

**Recommendations from the Permanent Advisory Committee to the
U.S. Section to the Western and Central Pacific Fisheries Commission
Web Conference - October 13-15, 2021**

The following recommendations are directed to the U.S. Section to the Western and Central Pacific Fisheries Commission (WCPFC or Commission) for the purpose of developing U.S. policies, positions and negotiating strategies with respect to U.S. participation in the WCPFC.

I. Tropical Tuna Measure

The Permanent Advisory Committee (PAC) recommends the following:

General Principles:

1. That the United States ensure that any new measure adopted by the Commission maximize the opportunities for U.S. fishing vessels to harvest fish stocks on the high seas consistent with scientific advice.
2. That the Ensuring Access to Pacific Fisheries Act, Public Law 114-327, which was signed into law on December 9, 2016, be used as the basis for the U.S. posture at the WCPFC.
3. That any new conservation and management measure (CMM), as appropriate, will include provisions for annual review and possible need for adjustments in management with regard to the applicability of a new measure.
4. That the Commission develop criteria to prevent fishing capacity in the WCPFC Convention Area from exceeding historical levels.

Purse Seine:

5. That the United States support efforts by American Samoa to establish a record of purse seiners that regularly land tuna in American Samoa in support of the American Samoa tuna industry. Such record can then be used by relevant flag states to regulate the purse seiners on that record as an integral part of the American Samoa tuna industry with the same rights and privileges as other SIDS' fleet. This would eliminate the unfair treatment of American Samoa and the locally based purse seiners and help to reduce the disproportionate burden of conservation that is destroying the American Samoa tuna industry.

6. That in adopting future conservation and management measures, the U.S. Delegation shall seek to ensure, to the maximum extent possible, that the same set of rules apply to all Parties and fleets operating under the WCPFC and that, to the extent that any exemptions are allowed, the measures applied to the American Samoa locally based purse seine fleet be the same as those applied to other SIDS fleet including, but not limited to, provisions for the three-month FAD closure, the high seas FAD closure, and high seas effort limits. The U.S. Delegation shall seek to ensure that the use of any exemptions be made publically available and that the effect of those exemptions are taken into account by the SPC science provider and other WCPFC bodies when looking at the impacts on the fishery.
7. That the U.S. Delegation continue to vigorously defend the application of the Effort Limit Area for Purse Seine (ELAPS) as the legitimate basis for managing U.S. purse seine effort limits established under successive WCPFC tropical tuna measures, currently pursuant to CMM 2018-01 and to explore other opportunities to maximize fishing opportunities for the American Samoa locally based fleet, recognizing that previous reductions in U.S. high seas fishing days were in response to tropical tuna stocks that were considered in poor health at the time but whose status has since improved based on the latest stock assessments.
8. That the additional two-month FAD closure applicable on the high seas be eliminated in response to the improved status of the bigeye and yellowfin stocks in the WCPFC Convention Area.
9. That any conservation and management measures adopted by the Commission recognize and accommodate the special needs of American Samoa and, as appropriate, other U.S. territories in full accordance with, *inter alia*, Article 10 and Article 30 of the Convention.
10. The majority of the PAC agrees that there should not be an overall limit on the number of the allowable FAD sets in the Convention Area. Such a limit has been part of the management program in the past, and has not worked well, in large part because of compliance issues. A minority of the PAC do not agree with this position, and that FAD set limits are an effective tool to reduce the take of juvenile bigeye and the potential to use that tool should be maintained.
11. That the U.S. Delegation advocate for a Pacific-wide definition for FAD set consistent (ideally identical) with the one adopted by the IATTC; i.e., defining a FAD as deployed and/or tracked using a tracking buoy; and, in addition, to amend the

current WCPFC definition of FAD set to be any set within one-half mile of a FAD, as opposed to the current specification of one-mile.

12. That in order to reduce the amount of synthetic marine debris, the use of natural or biodegradable materials for drifting FADs should be promoted.
13. The United States should support meaningful vessel capacity limits as part of a WCPFC measure with the inclusion of all fleets (including Pacific island fleets).
14. That the United States should support the establishment of a FAD tracking program by the Commission, wherein the Commission can receive -- with a 60 day time lag -- information directly from FAD buoy providers relevant to the tracking of FADs. Several US vessels are currently cooperating with SPC OFP to voluntarily provide this information – and we should support Commission-wide expansion of this effort.
15. That the United States should support the continuation of the FAD working group to consider these matters as well as others such as, inter-alia, the meaning of FAD deployment, tracking, ownership, accountability, recovery, and active and inactive FADs. This working group should meet at a time and venue preferably in conjunction the annual WCPFC meeting.

Longline:

16. The PAC recommends that the United States submit a proposal for inclusion in the Chair's draft that increases the annual US longline bigeye limit by at least 3,000 mt. To achieve this objective, several options outlined in the Table A (attached) should be considered. Available information suggests that each of these options would: a) not disproportionately burden SIDS and Territories, and b) would not exceed the BET management objective to maintain bigeye tuna spawning biomass at 2012-2015 levels. The PAC further recommends US government officials hold bilateral consultations as soon as possible with China, Japan, Korea, Chinese Taipei, and the FFA on this objective.
17. The PAC recommends that the US work bilaterally with FFA/PNA members to further understand and advance the scientific basis per SC advice for zone-based longline management and it may potentially support mutual interests, while also ensuring that references to zone-based longline management in the measure include considerations of spatial differences in bigeye depletion within the WCPO.

18. The PAC recommends that the United States ensure that the provisions contained in CMM 2020-01 paragraph 9 are maintained in support of participation of the US Territories within the Commission.
19. The PAC also expressed concern that observer coverage on foreign longline fleets falls short of what the United States achieves and recognized the importance of such monitoring to the assessment of the performance of the tropical tuna measure. The PAC recommends the United States support the inclusion of a commitment in the tropical tuna measure to supplement human observer coverage on longline vessels with electronic monitoring to 20% within a specific time period.

II. Pacific bluefin tuna

20. The PAC supports the continued use of the JWG as an appropriate venue to make equitable recommendations on PBF management that can be advanced in the WCPFC and IATTC, as appropriate.
21. The PAC supports the U.S. position to maintain a precautionary approach for PBF, including prioritizing, rebuilding PBF and a secondary priority to establish more equitable balance of allocation among the WCPO and EPO.
22. WCPFC18, the PAC recommends adoption of the Northern Committee recommendations as agreed at the 6th JWG meeting, including a revised CMM, harvest strategy, ISC requests and an updated workplan.
23. The PAC supports continued U.S. efforts to advance PBF rebuilding, transparency and equitable balance, including:
 - a. Oversight to ensure scientific integrity, transparency and best available science in the 2022 stock assessment, including review of projections, recruitment assumptions and transfer provisions;
 - b. Outreach to IATTC members to align timing for the 2022 meetings; and
 - c. Advance harvest strategies, with priority to agree on long-term reference points and harvest control rules with near-term deadlines. In addition, the PAC recommends proceeding with a process that achieves the objectives of the MSE process including stakeholder consultations and workshops in 2022 to identify specific management objectives and associated performance indicators, as requested by ISC21.

III. North Pacific striped marlin

24. The PAC supports the U.S. commitment to submitting a new or revised conservation and management measure that will rebuild NP striped marlin to 20% $SSB_{F=0}$ by 2034 as an interim step to improve management and recovery of the stock to sustainable levels.
25. The PAC supports and requested development of a rebuilding plan by the ISC based on a new benchmark stock assessment in 2022 that is consistent with the analysis conducted by PIFSC utilizing phased total catches.
26. The PAC endorses development of a rebuilding plan based on phased stock projections utilizing catch and effort provided to the ISC (within stock boundaries delineated by waters north of Equator and Convention Area west of 150W) as best scientific information available. These rebuilding plans should reach the adopted rebuilding target by 2034 with at least 60% probability and have over 50% probability of ending overfishing relative to F_{MSY} in the first phase.
27. The new CMM should specify CCM catch limits for the first phase for North Pacific striped marlin to end overfishing.
28. The PAC supports catch limits by CCM partitioned based on catches of longline fisheries by CCMs as reported to the ISC Billfish Working Group, recognizing these catch histories have the greatest certainty, are scientifically vetted, and these years represent current fishing capacities of CCMs. This should also consider a buffer of catches from other CCMs that incidentally catch striped marlin within North Pacific striped marlin boundaries.
29. The PAC requests that a proposed CMM for North Pacific striped marlin take into consideration practical conservation and management options, such as the required use of circle hooks in all longline fisheries, to increase the likelihood that annual catch limits are not exceeded and to increase survivability of released striped marlin.
30. The PAC requests the U.S. support the development of more stringent measures of species identification, improve catch and discard accounting, and annual reporting of billfishes. This is recognizing uncertainty and untimeliness of catch reporting of billfish and the need for transparent evaluation of billfish catches on a reasonable basis. The WCPFC and its science providers should also work towards estimating unreported catches.

31. The PAC recommends the U.S. move the WCPFC towards adopting reference points for billfish species with a goal to develop harvest strategies for billfish. This effort should include collaboration between the IATTC, recognizing that blue marlin is a Pan-Pacific stock and striped marlin biological stock distributions remain equivocal.

IV. South Pacific albacore

32. The PAC recommends that CMM 2015-02 be revised to include reporting and capacity provisions north of 20 degrees South, noting the highest level of regional depletion in waters around American Samoa and north of 20 degrees South, as estimated by the 2021 stock assessment.
33. The PAC recommends that the interim target reference point (TRP) for South Pacific albacore, based on information from the 2021 stock assessment within the WCPFC Convention Area, ensures that available biomass will allow CPUE for the American Samoa longline albacore fishery to return to historical levels prior to 2010.
34. The PAC recommends that a TRP for South Pacific albacore be achieved 'soonest' (less than 20 years) under harvest scenarios brought forth by the SPC, with initial and appreciable incremental annual reductions in catch. The Commission may elect to increase catches of South Pacific albacore immediately after a TRP is achieved to 'minimize overshoot' of the TRP so that the stock can be fully utilized while maintaining the TRP.
35. The PAC recommends that harvest scenarios and strategies implemented to achieve the TRP for South Pacific albacore should include an allocation scheme for CCMs whereas SIDS and Participating Territories are exempt from annual catch reductions to reach the TRP or that SIDS and Participating Territories can maintain catches commensurate with historical optimal levels. The allocation scheme must take into consideration charter arrangements and allocations should be accounted by the RFV registry, such that conservation benefits are not undermined.
36. The PAC recommends that since the U.S. South Pacific albacore troll fleet, (which is the only troll fleet fishing on the high seas South of 20 degrees South) caught an average of less than 350 metric tons of albacore during 2015-2017, it should be exempt from further catch reductions under harvest scenarios to reach the TRP and under an allocation scheme for South Pacific albacore. When its troll catches exceed 5% of total catch of South Pacific albacore, this could trigger troll fisheries being subject to further reductions.

37. The PAC urges USG to work with other parties to evaluate the efficacy and relevance of CMM 2015-02 in controlling albacore longline fishing effort and supporting the attainment of newly established TRP. If CMM 2015-02 is found to be ineffective, the PAC recommends USG work with other parties to develop and introduce a CMM that does effectively address South Pacific albacore fishing effort and supports the attainment of TRP.
38. The PAC recommends that the United States develop a definition as to what fishing for albacore means precisely and engage other CCMs on that definition for consideration in a revised measure.

V. Compliance Monitoring Scheme

The PAC recommends that:

39. The United States should explore any and all available options to use access to U.S. markets, including under existing U.S. legislation such as the Pelly Amendment to the Fishermen's Protective Act, to compel improved compliance and enforcement, including the assessment of appropriate sanctions and penalties in respect of violations, by WCPFC members including those related to catch and effort limits, limits on vessel numbers and capacity, accurate reporting of catches, minimum levels of observer coverage, and other activities that diminish the effectiveness of the WCPFC conservation and management regime.
40. The U.S. should make strong statements at the upcoming Commission meeting that the level of non-compliance is alarming, reducing the credibility of the Commission, and undermining the effectiveness of the Convention.
41. The U.S. should continue to advocate for a multi-year compliance regime, and completion of the CMS future workplan in advance of TCC18 that includes development of audit points, completion of risk based assessment framework and through US leadership, the completion of guidelines for observer participation in the Compliance Committee.
42. The U.S. lead the development of penalties for significant noncompliance for inclusion in the CMR in 2021.
43. The U.S. maintain a position to not weaken the WCPFC compliance monitoring structure to enable the Commission to evaluate the fisheries operations of its members. Such a structure should include a transparent system for reporting and

documenting possible violations of CMMs (including the PNA as a group of CCMs), calling for investigations, and following up on the status of investigations. The PAC further recommends that the United States develop proposals to improve the Compliance Monitoring Review (CMR) process that includes mechanisms to identify, in a publicly transparent manner, the number and types of violations, the flags of the vessels committing them, and to appropriately sanction CCM non-compliance.

44. The United States continues to negotiate for a permanent CMS that includes the following:
 - a. continue to support inclusion of flag state investigations and accountability in the new CMS;
 - b. continue to support prioritization of measures to be reviewed at TCC; and
 - c. advocate for a distinction between minor and major violations in the CMS, with appropriate responses to ensure compliance.
45. The PAC notes and supports the continuing U.S. efforts at the TCC to ensure that observer reports are transmitted to flag state authorities, however the PAC also urges the USG to raise at this year's annual meeting the issue of lack of full implementation and timely response related to the procedures adopted in the WCPFC12 annual report that reads (at para. 569): "The Commission adopted the pre-notification process from observer providers to flag CCMs of possible alleged infringements by their vessels and put forward by the IWG-ROP, as amended to include data being provided to the coastal state when an alleged infringement takes place in a coastal state's waters (Attachment U)".
46. In the absence of a strengthened and transparent CMS process, that the United States continue to oppose the adoption of WCPFC conservation and management measures that require observer coverage for compliance and monitoring.

VI. Regional Observer Programme

47. The PAC supports U.S. efforts to improve the effectiveness of the ROP and coordinated efforts through the CMS process to ensure robust compliance by all CCMs.

VII. Cetaceans

48. The PAC recommends that the WCPFC make mandatory reporting of marine mammal interactions to include disposition of the animal, develop proper training on marine mammal handling, and undertake research on efficacy of gear modifications/specifications to reduce marine mammal mortalities.

VIII. Other

Electronic Monitoring:

49. The PAC urges the U.S. to:
 - a. Express disappointment that the EM working group was unable to finalize their work during 2021 and to seek an update from the working group at the 2021 annual meeting;
 - b. Support continuation of the EM working group with a mandate to finalize a draft EM CMM in 2022 for submission to TCC and the Commission to establish EM standards for a Commission wide electronic monitoring program in 2022; and
 - c. Support the development of an EM system with the goal to significantly increase monitoring, specifically in foreign longline fisheries, recognizing those areas where Project 93 had indicated the largest data gaps exist.

IX. Harvest Strategies

50. The PAC urges the USG to actively seek consensus support for the establishment of a Scientist Manager's Dialogue working group on MSE to meet in conjunction with the Scientific Committee in 2022.
51. The PAC recommends that the United States government stress the urgency of progress on the development of Harvest Strategies, recognizing that work to date is far behind the timing envisioned in the WCPFC agreed workplan. The PAC notes that the WCPFC Harvest Strategy workplan has been revised to account for recent setbacks. The PAC recommends that the U.S. prioritize development of harvest strategies for both the principal tuna species (SKJ, YFT, and BET) as well as to make material progress on North & South PacALB, and PBF in 2022. The PAC recognizes that lack of progress in the development of Harvest Strategies, particularly setting Limit and Target Reference points and harvest control rules, in 2022 increases risk such that WCPO tuna products could lose market recognition by sustainable seafood certification and ratings programs that are increasingly important for global consumers.

X. Sharks

52. The PAC notes the Hawaii Longline Association's voluntary operational changes to remove wire leader and improve handling and release practices for oceanic whitetip sharks in the Hawaii longline deep-set fishery. The PAC further notes the WPFMC's recommended domestic regulations to remove wire leaders in the deep-set fishery and require trailing gear to be removed from oceanic whitetip shark as close as possible to the animal in all US Pacific Island longline fisheries. The PAC also notes WPFMC's MSA 304(i) international recommendation for application to all WCPO longline fisheries.
53. The PAC recommends the U.S. delegation work bilaterally with other WCPFC members to introduce a binding measure to ban wire leaders in WCPO longline fisheries, promote the use of circle hooks, require safe release procedures for oceanic whitetip sharks, and to further require annual reporting of leader material by fleet as an added accountability measure. Such a measure should be proposed as soon as possible to reduce fishing mortality and expedite recovery of oceanic whitetip sharks in the WCPO.
54. The PAC endorses the WPFMC's MSA 304(i) international recommendation on increasing WCPO longline observer coverage and/or electronic monitoring (EM) on vessels operating between 10°S northward to 10°N, which is an area with high vulnerability of oceanic whitetip shark capture. This recommendation notes that improved monitoring is critical for assessing the rebuilding of oceanic whitetip sharks, evaluating the effectiveness of CMMs for species with non-retention measures in place, and existing analyses that suggest 20% coverage would reduce uncertainty in the estimates of bycatch species including oceanic whitetip shark.
55. The PAC recommends that the United States support a prohibition on the use of wire tracers in U.S. longline fisheries and binding guidelines to safely handle sharks, and increase observer coverage in equatorial waters, including through the use of electronic monitoring consistent with the Western Pacific Fishery Management Council's recommendations.

XI. At-Sea Transshipment

56. The PAC appreciates the U.S. continued leadership of the IWG and supports hiring a consultant to conduct the transship data analysis to inform the work of the IWG.

57. The PAC supports changes to the ROP rules to require the relevant carrier observer reports and transshipment declarations are sent to the Secretariat by the observer provider.
58. The PAC also urges the US through the IWG to seek endorsement of the changes to the observer forms FC1, FC2, and FC3 that enhance the information that is provided relative to transshipment in time for consideration by the annual meeting in 2021.
59. The PAC supports strengthening of data sharing with IATTC and NPFC including the finalization of agreement of a data sharing MOU with the NPFC.
60. The PAC recommends the U.S. continue to protect the interests of the U.S. South Pacific albacore troll fleet in qualifying under para. 34 and 37 of CMM 2009-06.
61. Although federal regulations currently allow Hawaii longline vessels to transship at sea, if prohibiting longline bigeye transshipment at sea will improve the monitoring of longline bigeye catch within the WCPO and can be used to support positions on other conservation and management measures, then the United States should support a longline (bigeye) transshipment ban or other phased approaches under consideration for the WCPFC area. In the event that high seas transshipment of bigeye by longliners is not prohibited, the PAC recommends that the U.S. government urge that the WCPFC strengthen the measure on high seas transshipment to ensure that all transshipment is monitored, the reports validated and transmitted to the Commission.

XII. Labor Standards

62. The PAC recommends that the United States work with other CCMs to develop a CMM that prevents forced labor on fishing vessels operating in the Convention Area, and further, that issues related to other labor standards not be included due to their complexity and subjectivity.

XIII. Participating Territories

63. The PAC recognizes the importance of the participation of the U.S. territories within the deliberations of the Commission. All are unique and have development aspirations in line with the PICs. Specifically, American Samoa's economy, like many PICs, is essentially tuna dependent -- it has a tuna fishery which includes the purse seine, longline, and alias that are based there. These fleets require access to the fishing grounds in and around the EEZ around American Samoa to remain viable and

provide employment to the citizens of American Samoa. This includes the high seas, U.S. EEZ's and the EEZ's of adjacent PNA countries and several non-PNA countries. The United States needs to strongly advocate for the tuna fisheries based in American Samoa and developing fisheries of Guam and the Northern Mariana Islands. Therefore, the PAC requests that the U.S. government ensure that the U.S. Participating Territories, including fishing industry representatives from the territories fully participate, as appropriate, in all relevant deliberations related to their direct interests.

64. The PAC recommends that purse seine vessels operating primarily out of American Samoa be extended full Article 30 privileges under American Samoa's SIDS status, which would ameliorate restrictions of fishing effort in the ELAPS.
65. Understanding that the American Samoa longline albacore fishery is failing, and that this is partly due to the continuously increasing number of seemingly unregulated and highly subsidized non-U.S. longliners and their severe impact on the catch rates of the American Samoa local longline fleet, the PAC recommends a freeze of non-U.S. distant water fishing nation longline fleets until an effective conservation measure can be fully implemented.

XIV. Observer Coverage

66. That the U.S. Delegation not support the placement of observers back on board purse seine vessels until transportation routes such as ports and airports are sufficiently open across the region to ensure regular and unimpeded travel by observers to and from their homes and various points of embarkation aboard vessels.

XV. North Pacific albacore

67. The PAC supports the U.S. efforts to develop a harvest strategy for north Pacific albacore through the adoption of a target reference point in 2022 and adoption of a harvest control rule and threshold reference point in 2023, in accordance with the timeline in the Northern Committee workplan.
68. Prior to those annual meetings of the Northern Committee, the PAC requested that the U.S. hold at least one meeting for domestic stakeholders to discuss inputs into the north Pacific albacore harvest strategy based on MSE results.

Attachment: Table A (reference in para 16)

	Status Quo	Option 1	Option 2 (Preferred)	Option 3
Rationale	Current CMM 2020-01 which expires February 2022.	Account for already reported unused catch allocations for Japan and Indonesia from 2019 and 2020, plus a 10% buffer for modest catch limit increases for four states <ul style="list-style-type: none"> • Does not remove catch limits for Japan or Indonesia or other states • Augments catch limits for Chinese Taipei, Korea, China, USA 	Modest catch increase for states which current limits are consistent with current catches <ul style="list-style-type: none"> • 3,000 mt increase for Chinese Taipei, Korea, China, USA • No change for others 	Increase US catch limit and possibly for others as incentive <ul style="list-style-type: none"> • Add 3,000 mt to US catch limit • Other states catch limits remain unchanged • Room for augmenting catch limits for states that increase observer coverage, reduce/end at-sea transshipment, etc.
Formulae	Catch limits for longline fisheries prescribed in Table 3 of CMM-2020-01. Average 2019-2020 Catches are: China: 8,024 mt Indonesia: 1,505 mt Japan: 12,354 mt Korea: 13,134 mt Chinese Taipei: 8,359 mt USA: 3,540 mt	[Japan catch limit minus average Japan 2019 and 2020] + [Indonesia catch limit minus average Indonesia 2019 and 2020 catch] = 9,796 mt, x 110% = 10,775 mt increase in catch biomass = 2,694 mt increase for Chinese Taipei, Korea, China, USA	12,000 mt longline catch biomass increase, for four states. = 3,000 mt increase for Chinese Taipei, Korea, China, USA	3,000 mt total catch biomass, increasing USA catch limit
Catch Limits (Revised CMM 2020-01 Table 3)	China: 8,724 mt Indonesia: 5,889 mt Japan: 17,765 mt Korea: 13, 942 mt Chinese Taipei: 10,481 mt USA: 3,554 mt	China: 11,418 mt Indonesia: 5,889 mt Japan: 17,765 mt Korea: 16,636 mt Chinese Taipei: 13,175 mt USA: 6,248 mt	China: 11,724 mt Indonesia: 5,889 mt Japan: 17,765 mt Korea: 16, 942 mt Chinese Taipei: 13,481 mt USA: 6,554 mt	China: 8,724 mt Indonesia: 5,889 mt Japan: 17,765 mt Korea: 13, 942 mt Chinese Taipei: 10,481 mt USA: 6,554 mt
Future Impact on BET Stock: Projected % SSB_{F=0} and LRP risk	60,319 mt “recent” longline catch, 2016-2018 46% SSB_{F=0}, 0% LRP risk Pessimistic: 43% SSB _{F=0} , 0% LRP risk	71,094 mt total longline catch relative to 2016-2018 catch 43% SSB_{F=0}, 0% LRP risk Pessimistic: 41% SSB _{F=0} , 0% LRP risk	72,319 mt total longline catch relative to 2016-2018 catch 43% SSB_{F=0}, 0% LRP risk Pessimistic: 41% SSB _{F=0} , 0% LRP risk	63,319 mt total longline catch relative to 2016-2018 catch 44-45% SSB_{F=0}, 0% LRP risk Pessimistic: 42% SSB _{F=0} , 0% LRP risk
Future Impact on BET Stock if PS Scalar = 1.25	44% SSB _{F=0} , 0% LRP risk, Pessimistic: 41% SSB _{F=0} , 0% LRP risk	40% SSB _{F=0} , 0% LRP risk Pessimistic: 39% SSB _{F=0} , 1% LRP risk	40% SSB _{F=0} , 0% LRP risk Pessimistic: 38% SSB _{F=0} , 2% LRP risk	44% SSB _{F=0} , 0% LRP risk Pessimistic: 41% SSB _{F=0} , 0% LRP risk

- “Pessimistic” scenario defined as full utilization of Japan and Indonesia limits, ~10,000 metric tons not realized in recent catches, added to each option
- Projection scenarios based on “recent recruitment” assumption
- Purse seine scalar, under current management, is assumed to be 1.15 relative to 2016-2018 scalar