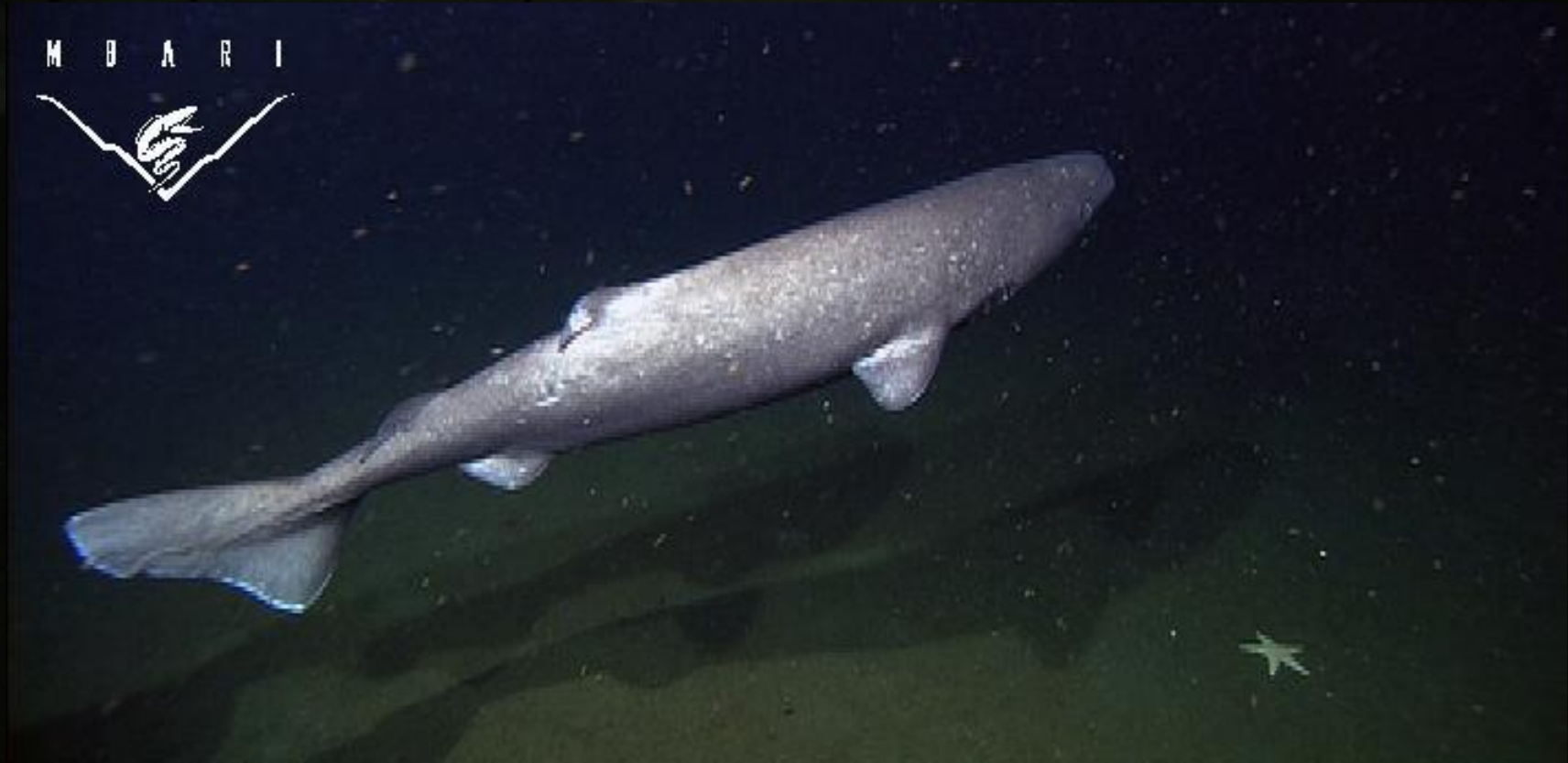# Shark Assessments – Pacific Sleeper Sharks

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Photo: IPHC

# Pacific Sleeper Shark Assessment

- Research updates

- Data-limited assessment plans for the future

- Observer special project preliminary results

- Catch estimation challenges

M B A R I

Research Update

- Genetics
  - Microsatellite paper in internal review
    - 6 variable, 2 highly variable
    - Comparatively low variability
  - Close Kin Mark Recapture
    - All samples prior to summer 2018 run on NEW MiSeq!!!
    - Tons O' data that genetics folks are figuring out
 - Should have results for Stock Structure for the next assessment
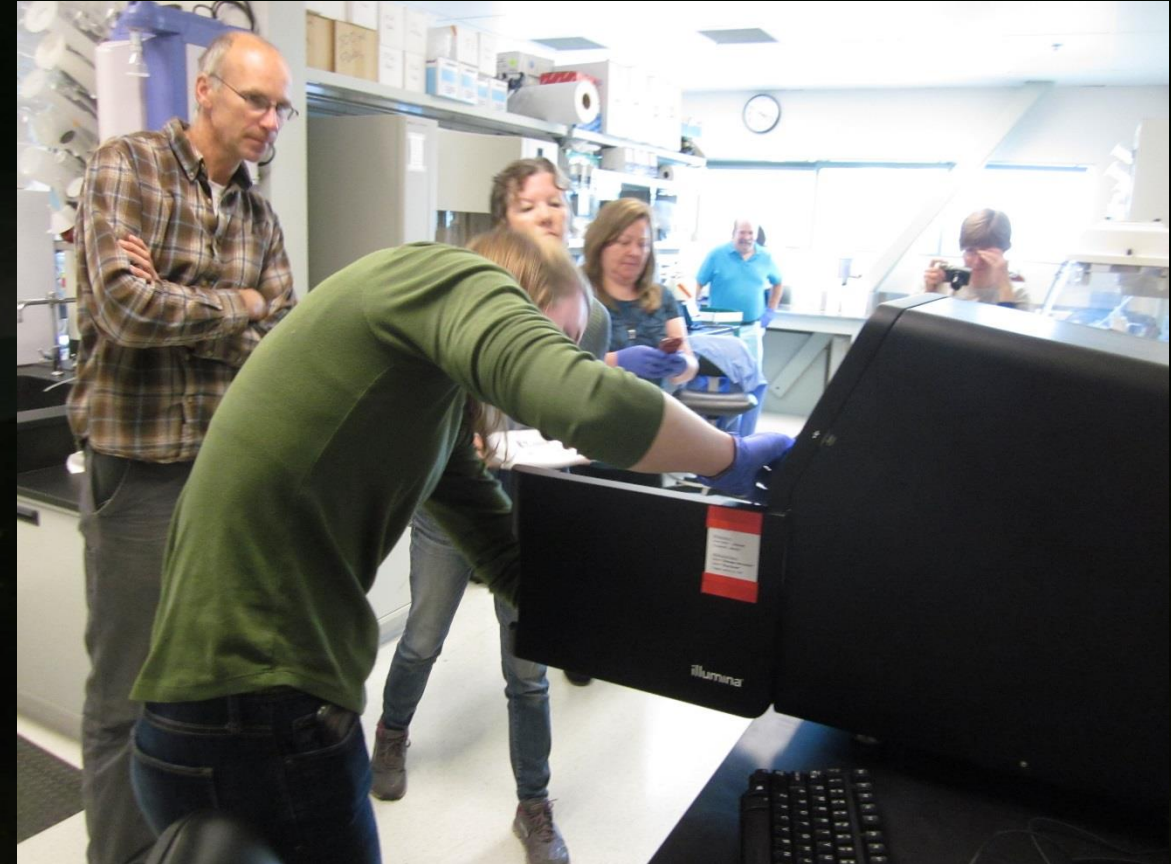
Research Update

- Ageing
  - Greenland shark study
    - Eye lens 14C
    - Estimated max age of 292 years
    - Numerous concerns over validity of method
  - Pilot study began
    - Samples prepared for C14 analysis
    - Expect results within 2 months
  - Proposals to fund graduate student to expand physiological and biochemical examination
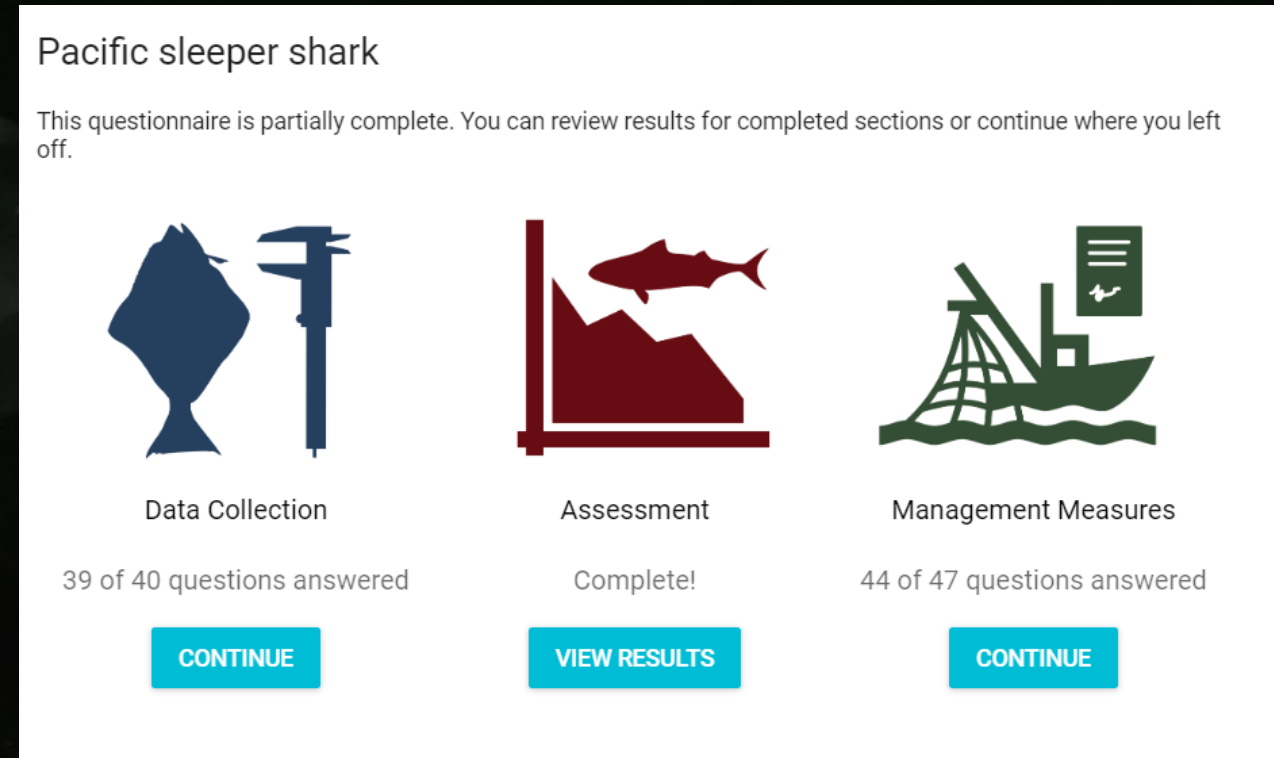
Research Update

- Spatial analysis
  - AKRO staff project
  - Examining space/time, depth, temperature, etc.
- Discard mortality
  - UAF leading project
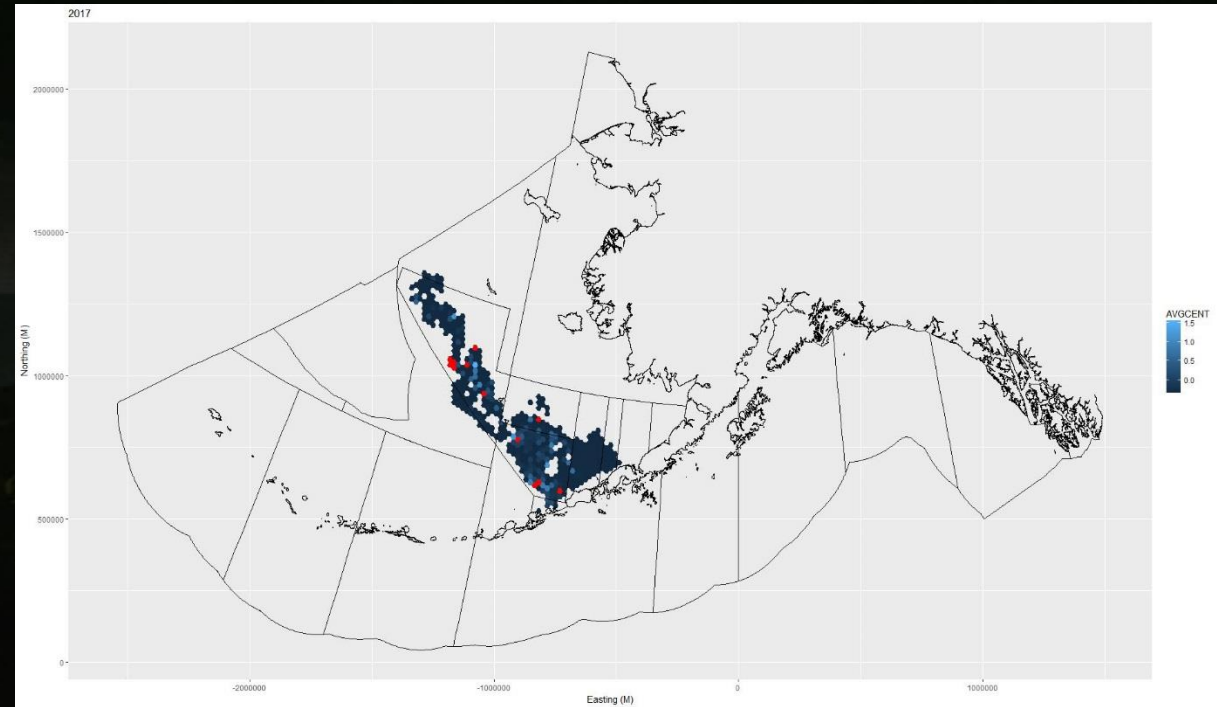
Research Update

- Data Limited Methods
  - FishPath
  - Computationally simple
  - About a dozen potential models
  - Lots of quirks and caveats to work through
  - AFSC project to look at all data-limited assessments

Pacific sleeper shark

This questionnaire is partially complete. You can review results for completed sections or continue where you left off.

| Data Collection	Assessment	Management Measures
39 of 40 questions answered	Complete!	44 of 47 questions answered
CONTINUE	VIEW RESULTS	CONTINUE

2018 Observer Special Project

- Observers on LL vessels were instructed to classify observed PSS as small, medium or large

- Data from 28 PSS have been returned

- Most medium and large sharks are being underestimated

Shark_ID	Obs_size	Obs_wt	NORPAC_meanwt
1	L	>287	101.586667
2	L	>287	12.52
3	L	>287	13.35
4	L	>287	7.7
5	M	50-287	12.781429
6	M	50-287	12.355
7	M	50-287	15.783333
8	M	50-287	12.782
9	M	50-287	7.21
10	M	50-287	15.783333
11	M	50-287	6.274
12	M	50-287	6.274
13	M	50-287	6.274
14	M	50-287	7.5
15	S	<50	15.636667
16	S	<50	9.776667
17	S	<50	12.78
18	S	<50	9.663333
19	S	<50	15.635556
20	S	<50	14.1675
21	S	<50	16.876667
22	S	<50	15.883333
23	S	<50	5.95
24	S	<50	15.635
25	S	<50	15.783333
26	S	<50	15.636667
27	S	<50	16.083333
28	S	<50	15.635556

Catch by the Numbers

- Total catch: estimated numbers vs. estimated weight
- Large numbers of small sharks in BSAI
  - Trawl and LL
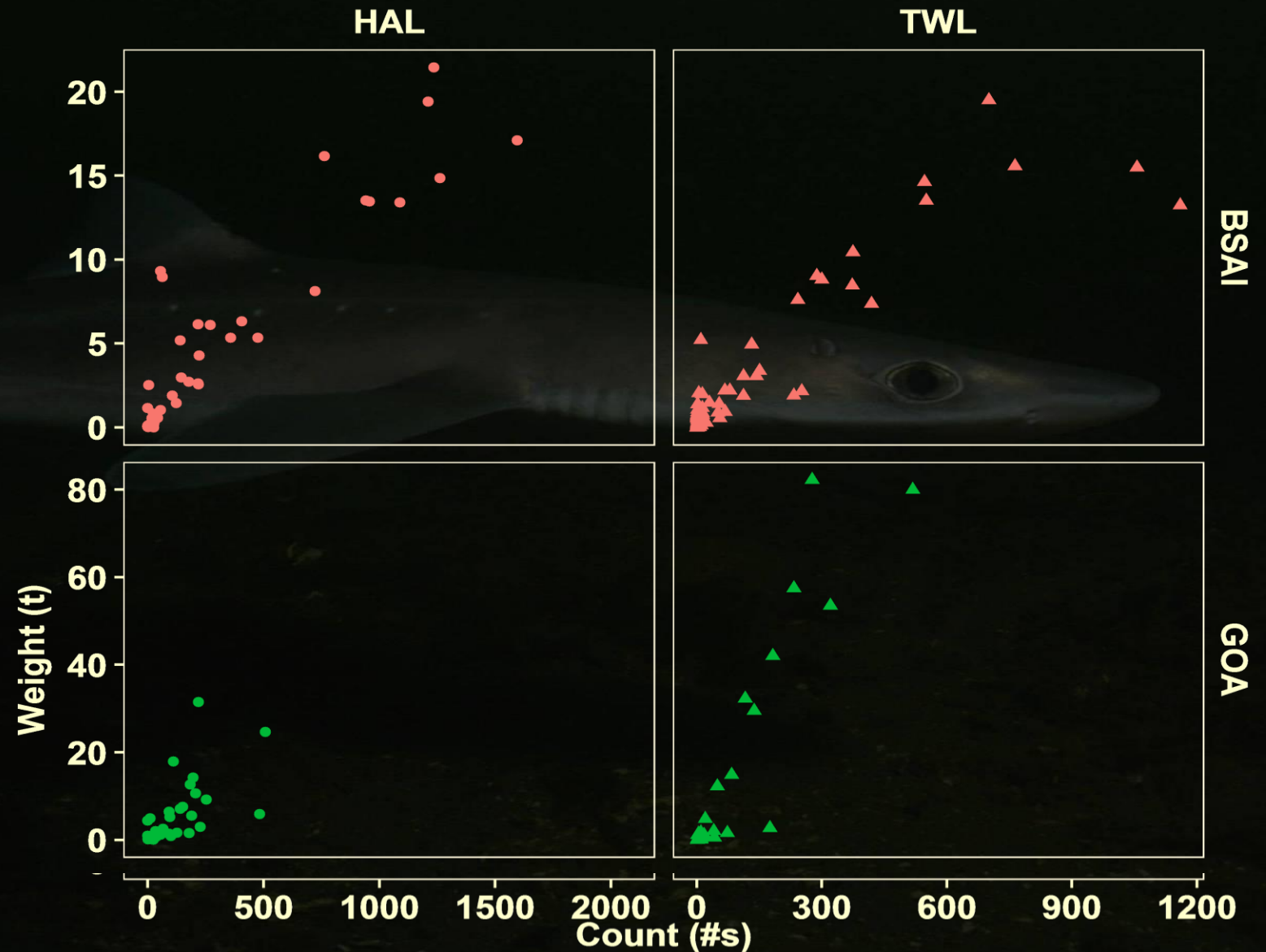- Catch by weight can mask large numbers
- Concern for megafauna
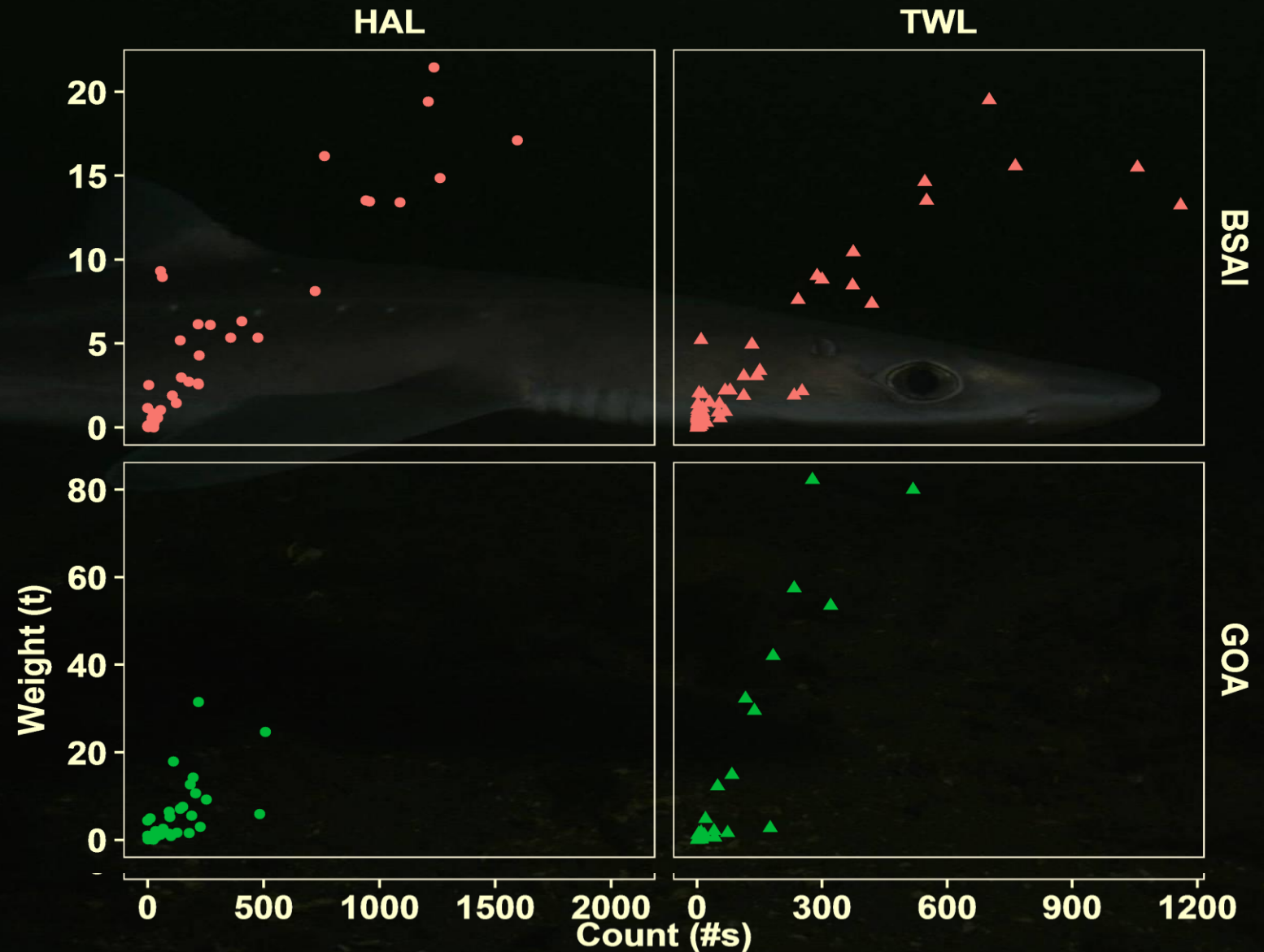
Catch by the Numbers

- Current issues
  - Time series is short
  - CAS was different prior to 2011
 - Labor/time intensive

How do we improve catch estimates?

- Data are suggesting that LL catch estimates are biased low

- Can not fully evaluate catch by numbers without more years

- Need to work with AKRO staff to evaluate utility and extend time series
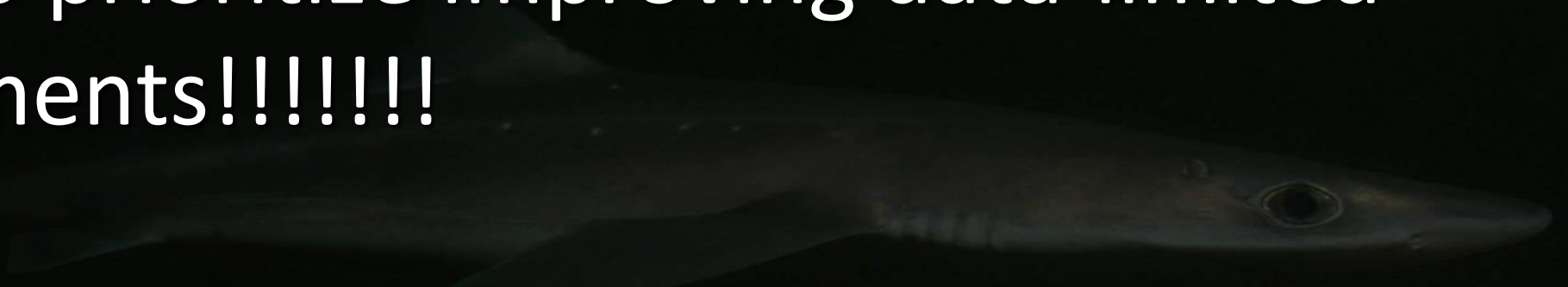
- Low priority for AKRO

How do we improve catch estimates?

- Investigate alternatives for mean weight in NORPAC
  - Maybe size bins
  - Need to work with FMA staff
  - Low priority for FMA
- Are there biological concerns with catching large numbers of small sharks?
  - Compare to how HMS assesses/manages large, highly vulnerable sharks
  - Is managing catch by numbers a viable option?
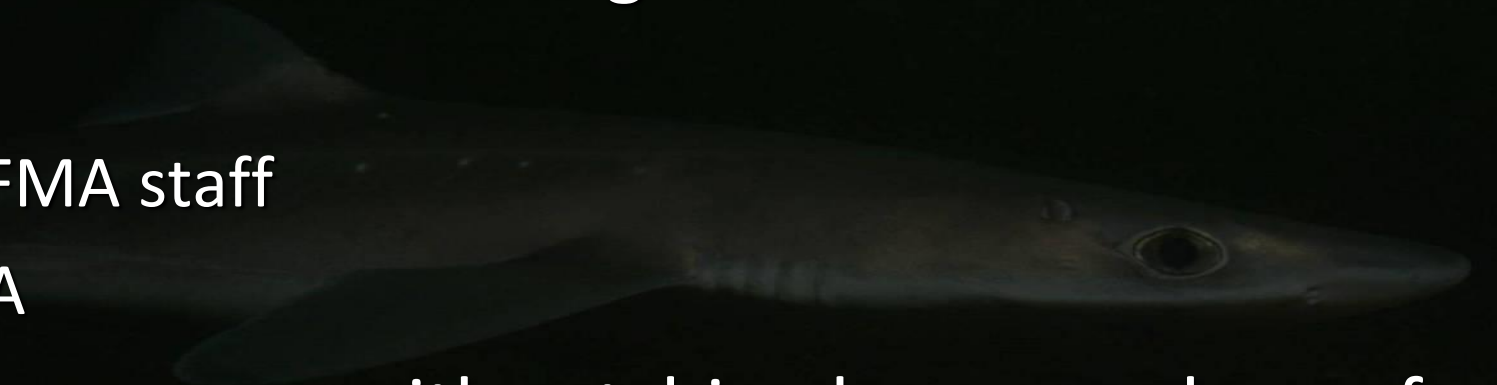
How do we improve catch estimates?

- Need to prioritize improving data-limited assessments!!!!!!!

- NEED dedicated time with AKRO and FMA
  - How do I get that help?
  - Both groups are busy, and we've put this in PT minutes in the past

Questions???

Photo: IPHC