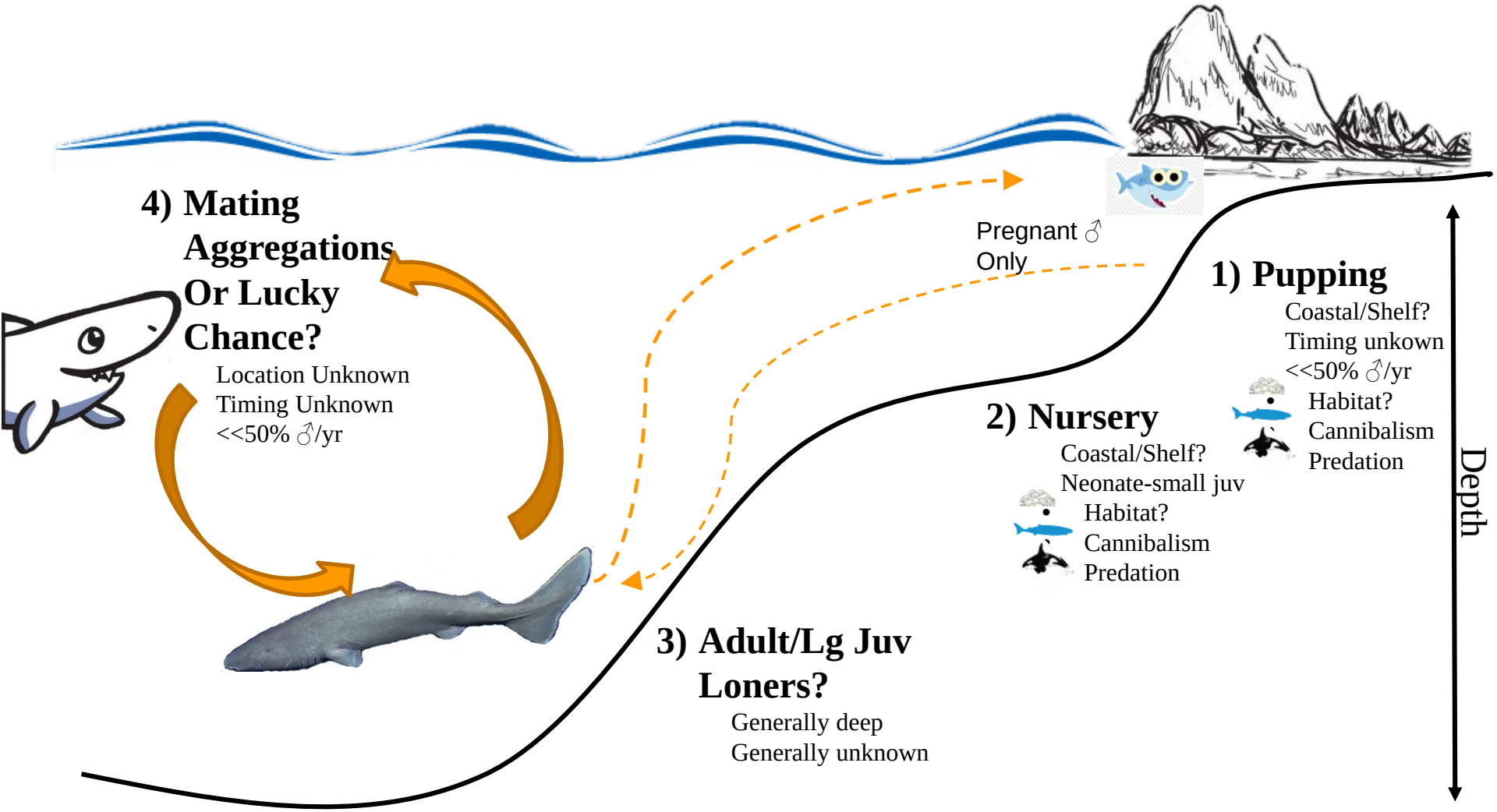
Assessment-related considerations
Level 2: Substantially increased concerns

Risk Table

- Population dynamics considerations
  - Pacific sleeper shark indices trending downward, or remaining at low levels
  - Unclear if current levels are “low”, or if the peaks in the early years were unusual

Assessment-related considerations	*Population dynamics considerations*
Level 2: Substantially increased concerns	Level 2: Substantially increased concerns

Why are we worried about these trends?



Risk Table

- Environmental/Ecosystem considerations (Bridget Ferris, Ivonne Ortiz and Ellen Martinson)
  - Foraging conditions considered average
  - Prey availability may shift as a result of climate, however, sharks can prey switch easily
  - All species are highly mobile and can move to and avoid temperatures as needed
  - No clear linkages

Assessment-related considerations	*Population dynamics considerations*	*Environmental/ ecosystem considerations*
Level 2: Substantially increased concerns	Level 2: Substantially increased concerns	Level 1: no increased concerns

Risk Table

- Fishery performance considerations
  - Non-targeted, discarded species
  - Mean catch per trip
    - Pacific sleeper shark generally flat, declining in NPT pollock since 2016
    - Salmon shark increasing since 2010 in PTR pollock fisheries
  - Shark catch has not limited other fisheries

Assessment-related considerations	*Population dynamics considerations*	*Environmental/ ecosystem considerations*	*Fishery performance considerations*
Level 2: Substantially increased concerns	Level 2: Substantially increased concerns	Level 1: no increased concerns	Level 1: no increased concerns

Risk Table

- Unclear how to score a complex when different species score differently
- Do not recommend any ABC reductions at this time
- A number of projects ongoing to inform on these categories and improve assessments
  - Ageing, improving catch estimates, genetics and stock structure, tagging, data-limited methods

Assessment-related considerations	*Population dynamics considerations*	*Environmental/ ecosystem considerations*	*Fishery performance considerations*
Level 2: Substantially increased concerns	Level 2: Substantially increased concerns	Level 1: no increased concerns	Level 1: no increased concerns

Questions so far???

Photo: RACE Survey Team