

AFSC Stock Assessment Prioritization

Alaska Fisheries Science Center Staff
Chris Lunsford and Melissa Haltuch



NOAA
FISHERIES

Outline

Review 2017 stock assessment prioritization

Define assessment types

Recommend stocks for reduced frequency



NOAA
FISHERIES

Stock Assessment Prioritization

Initiated in 2017

Intent is to balance assessment frequency with need to reduce workload

2017 10 groundfish stocks and 4 crab stocks

2022 five year review of 2017 decisions

2023 bringing 13 additional stocks forward for reduced frequency



SSC October 2022 Recommendations

Frequency 1) use 2017 exercise, 2) catch/ABC and % change in ABC, 3) projected to realized ABC, 4) stock specific considerations

Develop definitions for assessment types and level of review needed

Recommend when an assessment is to be conducted and what type

Stock Assessment Definitions: Purpose and Need

In the past, assessment types have not been formally defined and definitions have been used inconsistently

Explicitly define the types of stock assessment products used by the NPFMC

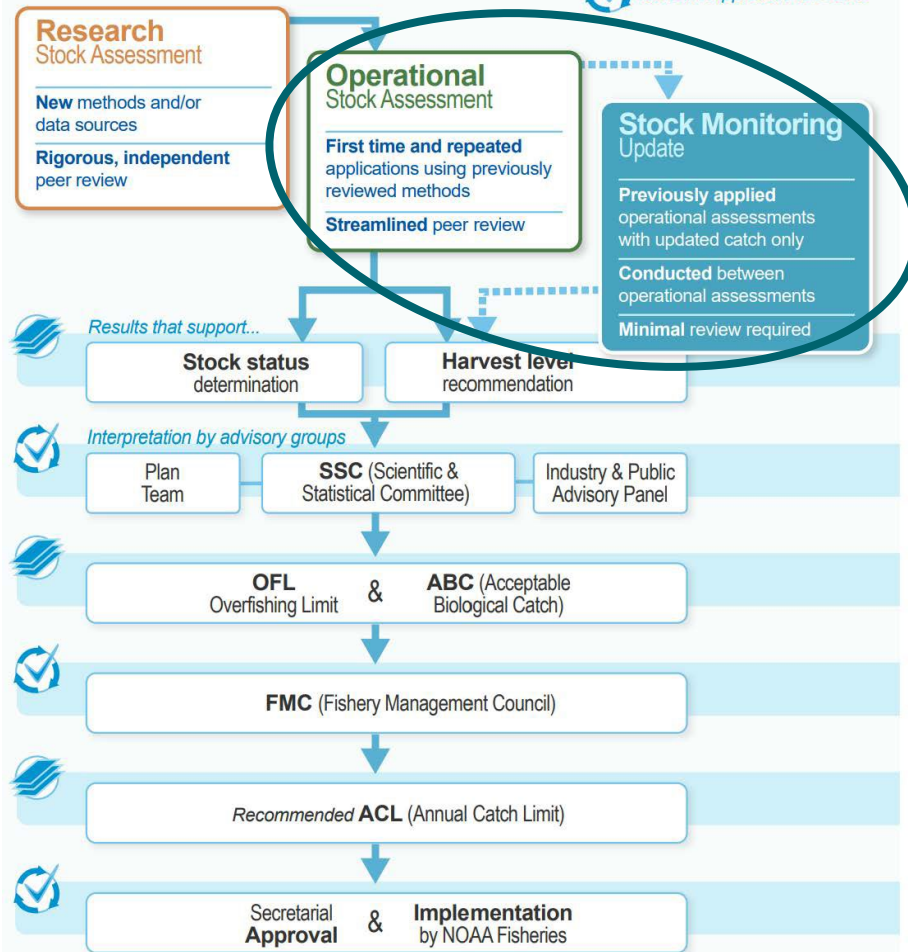
Demonstrate how the NPFMC assessment types translate to national stock assessment definitions
(NGSAIP, 2018)



NOAA Fisheries Next Generation Stock Assessment to Management Process

 Products

 Review / Approval Processes



**NOAA
FISHERIES**

NGSAIP and NPFMC

Research assessments not part of NPFMC

Operational assessments category too broad

Operational “full” is current NPFMC process – referred to as full/benchmark previously

Operational “update” is new proposed category – referred to as update

Benchmark may be confusing, clarify that the focus is on stock assessment products for NPFMC process



**NOAA
FISHERIES**

Benchmark Assessment

previously referred to as “full / benchmark assessments”

Considers all available data and multiple model configurations or new modeling platforms

Including any new unreviewed data sources not considered in previous assessments

Examples of model processes or inputs explored

Functional form of selectivity curves

Priors, parameterizations of treatment of life history processes

Aggregation or inclusion of datasets



Update Assessment

previously referred to as “full assessments”

For assessments with few outstanding and/or minor modeling or data issues and relatively stable results with new data

Maintains the approved model structure of the previous benchmark, with the addition of updated data

Correction of data entry errors or inclusion of additional historical data

Software version updates (with comparison between versions)

Limited minor model changes addressing Plan Team / SSC recommendations



Partial Catch Projection Assessment

previously referred to as “partial assessments”

Applies to age-or-length structured models that estimate stock status and project ABCs and OFLs (Tiers 1-3)

Stock projections updated with recent catch data

Tiers 4-5 -no projection model

Include catch/biomass ratios, and re-running the random effects model only if there is a new survey data point available



Catch Monitoring Update

previously referred to as “nothing”

Ensure sudden fishery or stock changes are not missed during years without other stock assessment products

Tabulates recent fishery removals to ensure they are below specified annual catch limits (ACLs and ABCs)

Applies to Tiers 4 to 6 groundfish stocks

NGSAIP - stock monitoring update



Assessment Definitions (In the document)

Benchmark Assessment

Update Assessment

Partial Catch Projection Assessment

Catch Monitoring Update



**NOAA
FISHERIES**

Assessment Definitions (After Plan Team/SSC)

Assessment Type	Reporting requirements	Summary of contents
Operational Full	GPT/SSC full documentation and rigorous review in Sept/Oct and Nov/Dec	Evaluate model structure or other model inputs and new data streams, provide diagnostics, fully document entire assessment
Operational Update	GPT/SSC abbreviated documents and light review in Nov/Dec	Update data time series, provide diagnostics, reference last full assessment
Partial Catch Projection	GPT/SSC executive summary document and minimal review in Nov/Dec	Recalculate harvest recommendations using catch data projections (Tier 1-3), update RE model (Tier 4/5)
Catch Monitoring Update	GPT/SSC summary table for monitoring in Nov/Dec	Provide updated catch



NOAA
FISHERIES

Updated SAFE Guidelines

Following adoption of new definitions for stock assessment products, the AFSC will work closely with authors to revise and update the SAFE Guidelines

Revised SAFE Guidelines for NPFMC review in September and October 2023



Assessment scheduling

Following adoption of new frequencies the AFSC will set a predetermined schedule of 1-4 year assessments as was done in 2017

Frequency schedules for planned assessments can be revised based on concerns regarding assessment model, stock status, or fishery performance

Deciding when an upcoming assessment is requested as a benchmark or an update will be established



Clarifications

What are we reducing the frequency of?

Operational full and update assessment products

Why?

Increase focus on the full assessments

Implement a team approach

Thoroughly address Plan Team and SSC recommendations between full assessments

Increase time to complete research targeted at improving our assessments



NOAA
FISHERIES

Clarifications

What happens in an out of cycle year without a full or update assessment?

Either catch projections or a catch monitoring update

Every year for all stocks will have abbreviated assessment or monitoring product available

Catch projections will capture both recent catches and their expected impacts on stock size and status

Benefits of prioritization

Council efficiencies

Reduce review burden

Focus and align effort on priorities

AFSC efficiencies

Increase capacity to respond to the unexpected

Reduce redundancy by streamlining update assessments



NOAA
FISHERIES

Pause for Discussion



NOAA
FISHERIES

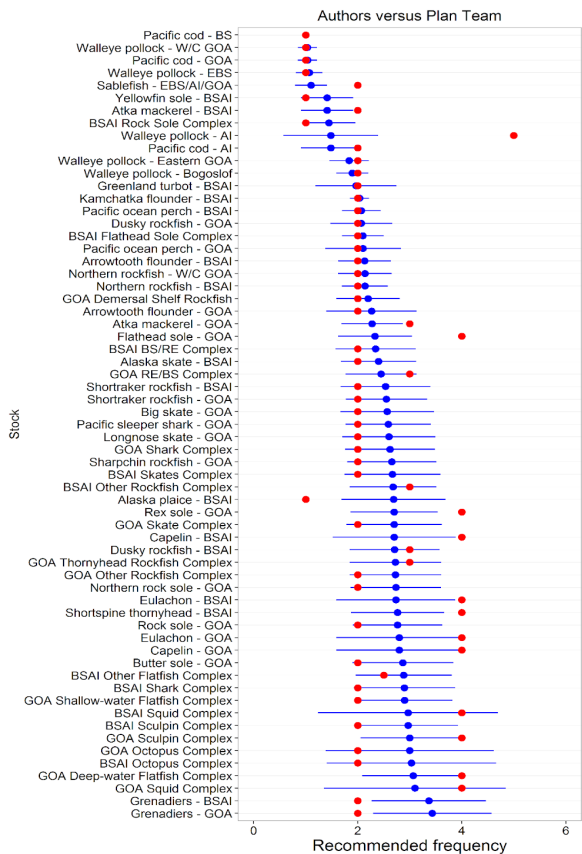
Stocks recommended for reduced frequency

Review 2017 analysis

Provide metrics: catch/ABC, and % change in ABC, projected to realized ABC

Consider stock specific considerations

Stocks recommended for reduced frequency

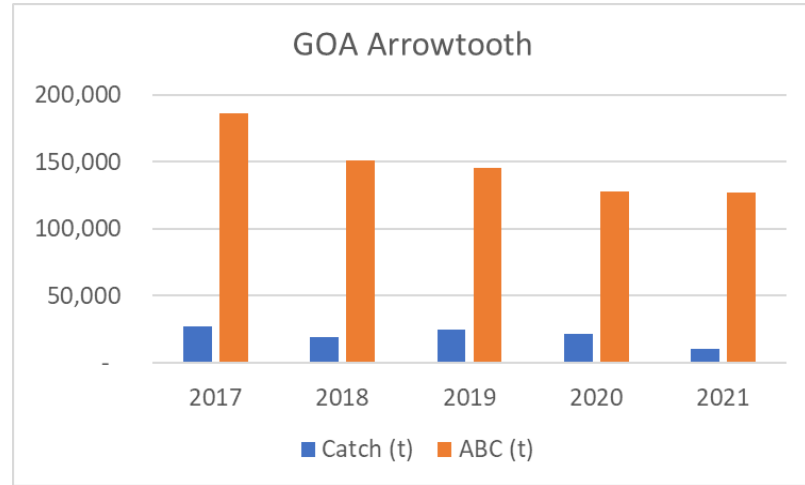
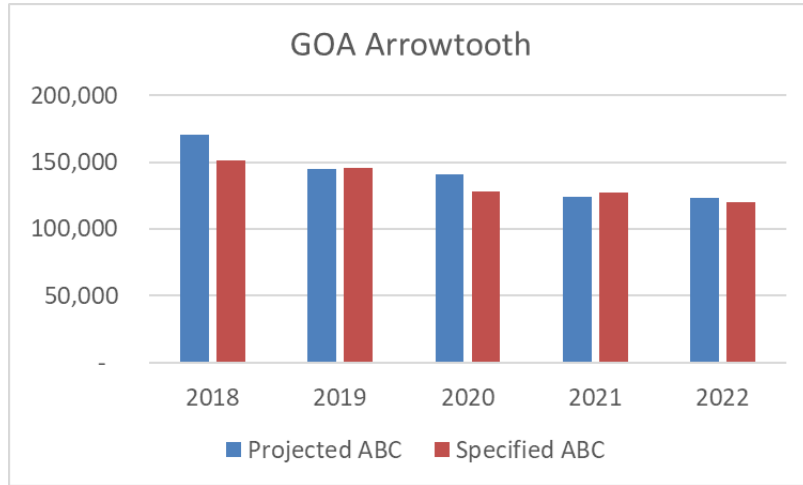


2017 analysis – authors and Plan Team members as individuals generally favored less frequent assessments compared to those adopted by Council



NOAA
FISHERIES

Stocks recommended for reduced frequency



Metrics suggested by SSC: comparisons of catch/ABC and Projected ABC/realized ABC

Stocks recommended for reduced frequency

Stock	Tier	Current Frequency	Proposed Frequency	2017-2020 ex-vessel value (millions)*	2017-2021 avg catch	2017-2021 avg ABC	2017-2021 catch/ABC	2017-2021 average annual change in ABC	2017- 2021 Projected ABC/ 2018-2022 ABC average absolute percent difference
GOA Atka mackerel	6	2	4	n/a	1063	4700	23%	0%	n/a
GOA Octopus	6	2	4	n/a	182	1,758	10%	0%	n/a
BSAI Octopus	6	2	4	n/a	340	3576	10%	0%	n/a
GOA shark	5/6	2	4	n/a	2089	5830	36%	41%	n/a
BSAI Shark	6	2	4	n/a	187	517	36%	0%	n/a
GOA Arrowtooth flounder	3	2	4	4.1	20,411	147,582	14%	6%	5%
BSAI Alaska plaice	3	2	4	n/a	18404	33489	55%	3%	4%
BSAI Flathead sole	3	2	4	\$4.99	11130	66475	17%	4%	5%
BSAI Arrowtooth flounder	3	2	4	\$3.69	8888	70189	13%	5%	3%
BSAI Atka mackerel	3	1	2	\$43.01	62508	78278	80%	12%	13%
AI Pacific cod	5	1	2	n/a	18404	20960	88%	1%	n/a
BSAI Northern rock sole	1	2	4	\$12.84	25893	142141	18%	21%	7%
BSAI Yellowfin sole	1	1	2	\$53.61	127,073	275,179	46%	9%	11%



NOAA
FISHERIES

Tier 6 stocks

Stocks: GOA Atka mackerel, GOA octopus, BSAI octopus, BSAI shark

Rationale: Catch history based management, catch recommendations have been constant, no target fishery, no assessment model used, risk of overfishing low

Frequency: 2 year to 4 year

Tier 5/6 stocks

Stock: GOA sharks

Rationale: Catch history based management, catch recommendations have been constant, no target fishery, no assessment model used, risk of overfishing low

Tier 5 is spiny dogfish, catch/ABC is 36%, Year 3 partial would update RE model

Frequency: 2 year to 4 year



Tier 3 flatfish stocks

Stocks: GOA ATF, BSAI AK plaice, BSAI flathead sole, BSAI ATF,

Rationale: Commercial value low to moderate, catch/ABC ratio low, annual change in ABC low, difference between projected and realized ABC low, risk of overfishing is low

Frequency: 2 year to 4 year

Tier 1 stocks

Stocks: BSAI northern rock sole

Rationale: catch/ABC is low (18%), average annual change in ABC low (21%), projected to realized ABC ratio low (7%), risk of exceeding OFL low

Frequency: 2 year to 4 year

Tier 1 stocks

Stocks: BSAI yellowfin sole

Rationale: catch/ABC is moderate (46%), average annual change in ABC low (9%), projected to realized ABC ratio low (11%), risk of exceeding OFL low, responses to changing climate can be monitored on a two year frequency

Frequency: 1 year to 2 year

Aligning stocks and survey frequency (Tiers 3,5)

Stocks: BSAI Atka mackerel, AI Pacific cod

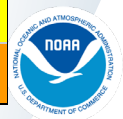
Rationale: AI trawl survey is only survey used, no requirement from Steller sea lion BIOP, risk of exceeding OFL low

Frequency: 1 year to 2 year

Stocks recommended for reduced frequency

Plan Team Decisions

Stock	Tier	Current Frequency	Proposed Frequency	2017-2020 ex-vessel value (millions)*	2017-2021 avg catch	2017-2021 avg ABC	2017-2021 catch/ABC	2017-2021 average annual change in ABC	2017- 2021 Projected ABC/ 2018-2022 ABC average absolute percent difference
GOA Atka mackerel	6	2	4	n/a	1063	4700	23%	0%	n/a
GOA Octopus	6	2	4	n/a	182	1,758	10%	0%	n/a
BSAI Octopus	6	2	4	n/a	340	3576	10%	0%	n/a
GOA shark	5/6	2	4	n/a	2089	5830	36%	41%	n/a
BSAI Shark	6	2	4	n/a	187	517	36%	0%	n/a
GOA Arrowtooth flounder	3	2	4	4.1	20,411	147,582	14%	6%	5%
BSAI Alaska plaice	3	2	4	n/a	18404	33489	55%	3%	4%
BSAI Flathead sole	3	2	4	\$4.99	11130	66475	17%	4%	5%
BSAI Arrowtooth flounder	3	2	4	\$3.69	8888	70189	13%	5%	3%
BSAI Atka mackerel	3	1	2	\$43.01	62508	78278	80%	12%	13%
AI Pacific cod	5	1	2	n/a	18404	20960	88%	1%	n/a
BSAI Northern rock sole	1	2	4	\$12.84	25893	142141	18%	21%	7%
BSAI Yellowfin sole	1	1	2	\$53.61	127,073	275,179	46%	9%	11%



NOAA
FISHERIES

Candidate stocks for reduced frequency assessments.

Stock	Tier	Current Frequency (years)	AFSC Proposed Frequency (years)	PT Proposed Frequency (years)	SSC Proposed Frequency (years)
BSAI Atka mackerel	3	1	2	2	2
GOA Atka mackerel	6	2	4	4	4
BSAI Flathead sole	3	2	4	4	4
GOA Octopus	6	2	4	4	4
BSAI Octopus	6	2	4	4	4
GOA shark	5/6	2	4	4	4
BSAI Shark	6	2	4	4	4
BSAI Arrowtooth flounder	3	2	4	4	4
GOA Arrowtooth flounder	3	2	4	4	4
BSAI Alaska plaice	3	2	4	4	4
BSAI Northern rock sole	1	2	4	2	2
BSAI Yellowfin sole	1	1	2	2	1
AI Pacific cod	5	1	2	1	2