Stock Assessment Prioritization

Plan Team Recommendations

Joint Groundfish Plan Teams

Crab Plan Team

Special Meeting of the Joint Groundfish Plan Teams

- Jan 11-12, 2017
- AFSC, Seattle, WA
- Participation
  - **Plan Teams:** Grant Thompson, Dana Hanselman, Jon Heifetz, Patrick Lynch, Kirstin Holsman, Cindy Tribuzio, Chris Lunsford, Allan Hicks, Paul Spencer, Obren Davis, Mary Furuness, Jim Armstrong, Sandra Lowe, Diana Stram, Jim Ianelli; *Via WebEx:* Chris Siddon, Ben Williams, Jan Rumble
  - **Other:** Kristan Blackhart, Steve Barbeaux, Carey McGilliard, Ron Felthoven, Anne Hollowed, Liz Connors, Olav Ormseth, Martin Dorn, Ingrid Spies; *Via WebEx:* Kalei Shotwell, Tom Wilderbuer

Local Application of SAPP (*Hollowed et al. DP*)

- Multivariate weighting scheme
- Five Themes
  - Fishery Importance
  - Stock Status
  - Ecosystem Importance
  - Assessment Information
  - Biology
- 63 stocks
- Five Scenarios (product of alternative weighting)

Table 1. Example of Stock Assessment Prioritization Ranking (Methot 2015).

Category	Factor	Source	Scores	Potential Weight Range
Fishery Importance	Commercial	Calculated as in Equation 1	0-5	0-40
	Recreational	Expert opinion	0-5	0-40
	Subsistence	Expert opinion	0-5	0-20
	Rebuilding Status	National database	0-1	0-20
	Constituent Demand	Expert opinion	0-5	5-25
	Non-catch Value	Expert opinion	0-5	0-20
Stock Status	Stock Abundance	SSB/SSB_{MSY}	1-5	5-25
	Fishing Mortality	F/F_{MSY}	1-5	5-25
Ecosystem	Role in Ecosystem	Expert opinion; maximum of bottom-up and top-down components	0-5	0-20
Assessment Factors	Unexpected Changes in Stock Indicators	Expert opinion, where indicators are available	0-5	5-25
	New Type of Information	Expert opinion	0-5	5-25
	Years Assessment is Overdue	Calculated based on target frequency	0-10	10-30

$$stock\ x = \frac{log10(1 + revenue\ from\ stock\ x)}{log10(1 + revenue\ from\ highest\ value\ regional\ stock)} * 5$$

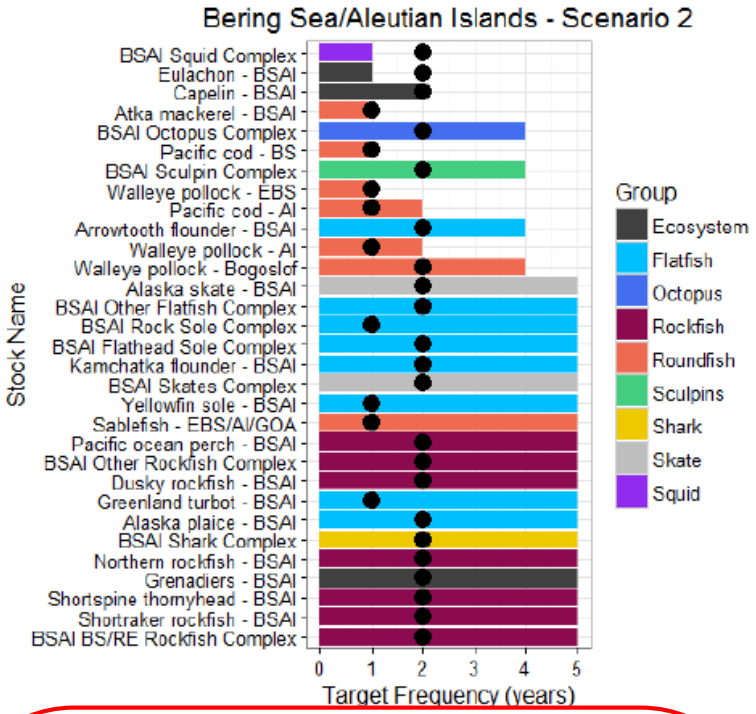
Target Frequency based on mean age and assimilation of other factors

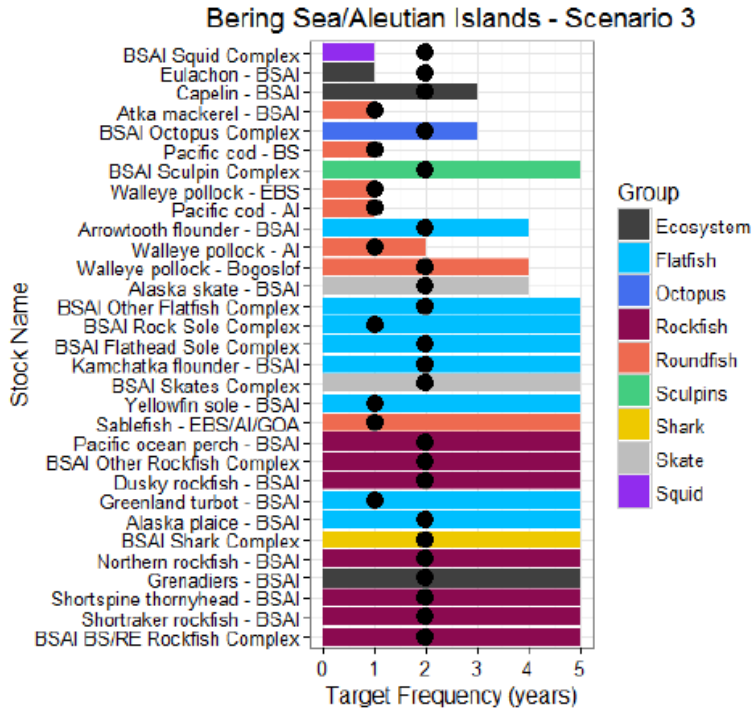
Scenarios

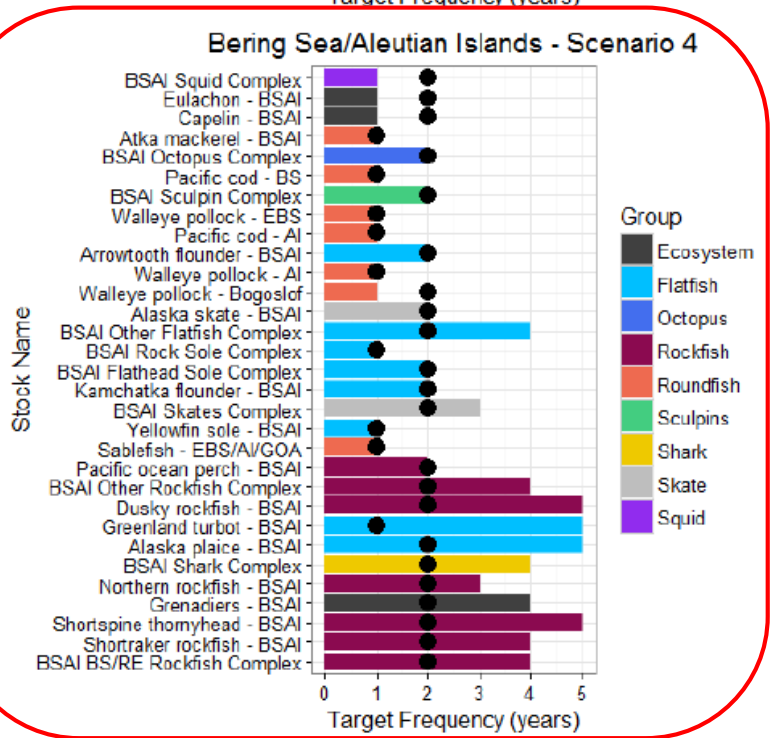
- S1 – Base case application of SAPP
- S2 – Constrained minimum to 5 years
- S3 – S2 with increased weight on “Fishery Importance”
- S4 – S2 with high value fisheries fixed at annual freq.
- S5 – S3 and S4 combined

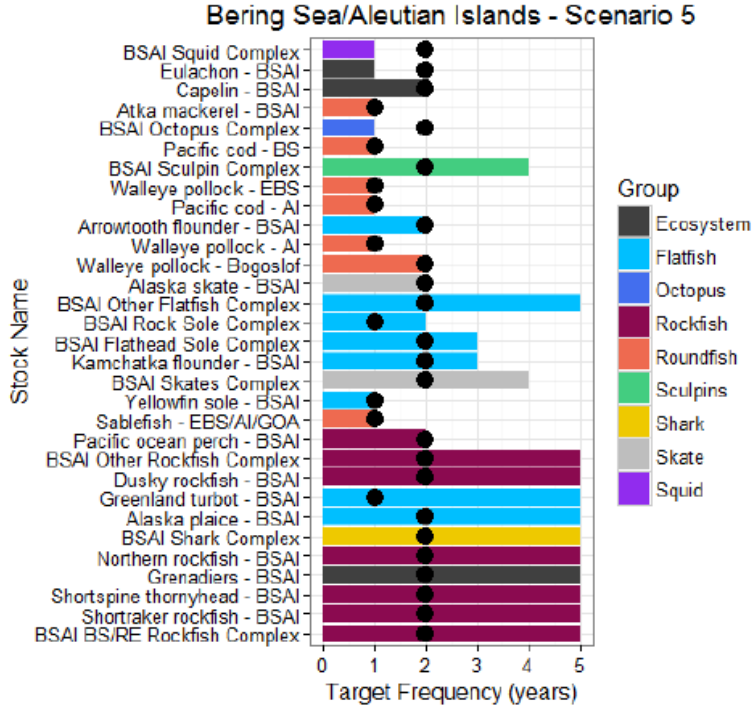
Scenarios

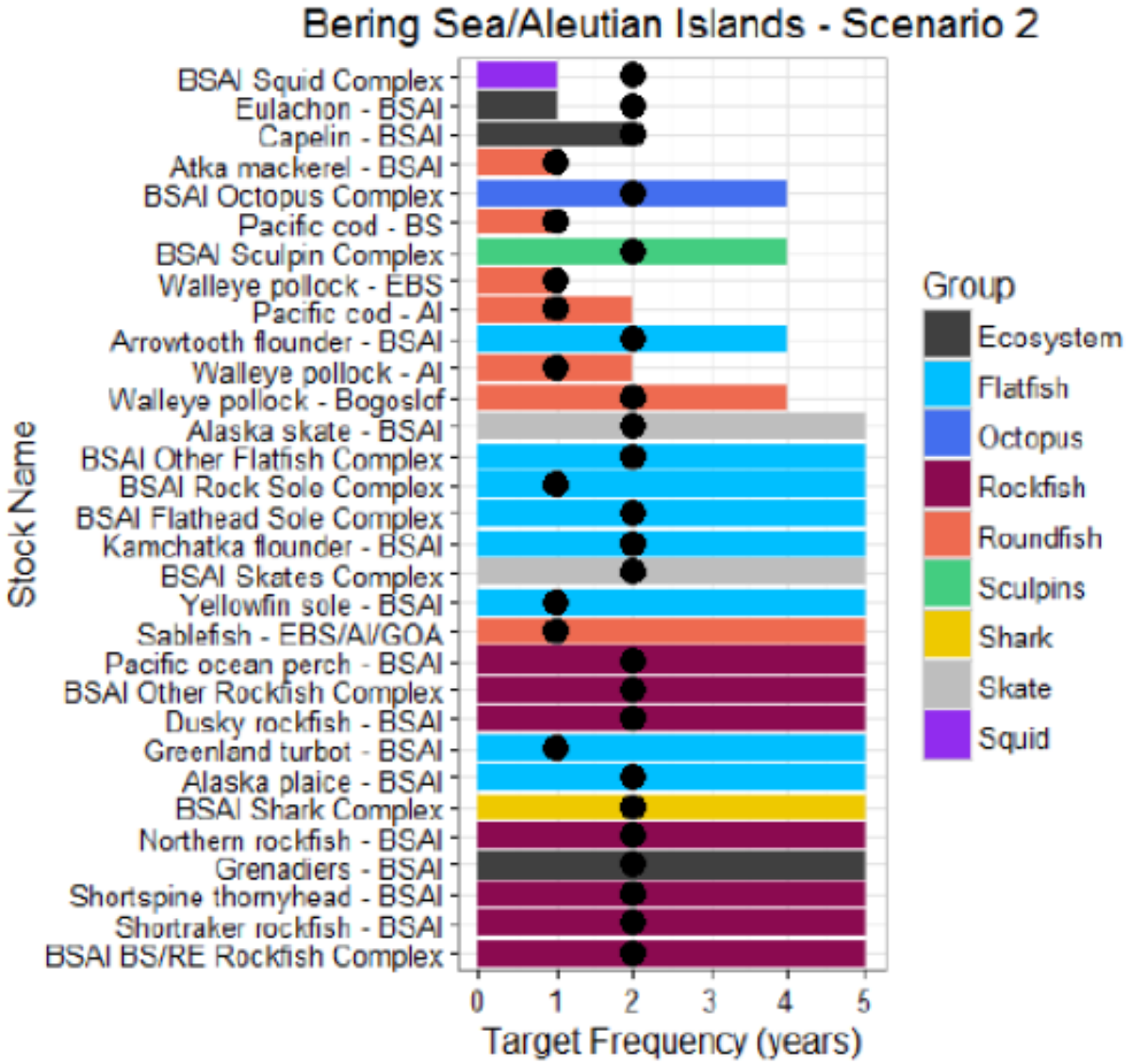
- S1 – Base case application of SAPP
- S2 – Constrained minimum to 5 years
- S3 – S2 with increased weight on “Fishery Importance”
- S4 – S2 with high value fisheries fixed at annual freq.
- S5 – S3 and S4 combined

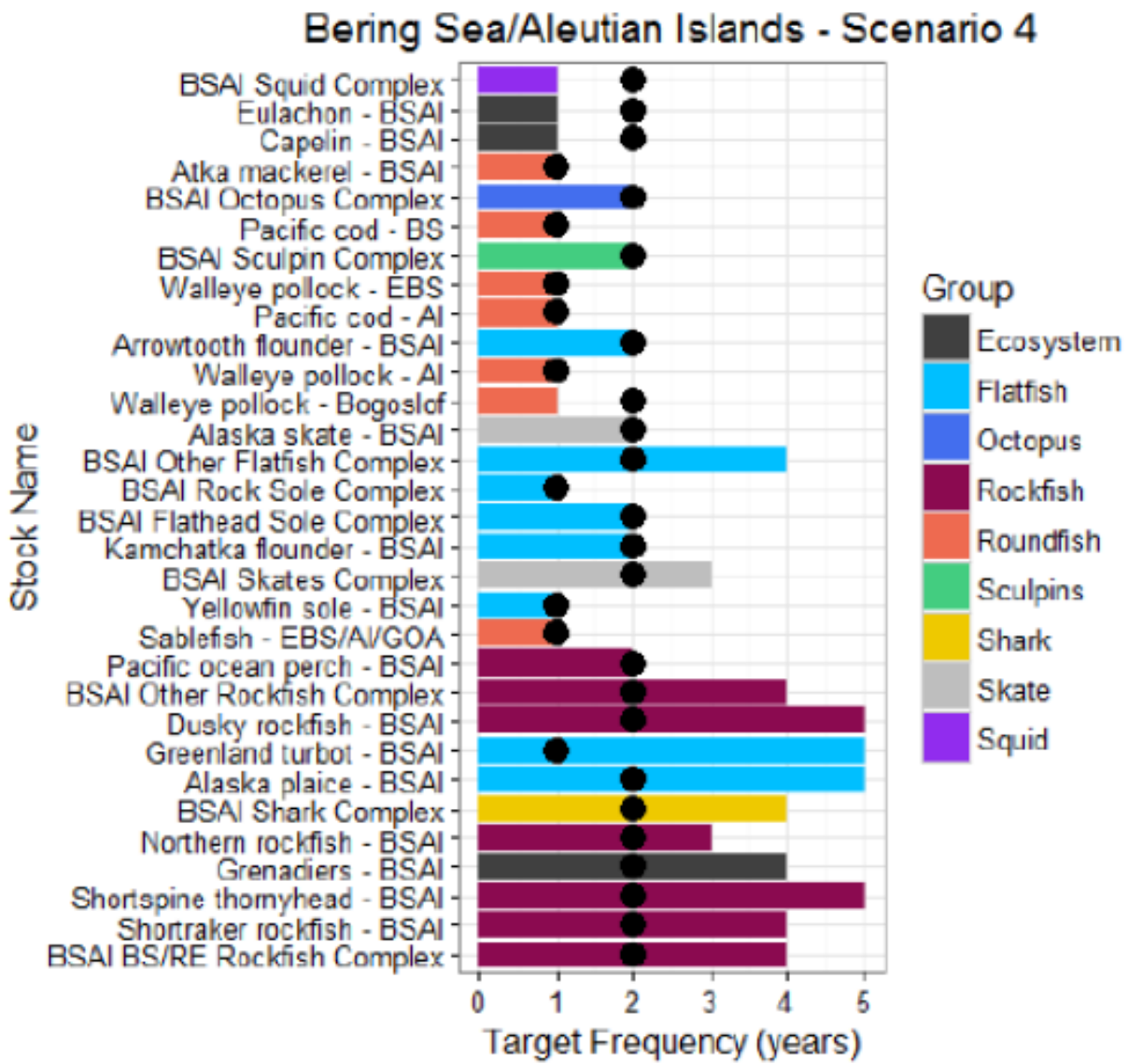

Bering Sea/Aleutian Islands - Scenario 2
BSAI Squid Complex
Eulachon - BSAI
Capelin - BSAI
Atka mackerel - BSAI
BSAI Octopus Complex
Pacific cod - BS
BSAI Sculpin Complex
Walleye pollock - EBS
Pacific cod - AI
Arrowtooth flounder - BSAI
Walleye pollock - AI
Walleye pollock - Bogoslof
Alaska skate - BSAI
BSAI Other Flatfish Complex
BSAI Rock Sole Complex
BSAI Flathead Sole Complex
Kamchatka flounder - BSAI
BSAI Skates Complex
Yellowfin sole - BSAI
Sablefish - EBS/AI/GOA
Pacific ocean perch - BSAI
BSAI Other Rockfish Complex
Dusky rockfish - BSAI
Greenland turbot - BSAI
Alaska plaice - BSAI
BSAI Shark Complex
Northern rockfish - BSAI
Grenadiers - BSAI
Shortspine thornyhead - BSAI
Shortraker rockfish - BSAI
BSAI BS/RE Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

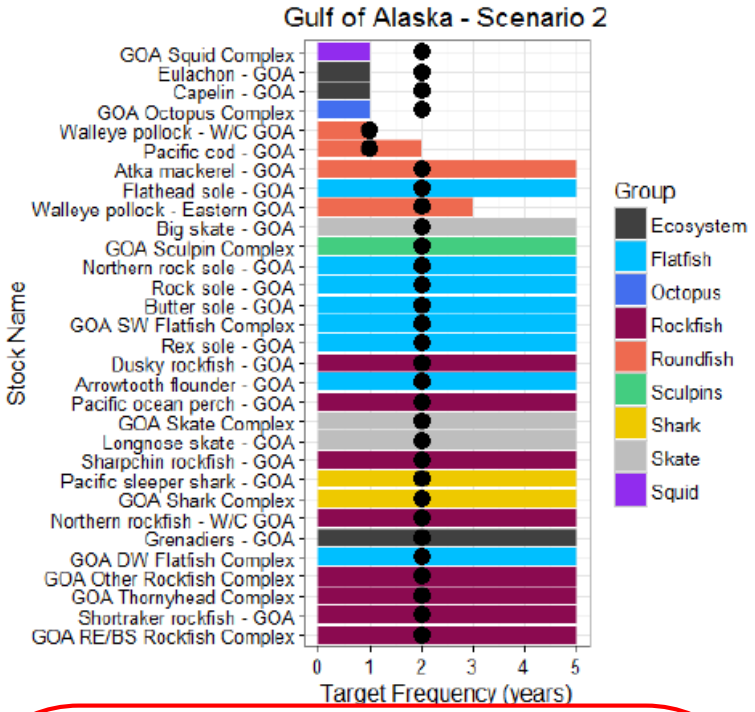

Bering Sea/Aleutian Islands - Scenario 3
BSAI Squid Complex
Eulachon - BSAI
Capelin - BSAI
Atka mackerel - BSAI
BSAI Octopus Complex
Pacific cod - BS
BSAI Sculpin Complex
Walleye pollock - EBS
Pacific cod - AI
Arrowtooth flounder - BSAI
Walleye pollock - AI
Walleye pollock - Bogoslof
Alaska skate - BSAI
BSAI Other Flatfish Complex
BSAI Rock Sole Complex
BSAI Flathead Sole Complex
Kamchatka flounder - BSAI
BSAI Skates Complex
Yellowfin sole - BSAI
Sablefish - EBS/AI/GOA
Pacific ocean perch - BSAI
BSAI Other Rockfish Complex
Dusky rockfish - BSAI
Greenland turbot - BSAI
Alaska plaice - BSAI
BSAI Shark Complex
Northern rockfish - BSAI
Grenadiers - BSAI
Shortspine thornyhead - BSAI
Shortraker rockfish - BSAI
BSAI BS/RE Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

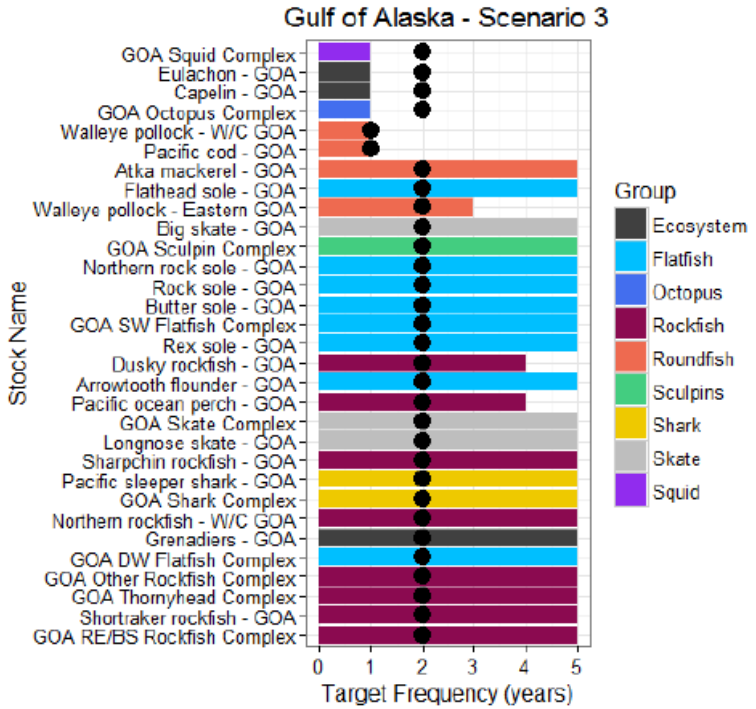

Bering Sea/Aleutian Islands - Scenario 4
BSAI Squid Complex
Eulachon - BSAI
Capelin - BSAI
Atka mackerel - BSAI
BSAI Octopus Complex
Pacific cod - BS
BSAI Sculpin Complex
Walleye pollock - EBS
Pacific cod - AI
Arrowtooth flounder - BSAI
Walleye pollock - AI
Walleye pollock - Bogoslof
Alaska skate - BSAI
BSAI Other Flatfish Complex
BSAI Rock Sole Complex
BSAI Flathead Sole Complex
Kamchatka flounder - BSAI
BSAI Skates Complex
Yellowfin sole - BSAI
Sablefish - EBS/AI/GOA
Pacific ocean perch - BSAI
BSAI Other Rockfish Complex
Dusky rockfish - BSAI
Greenland turbot - BSAI
Alaska plaice - BSAI
BSAI Shark Complex
Northern rockfish - BSAI
Grenadiers - BSAI
Shortspine thornyhead - BSAI
Shortraker rockfish - BSAI
BSAI BS/RE Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

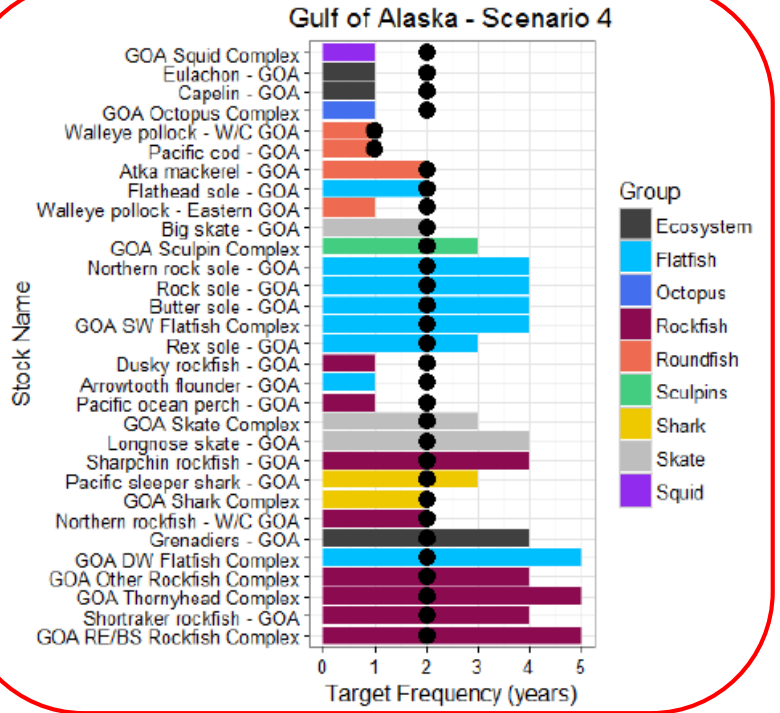

Bering Sea/Aleutian Islands - Scenario 5
BSAI Squid Complex
Eulachon - BSAI
Capelin - BSAI
Atka mackerel - BSAI
BSAI Octopus Complex
Pacific cod - BS
BSAI Sculpin Complex
Walleye pollock - EBS
Pacific cod - AI
Arrowtooth flounder - BSAI
Walleye pollock - AI
Walleye pollock - Bogoslof
Alaska skate - BSAI
BSAI Other Flatfish Complex
BSAI Rock Sole Complex
BSAI Flathead Sole Complex
Kamchatka flounder - BSAI
BSAI Skates Complex
Yellowfin sole - BSAI
Sablefish - EBS/AI/GOA
Pacific ocean perch - BSAI
BSAI Other Rockfish Complex
Dusky rockfish - BSAI
Greenland turbot - BSAI
Alaska plaice - BSAI
BSAI Shark Complex
Northern rockfish - BSAI
Grenadiers - BSAI
Shortspine thornyhead - BSAI
Shortraker rockfish - BSAI
BSAI BS/RE Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

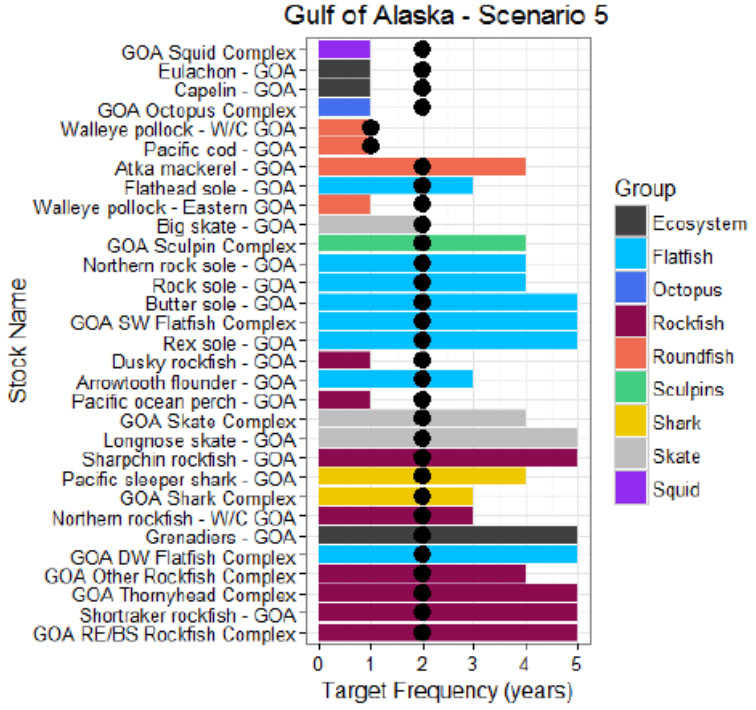

Bering Sea/Aleutian Islands - Scenario 2
BSAI Squid Complex
Eulachon - BSAI
Capelin - BSAI
Atka mackerel - BSAI
BSAI Octopus Complex
Pacific cod - BS
BSAI Sculpin Complex
Walleye pollock - EBS
Pacific cod - AI
Arrowtooth flounder - BSAI
Walleye pollock - AI
Walleye pollock - Bogoslof
Alaska skate - BSAI
BSAI Other Flatfish Complex
BSAI Rock Sole Complex
BSAI Flathead Sole Complex
Kamchatka flounder - BSAI
BSAI Skates Complex
Yellowfin sole - BSAI
Sablefish - EBS/AI/GOA
Pacific ocean perch - BSAI
BSAI Other Rockfish Complex
Dusky rockfish - BSAI
Greenland turbot - BSAI
Alaska plaice - BSAI
BSAI Shark Complex
Northern rockfish - BSAI
Grenadiers - BSAI
Shortspine thornyhead - BSAI
Shortraker rockfish - BSAI
BSAI BS/RE Rockfish Complex
Stock Name
0
1
2
3
4
5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

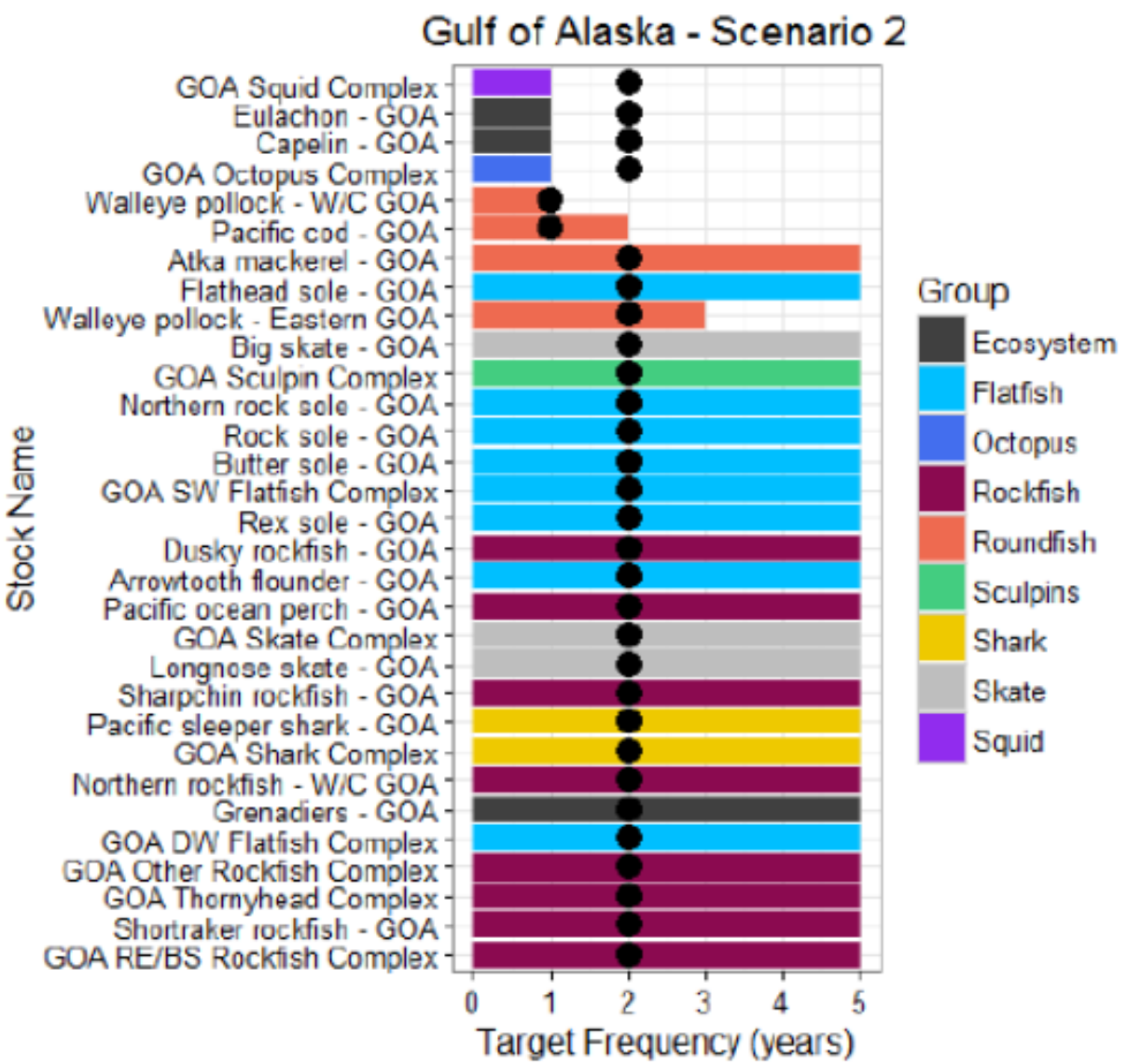

Bering Sea/Aleutian Islands - Scenario 4
BSAI Squid Complex
Eulachon - BSAI
Capelin - BSAI
Atka mackerel - BSAI
BSAI Octopus Complex
Pacific cod - BS
BSAI Sculpin Complex
Walleye pollock - EBS
Pacific cod - AI
Arrowtooth flounder - BSAI
Walleye pollock - AI
Walleye pollock - Bogoslof
Alaska skate - BSAI
BSAI Other Flatfish Complex
BSAI Rock Sole Complex
BSAI Flathead Sole Complex
Kamchatka flounder - BSAI
BSAI Skates Complex
Yellowfin sole - BSAI
Sablefish - EBS/AI/GOA
Pacific ocean perch - BSAI
BSAI Other Rockfish Complex
Dusky rockfish - BSAI
Greenland turbot - BSAI
Alaska plaice - BSAI
BSAI Shark Complex
Northern rockfish - BSAI
Grenadiers - BSAI
Shortspine thornyhead - BSAI
Shortraker rockfish - BSAI
BSAI BS/RE Rockfish Complex
Stock Name
0
1
2
3
4
5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

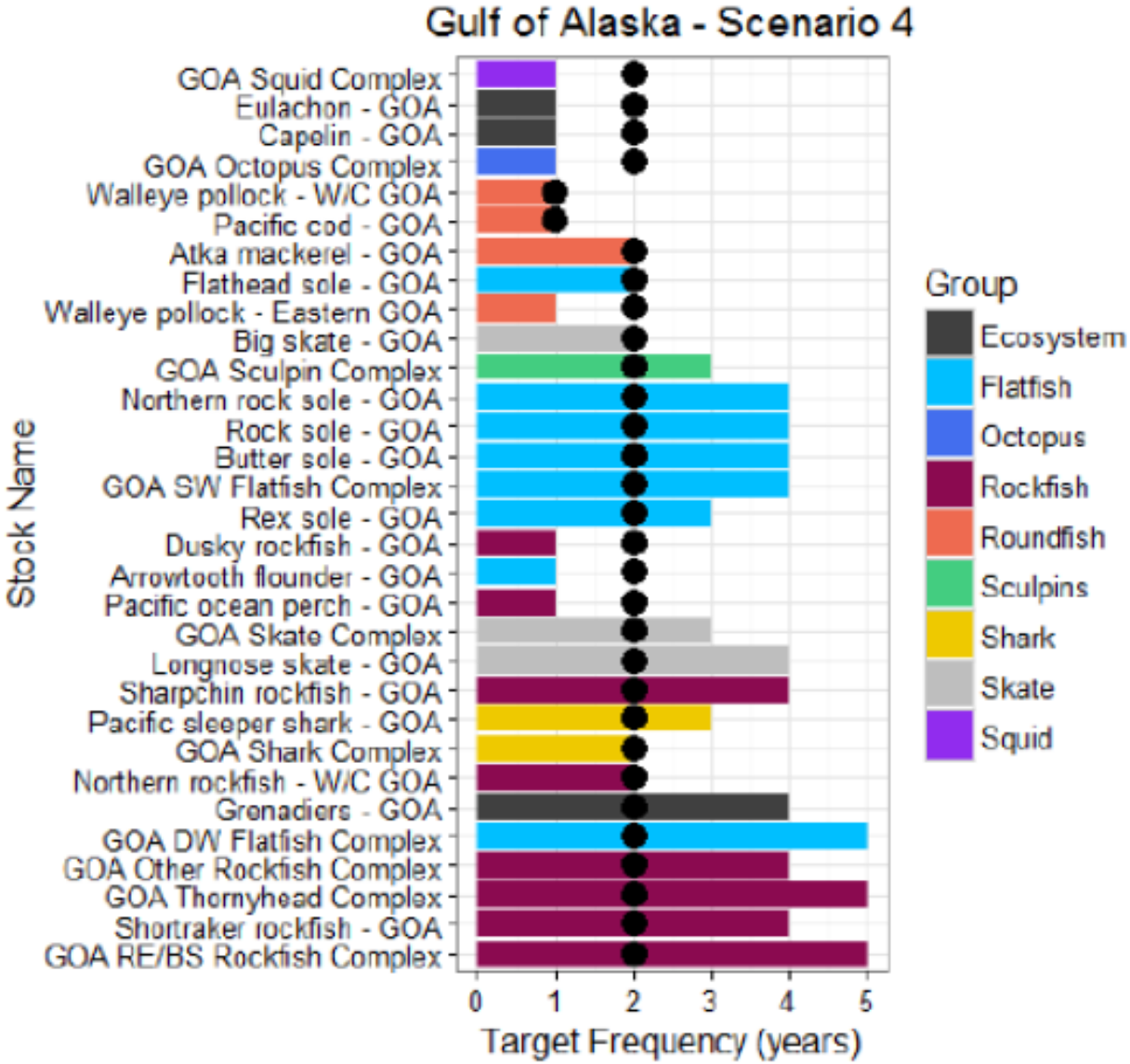

Gulf of Alaska - Scenario 2
GOA Squid Complex
Eulachon - GOA
Capelin - GOA
GOA Octopus Complex
Walleye pollock - W/C GOA
Pacific cod - GOA
Atka mackerel - GOA
Flathead sole - GOA
Walleye pollock - Eastern GOA
Big skate - GOA
GOA Sculpin Complex
Northern rock sole - GOA
Rock sole - GOA
Butter sole - GOA
GOA SW Flatfish Complex
Rex sole - GOA
Dusky rockfish - GOA
Arrowtooth flounder - GOA
Pacific ocean perch - GOA
GOA Skate Complex
Longnose skate - GOA
Sharpchin rockfish - GOA
Pacific sleeper shark - GOA
GOA Shark Complex
Northern rockfish - W/C GOA
Grenadiers - GOA
GOA DW Flatfish Complex
GOA Other Rockfish Complex
GOA Thornyhead Complex
Shortraker rockfish - GOA
GOA RE/BS Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid

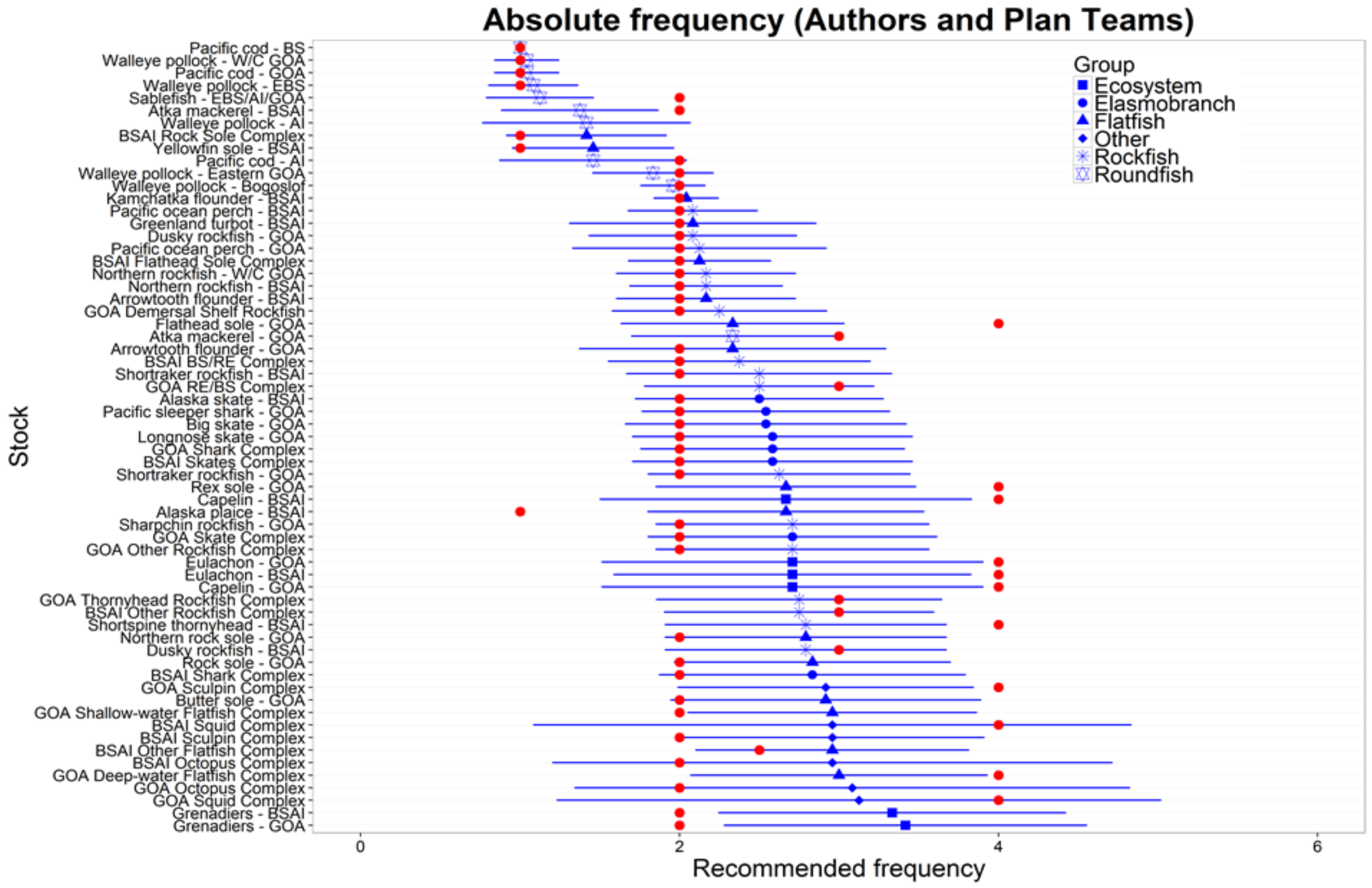

Gulf of Alaska - Scenario 3
GOA Squid Complex
Eulachon - GOA
Capelin - GOA
GOA Octopus Complex
Walleye pollock - W/C GOA
Pacific cod - GOA
Atka mackerel - GOA
Flathead sole - GOA
Walleye pollock - Eastern GOA
Big skate - GOA
GOA Sculpin Complex
Northern rock sole - GOA
Rock sole - GOA
Butter sole - GOA
GOA SW Flatfish Complex
Rex sole - GOA
Dusky rockfish - GOA
Arrowtooth flounder - GOA
Pacific ocean perch - GOA
GOA Skate Complex
Longnose skate - GOA
Sharpchin rockfish - GOA
Pacific sleeper shark - GOA
GOA Shark Complex
Northern rockfish - W/C GOA
Grenadiers - GOA
GOA DW Flatfish Complex
GOA Other Rockfish Complex
GOA Thornyhead Complex
Shortraker rockfish - GOA
GOA RE/BS Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid


Gulf of Alaska - Scenario 4
GOA Squid Complex
Eulachon - GOA
Capelin - GOA
GOA Octopus Complex
Walleye pollock - W/C GOA
Pacific cod - GOA
Atka mackerel - GOA
Flathead sole - GOA
Walleye pollock - Eastern GOA
Big skate - GOA
GOA Sculpin Complex
Northern rock sole - GOA
Rock sole - GOA
Butter sole - GOA
GOA SW Flatfish Complex
Rex sole - GOA
Dusky rockfish - GOA
Arrowtooth flounder - GOA
Pacific ocean perch - GOA
GOA Skate Complex
Longnose skate - GOA
Sharpchin rockfish - GOA
Pacific sleeper shark - GOA
GOA Shark Complex
Northern rockfish - W/C GOA
Grenadiers - GOA
GOA DW Flatfish Complex
GOA Other Rockfish Complex
GOA Thornyhead Complex
Shortraker rockfish - GOA
GOA RE/BS Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid


Gulf of Alaska - Scenario 5
GOA Squid Complex
Eulachon - GOA
Capelin - GOA
GOA Octopus Complex
Walleye pollock - W/C GOA
Pacific cod - GOA
Atka mackerel - GOA
Flathead sole - GOA
Walleye pollock - Eastern GOA
Big skate - GOA
GOA Sculpin Complex
Northern rock sole - GOA
Rock sole - GOA
Butter sole - GOA
GOA SW Flatfish Complex
Rex sole - GOA
Dusky rockfish - GOA
Arrowtooth flounder - GOA
Pacific ocean perch - GOA
GOA Skate Complex
Longnose skate - GOA
Sharpchin rockfish - GOA
Pacific sleeper shark - GOA
GOA Shark Complex
Northern rockfish - W/C GOA
Grenadiers - GOA
GOA DW Flatfish Complex
GOA Other Rockfish Complex
GOA Thornyhead Complex
Shortraker rockfish - GOA
GOA RE/BS Rockfish Complex
Stock Name
0 1 2 3 4 5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid


Gulf of Alaska - Scenario 2
GOA Squid Complex
Eulachon - GOA
Capelin - GOA
GOA Octopus Complex
Walleye pollock - W/C GOA
Pacific cod - GOA
Atka mackerel - GOA
Flathead sole - GOA
Walleye pollock - Eastern GOA
Big skate - GOA
GOA Sculpin Complex
Northern rock sole - GOA
Rock sole - GOA
Butter sole - GOA
GOA SW Flatfish Complex
Rex sole - GOA
Dusky rockfish - GOA
Arrowtooth flounder - GOA
Pacific ocean perch - GOA
GOA Skate Complex
Longnose skate - GOA
Sharpchin rockfish - GOA
Pacific sleeper shark - GOA
GOA Shark Complex
Northern rockfish - W/C GOA
Grenadiers - GOA
GOA DW Flatfish Complex
GOA Other Rockfish Complex
GOA Thornyhead Complex
Shortraker rockfish - GOA
GOA RE/BS Rockfish Complex
Stock Name
0
1
2
3
4
5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid


Gulf of Alaska - Scenario 4
GOA Squid Complex
Eulachon - GOA
Capelin - GOA
GOA Octopus Complex
Walleye pollock - W/C GOA
Pacific cod - GOA
Atka mackerel - GOA
Flathead sole - GOA
Walleye pollock - Eastern GOA
Big skate - GOA
GOA Sculpin Complex
Northern rock sole - GOA
Rock sole - GOA
Butter sole - GOA
GOA SW Flatfish Complex
Rex sole - GOA
Dusky rockfish - GOA
Arrowtooth flounder - GOA
Pacific ocean perch - GOA
GOA Skate Complex
Longnose skate - GOA
Sharpchin rockfish - GOA
Pacific sleeper shark - GOA
GOA Shark Complex
Northern rockfish - W/C GOA
Grenadiers - GOA
GOA DW Flatfish Complex
GOA Other Rockfish Complex
GOA Thornyhead Complex
Shortraker rockfish - GOA
GOA RE/BS Rockfish Complex
Stock Name
0
1
2
3
4
5
Target Frequency (years)
Group
Ecosystem
Flatfish
Octopus
Rockfish
Roundfish
Sculpins
Shark
Skate
Squid


Absolute frequency (Authors and Plan Teams)
Stock
Pacific cod - BS
Walleye pollock - W/C GOA
Pacific cod - GOA
Walleye pollock - EBS
Sablefish - EBS/AI/GOA
Atka mackerel - BSAI
Walleye pollock - AI
BSAI Rock Sole Complex
Yellowfin sole - BSAI
Pacific cod - AI
Walleye pollock - Eastern GOA
Walleye pollock - Bogoslof
Kamchatka flounder - BSAI
Pacific ocean perch - BSAI
Greenland turbot - BSAI
Dusky rockfish - GOA
Pacific ocean perch - GOA
BSAI Flathead Sole Complex
Northern rockfish - W/C GOA
Northern rockfish - BSAI
Arrowtooth flounder - BSAI
GOA Demersal Shelf Rockfish
Flathead sole - GOA
Atka mackerel - GOA
Arrowtooth flounder - GOA
BSAI BS/RE Complex
Shortraker rockfish - BSAI
GOA RE/BS Complex
Alaska skate - BSAI
Pacific sleeper shark - GOA
Big skate - GOA
Longnose skate - GOA
GOA Shark Complex
BSAI Skates Complex
Shortraker rockfish - GOA
Rex sole - GOA
Capelin - BSAI
Alaska plaice - BSAI
Sharpchin rockfish - GOA
GOA Skate Complex
GOA Other Rockfish Complex
Eulachon - GOA
Eulachon - BSAI
Capelin - GOA
GOA Thornyhead Rockfish Complex
BSAI Other Rockfish Complex
Shortspine thornyhead - BSAI
Northern rock sole - GOA
Dusky rockfish - BSAI
Rock sole - GOA
BSAI Shark Complex
GOA Sculpin Complex
Butter sole - GOA
GOA Shallow-water Flatfish Complex
BSAI Squid Complex
BSAI Sculpin Complex
BSAI Other Flatfish Complex
BSAI Octopus Complex
GOA Deep-water Flatfish Complex
GOA Octopus Complex
GOA Squid Complex
Grenadiers - BSAI
Grenadiers - GOA
Group
Ecosystem
Elasmobranch
Flatfish
Other
Rockfish
Roundfish
0
2
4
6
Recommended frequency

Supplemental Metrics

- Root-mean-squared-change (RMSC) in relative biomass (spawning biomass for Tiers 1-3, survey biomass for Tiers 4-5, not used for Tier 6). Changes were measured as proportions. Grant used the time series from 1977-present or the longest time series available from the assessment, whichever was shorter.
- Mean catch-to-ABC ratio. Grant used the average of the ratios over the last 20 years or the longest time series available from the assessment, whichever was shorter.
- Fishery importance. Grant used the same values used to produce Scenario 4.

Definitions

- **New** Never assessed before
- **Benchmark** Substantially different than previous
- **Full Update** No substantial changes to methods or interpretation
- **Partial Update** Executive summaries, updating catch data only

What we actually did

- Poll results not considered sufficient
- Stock-by-stock
- Poll results and author recommendations used as reference
- No change where S4 = SQ = Author
- Even years to align assessment frequencies with surveys

Stock or complex	SQ	S4	JPT	Diff from S4	Diff from SQ	Rationale
Pollock - AI	1	1	4	3	3	• No directed fishery since 1998, stable population, no plans for a fishery. • If fishery - e more frequent assessments. • Catch/TAC = 10% S4 result of the ecosystem importance and short life span • SSL issues • Harvest limit fixed in regulation • No conservation concern. • RPAs do not require annual assessments of SSL prey.
BSAI Other Flatfish Complex	2	4	4	0	2	• Complex could be broken out in the future. • Lightly exploited. • Change in SSB very low • Catch/ABC 15%.
Shortraker rockfish - BSAI	2	4	4	0	2	• Catch/ABC ~58% • Average change in biomass is low ~2%.
BSAI Other Rockfish Complex	2	4	4	0	2	• Many species • Some could be over-exploited by longer lapses in assessments. • Thornyheads bulk of the complex. • Difficult to assess trend in minor components of complex (especially dusky rockfish) thus assessing with additional data points is also desirable.
BSAI Squid Complex	2	1	4	3	2	• Specs based on average catch and no additional information
Grenadiers - BSAI	2	4	4	0	2	• Low exploitation • Tier 5 assessment, so workload for author not significantly affected.
Greenland turbot - BSAI	1	5	2	-3	1	• Shelf survey, slope survey alternate. • Shelf survey captures juvenile fish • Slope survey captures adults. • Better results doing the assessment biennially. • S4 driven by the long-life of the species
BSAI Sculpin Complex	2	3	4	1	2	• Catch/ABC low. • Consistency with the other 4 year recommendations

Stock or complex	SQ	S4	JPT	Diff from S4	Diff from SQ	Rationale
Northern rockfish - BSAI	2	3	2	-1	0	• Catch/ABC 46% • SSB changes moderate. • Targeting requires additional monitoring • Evidence of spatially segregated populations and potential for localized depletion. • Some sub-areas have higher exploitation rates
BSAI Skates Complex	2	3	2	-1	0	• No compelling reason to move away from current frequency. • Catch/ABC 74%.
BSAI Blackspotted/Roughe ye Rockfish Complex	2	4	2	-2	0	• Management issues - catch by area, low ABCs, MSSCs by area • Could be reconsidered in the future. • Uncertainty in estimates of year-class strength • Two species in an assessment.
BSAI Shark Complex	2	4	2	-2	0	• Decline in sleeper shark CPUE - potential for conservation concern. • Investigating use of catch by numbers • Evolving assessment model • Longer frequency in the future as appropriate.
Alaska plaice - BSAI	2	5	2	-3	0	• Concern - change in the distribution of the stock (moving to northern Bering Sea) • Candidate for a reduced frequency in the future
BSAI Dusky Rockfish	2	5	2	-3	0	• Primarily in AI, 2 yr survey freq • Rest of complex could be 4 yr if dusky is split out.

Stock or complex	SQ	S4	JPT	Diff from S4	Diff from SQ	Rationale
GOA Shallow-water Flatfish Complex	2	4	4	0	2	• Catch/ABC low • Complex with rocksole
Northern rock sole - GOA	2	4	4	0	2	• Catch/ABC 12% • SSB does not change much.
GOA Deep-water Flatfish Complex	2	5	4	-1	2	• Necessary age-data provided year after GOA survey • Catch/ABC 2-3% • ABC for the other species in complex very low.
Flathead sole - GOA	2	2	4	2	2	• Author recommended onger time frame • Catch/ABC 6% • Catch limited by halibut bycatch • SSB changes very low • S4 driven by market value, ecosystem importance.
GOA Rougheye/Blackspotted Rockfish Complex	2	5	4	-1	2	• Catch/ABC 50% • LL and BTS used • Abundance stable. • Catch share program argues for SQ. • S4 driven by long-lifespan • Reconsider at a 4 year interval or if/when species are broken out of complex.
GOA Sculpin Complex	2	3	4	1	2	• Issues with bigmouth sculpin decline • Need for assessment and monitoring • Catch/ABC low. • Consistency with the other 4 recommendations
Capelin - GOA	2	1	4	3	2	• Rationale = no specifications for this stock

Stock or complex	SQ	S4	JPT	Diff from S4	Diff from SQ	Rationale
GOA Skate Complex	2	3	2	-1	0	• Subarea ABC being exceeded • MRA issues • Catch/ABC 55%. • If species assessed separately could consider other at 4 years and longnose and Big at 2 years
Pacific sleeper shark - GOA	2	3	2	-1	0	• Same issues with sleeper sharks in BSAI. • Sufficient evidence of sleeper shark decline.
Shortraker rockfish - GOA	2	4	2	-2	0	• Catch/ABC >1 in some areas • Catch share plan, • Overall Catch/ABC 62%.
GOA Other Rockfish Complex	2	4	2	-2	0	• Catch/ABC high • Exploitation of individual species variable, • Yelloweye contribution in the CGOA, • Evolving assessment to break additional species out of the complex.
Longnose skate - GOA	2	4	2	-2	0	• Area-specific ABC exceeded in recent years in WGOA. • Managed through MRAs. • Consistency with skate complex
GOA Thornyhead Rockfish Complex	2	5	2	-3	0	• ABC exceeded in the past in the WGOA • Catch share program.

Assessment products

Tiers 1-3

4-year cycle

- Year 1: full
- Years 2-4: partial
- Year 5: full

2-year cycle

- Year 1: full
- Year 2: partial
- Year 3: full

Partial assessments for Tiers 1-3 should be an expanded version of the current off-year executive summaries, including catch/biomass ratios for all species in addition to re-running the projection model with updated catch information, and also including updated survey biomass trends when available (note that partial assessments for Tiers 1-3 *do not* involve re-running the assessment model; only the projection model). Authors would be expected to respond to Team/SSC comments during full assessments only, unless the comments pertain to features that are normally included in partial assessments.

Assessment products

Tiers 4-5

4-year cycle

- Year 1: full
- Years 2-4: partial
  - ABC and OFL would be left unchanged unless:
    - a mistake in the ABC or OFL computed in the previous full assessment is found
    - new survey data are available, in which case the random effects model would be re-run but a full assessment would not be produced
    - new information (other than new survey data) suggests that ABC should be revised, subject to the maximum permissible ABC computed in the previous full assessment
- Year 5: full assessment

Assessment products

Tiers 4-5

4-year cycle Option 1

- Year 1: full assessment
- Year 2: none
- Year 3: partial assessment
- Year 4: none
- Year 5: full assessment

Assessment products

Tiers 4-5

2-year cycle

- Year 1: full
- Year 2: none
- Year 3: full

Assessment products

Tier 6

4-year cycle

- Year 1: full
- Year 2: none
- Year 3: partial
- Year 4: none
- Year 5: full

2-year cycle

- Year 1: full
- Year 2: none
- Year 3: full

Other Issues

- Fewer data for ecosystem models and other external analyses
- Reduction in frequency ≠ stock not important
- Reduction in frequency ≠ reduction in survey frequency!!
- Re-visit after one complete cycle (4 yrs)

Other Issues - Triggers

- Change in spawning biomass (perhaps standardized by +/- xx standard deviations)
- Evidence of new environmental link to trends in growth, recruitment, or mortality
- Evidence of a marked change in retrospective bias or residuals
- Availability of new information on vital rates (M, maturity, growth)
- Availability of new information on survey performance (selectivity, Q)
- Change in catch suggesting targeting a member of a complex
- Evidence of stock structure and possibility of overharvest of a sub-population
- Change in catch to ABC ratio
- Change in halibut bycatch
- Distributional shifts

Stock prioritization

- Which stocks to assess
- Preliminary attempts demonstrated
- Different weighting scenarios (socio-econ, conservation/ecosystem, change in biomass or data
- Not directly applicable, but could be useful
- Continued refinement

Net change

- BSAI - 8 Stocks
- GOA – 7 Stocks

Crab Plan Team Meeting

- Jan 17-19, 2017