



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 12, 2022
To: Dr. Chris Moore, Executive Director
From: Karson Cisneros (Coutre), Staff
Subject: Review of 2023 Bluefish Specifications

Executive Summary

The Magnuson-Stevens Act (MSA) requires each Council's SSC to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committee (MC) established by the Fishery Management Plan (FMP) is responsible for developing recommendations for management measures designed to achieve the recommended catch limits. The SSC recommends ABCs that addresses scientific uncertainty, while the MC recommends ACTs that address management uncertainty and management measures to constrain catch to the TALs.

A management track assessment for bluefish was conducted in June 2021. The assessment incorporates data through 2019, including the revised time series (1985-2019) of recreational catch provided by the Marine Recreational Information Program (MRIP).

The Council and Board approved the Bluefish Allocation and Rebuilding Amendment at their June 2021 meeting. The rebuilding portion of the Amendment includes a 7-year constant fishing mortality plan that began in 2022. Projections will be rerun every two years through the Northeast Fisheries Science Center (NEFSC) assessment process to ensure adequate rebuilding progress is being made. A research track assessment is currently scheduled for late in 2022 (currently ongoing), which will be followed by a management track assessment in June 2023 with data through 2022 to inform the 2024-2025 specifications package.

In July 2021, the SSC recommended 2022-2023 bluefish ABCs using the total catch value from the 7-year constant rebuilding fishing mortality as an OFL proxy and accounting for scientific uncertainty associated with the OFL proxy. This resulted in an ABC of 25.26 million pounds (11,460 mt) for 2022 and 30.62 million pounds (13,890 mt) for 2023. In August 2021, the Council and Board set 2022-2023 annual catch targets (ACTs), total allowable landings (TALs), commercial quotas, recreational harvest limits (RHLs), and other associated management measures (Final Rule 2/2/2022, 87 FR 5739).

The SSC should review the previously adopted 2023 ABC to consider if changes are needed. Staff recommend no changes to the 2023 ABC of 30.62 million pounds (13,890 mt) for bluefish.

Staff recommend no changes to the 2023 implemented commercial ACL, ACT, and quota and no changes to the 2023 recreational ACL and ACT. Bluefish recreational accountability measures require a pound for pound overage payback when the stock is overfished. Staff recommend using 2021 GARFO recreational discard estimates (as soon as available) as expected discards for the updated 2023 RHL. A separate recreational management measures memo will outline staff recommendations for 2023 recreational management measures, based on the payback-adjusted RHL, to be discussed by the MC at their July 2022 meeting.

Table 1. Currently implemented 2022 and originally projected 2023 bluefish specifications.
Note: The 2023 recreational accountability measures, expected discards, and RHL will likely be adjusted based on official GARFO recreational discard estimates and resulting payback values. These estimates have not yet been released.

Management Measure	Year				Basis
	2022		2023		
	mil lb.	mt	mil lb.	mt	
Overfishing Limit (OFL)	40.56	18,399	45.17	20,490	Stock assessment projections
ABC	25.26	11,460	30.62	13,890	Derived by SSC; Follows the rebuilding plan through NEFSC projections
ACL	25.26	11,460	30.62	13,890	Defined in FMP as equal to ABC
Commercial ACL	3.54	1,604	4.29	1,945	ABC x 14%
Commercial Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Commercial ACT	3.54	1,604	4.29	1,945	(ACL – Management Uncertainty)
Recreational ACL	21.73	9,856	26.34	11,945	ABC x 86%
Recreational Management Uncertainty	0	0	0	0	Derived by the Monitoring Committee
Recreational ACT	21.73	9,856	26.34	11,945	(ACL – Management Uncertainty)
Recreational AMs	3.65	1,656	0	0	2022 based on 2020 ABC overage
Commercial Discards	0	0	0	0	Value used in assessment
Recreational Discards	4.19	1,901	4.19 ¹	1,901 ¹	2020 GARFO-estimated (MRIP) discards ²
Commercial TAL	3.54	1,604	4.29	1,945	Commercial ACT - commercial discards
Recreational TAL	13.89	6,298	22.14	10,044	Recreational ACT - recreational discards and rec. AM for 2022
Combined TAL	17.42	7,903	26.43	11,989	Commercial TAL + Recreational TAL
Transfer	0	0	0	0	No transfer while overfished or overfishing
Commercial Quota	3.54	1,604	4.29	1,945	Commercial TAL +/- transfer
RHL	13.89	6,298	22.14	10,044	Recreational TAL +/- transfer

¹Staff recommend revising recreational discards to the 2021 GARFO estimate once available.

Recent Catch and Landings

Recreational harvest, dead discards, and commercial landings from 2000-2021 are presented in Figure 1. Recreational landings were 12.46 million pounds in 2021, a 1.12 million pound decrease compared with 2020, and the lowest harvest for the time series. This coincides with lower effort,

as the number of recreational trips¹ in 2021 (7,409,375) is the second lowest reported in the 2000-2021 period. Recreational catch and harvest and commercial landings by state are shown in Table 2. In 2019, the Council and Board approved recreational management measures to constrain harvest to the RHL, which included going from a 15 fish bag limit across all modes to a 3-fish bag limit for private and shore modes and a 5-fish bag limit for the for-hire mode. The recreational management measures were not implemented by all states until mid-late 2020. The first full year of these more restrictive bag limits was 2021.

Commercial landings were 2.07 million pounds in 2021, a 0.09 million pound decrease compared with 2020. Similar to recreational harvest, 2021 commercial harvest represents the lowest commercial landings in the time series. Commercial bluefish harvest identified through the dealer database (cfders) was comprised of gillnet (59%), followed by unknown gear (26%), otter trawl/bottom fish (7%), handline (5%) and other (3%).

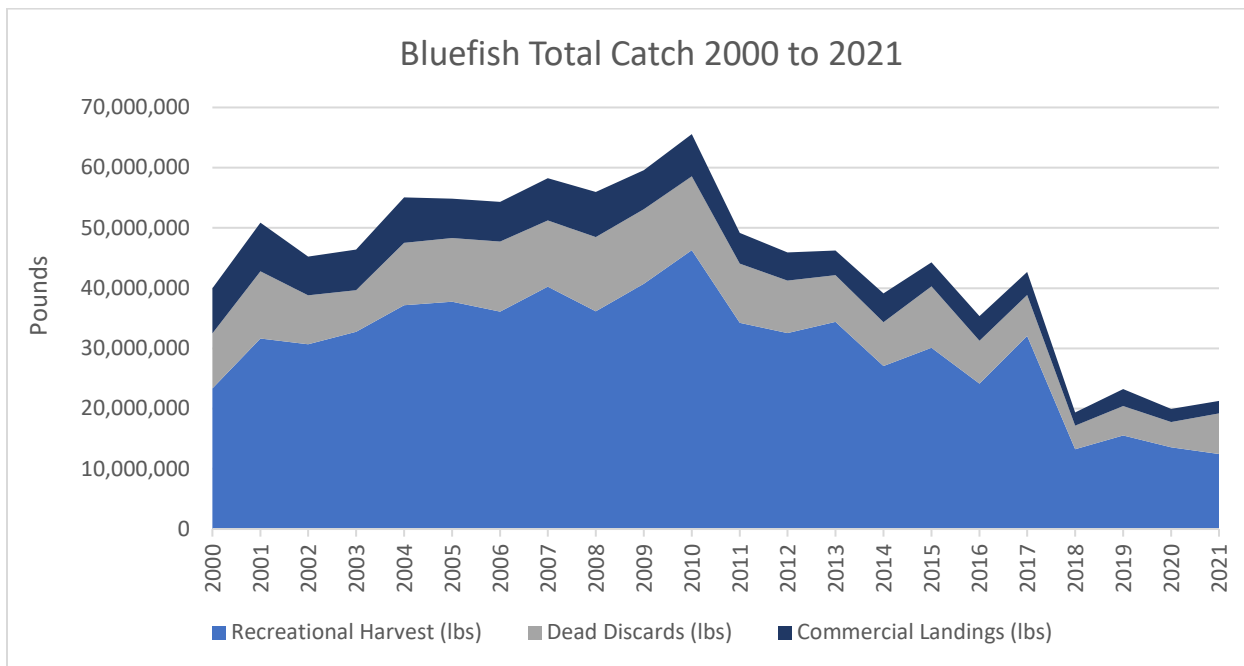


Figure 1. Bluefish total catch (recreational harvest, recreational dead discards and commercial landings) from 2000-2021. Source: MRIP and dealer data). Commercial discards are thought to be negligible.

¹ Estimated number of recreational fishing trips where the primary or secondary target was bluefish, Maine – Florida's East Coast. Source: MRIP.

Table 2. MRIP estimates of 2021 bluefish recreational harvest, total catch, and average weight.

State	<i>Recreational</i>						<i>Commercial</i>
	Harvest			Catch	Released Alive	Dead Discards ²	Landings
	Pounds	Number	Ave. Wt. ¹ (lbs)	Number	Number	Number	Pounds
ME	3,633	673	5.4	6,104	5,431	815	0
NH	3,796	698	5.4	698	-	-	0
MA	833,962	116,547	7.2	855,041	738,494	110,774	223,723
RI	718,950	140,504	5.1	774,409	633,905	95,086	254,607
CT	206,429	263,966	0.8	1,180,092	916,126	137,419	33,648
NY	2,353,527	861,060	2.7	3,565,667	2,704,607	405,691	324,186
NJ	3,357,809	921,667	3.6	2,895,008	1,973,341	296,001	230,157
DE	8,460	14,019	0.6	179,562	165,543	24,831	2,171
MD	117,545	105,711	1.1	316,949	211,238	31,686	3,065
VA	153,199	216,317	0.7	719,804	503,487	75,523	44,626
NC	1,031,761	982,391	1.1	4,521,724	3,539,333	530,900	851,860
SC	107,268	172,528	0.6	722,532	550,004	82,501	0
GA	12,870	13,811	0.9	136,588	122,777	18,417	0
FL	3,553,572	2,373,891	1.5	13,875,822	11,501,931	1,725,290	102,623
Total	12,462,781	6,183,783	-	29,750,000	23,566,217	3,534,932	2,070,666

¹ Average weight is the pounds harvested divided by the number of fish harvested. ²Recreational dead discards are calculated as 15% of total recreational discards.

Discard Estimates

There are currently two methods used to estimate recreational bluefish discards that result in very different estimates (e.g., 2019 GARFO estimated = 4,880,759 pounds, 2019 NEFSC estimated = 15,414,721 pounds). Discard estimate methodologies are being evaluated in the ongoing bluefish research track assessment and the peer reviewed methodology resulting from the assessment is expected to be used throughout the management process in the future. The first approach, which is used by GARFO for catch accounting, applies the MRIP estimated mean weight (by year, state and wave) of harvested fish (A+B1) times the number of released fish (MRIP-B2s by year, state and wave) and an assumed 15% release mortality. Previously, the Monitoring Committee generally agreed that this estimate does not fully capture recreational fishery dynamics because this approach uses the mean weight of harvested fish, not discards, and the length frequency data suggests that released fish tend to be larger than retained fish. The second approach, which is used by the NEFSC in the bluefish stock assessment, incorporates a length-weight relationship for released fish data from the MRIP, American Littoral Society tag releases, and volunteer

angler surveys from Connecticut, Rhode Island, and New Jersey. However, this sampling approach does not characterize the entire coast, which adds to the uncertainty in these estimates. The constant F-rebuilding projections used to inform the 2022-2023 ABCs incorporated the 2020 GARFO estimated discards.

Stock Status and Biological Reference Points

In June 2021, a bluefish management track assessment, which included revised bluefish MRIP estimates and commercial landings through 2019 indicated the bluefish stock is still overfished and overfishing is not occurring. This update builds upon the 2019 operational assessment with data through 2018 that first indicated the stock was overfished and overfishing was not occurring.

The biological reference points for bluefish revised through the 2021 management track assessment include an updated fishing mortality threshold of $F_{MSY} = F_{35\%}$ (as the F_{MSY} proxy) = 0.181, and a biomass reference point of $SSB_{MSY} = SSB_{35\%}$ (as the SSB_{MSY} proxy) = 444.74 million lbs (201,729 mt). The minimum stock size threshold ($1/2 SSB_{MSY}$) is estimated to be 222.37 million lbs (100,865 mt); Table 3. SSB in 2019 was 211.07 million lbs (95,742 mt), 47.5% of the SSB_{MSY} proxy reference point (Figure 2 and Table 3).

Fishing mortality on the fully selected age 2 fish was estimated to be 0.172 in 2019, 95% of the updated fishing mortality threshold reference point F_{MSY} proxy = $F_{35\%} = 0.181$ (Figure 3). There is a 90% probability that the fishing mortality rate in 2019 was between 0.140 and 0.230.

Table 3. Summary of changes in biological reference points and terminal year SSB and F estimates resulting from SAW/SARC 60 process to the 2019 operational assessment and 2021 management track assessment.

	SAW/SARC 60 (2015) Biological Reference Points and most recent update stock status results (data through 2014)	Bluefish Operational Assessment (2019) Biological Reference Points and stock status results (data through 2018)	Bluefish Management Track Assessment (2021) Biological Reference Points and stock status results (data through 2019)
Stock Status	Not Overfished, Not Overfishing	Overfished, Not Overfishing	Overfished, Not Overfishing
SSB_{MSY}	223.42 million lbs (101,343 mt)	438.10 million lbs (198,717 mt)	444.74 million lbs (201,729 mt)
½ SSB_{MSY}	111.71 million lbs (50,672 mt)	219.05 million lbs (99,359 mt)	222.37 million lbs (100,865 mt)
Terminal year SSB	2014: 258.76 million lbs (86,534 mt) 85% of SSB _{MSY}	2018: 200.71 million lbs (91,041 mt) 46% of SSB _{MSY}	2019: 211.07 million lbs (95,742 mt) 47.5% of SSB _{MSY}
F_{MSY}	0.190	0.183	0.181
Terminal year F	2014: 0.157 83% of F _{MSY}	2018: 0.146 80% of F _{MSY}	2019: 0.172 95% of F _{MSY}

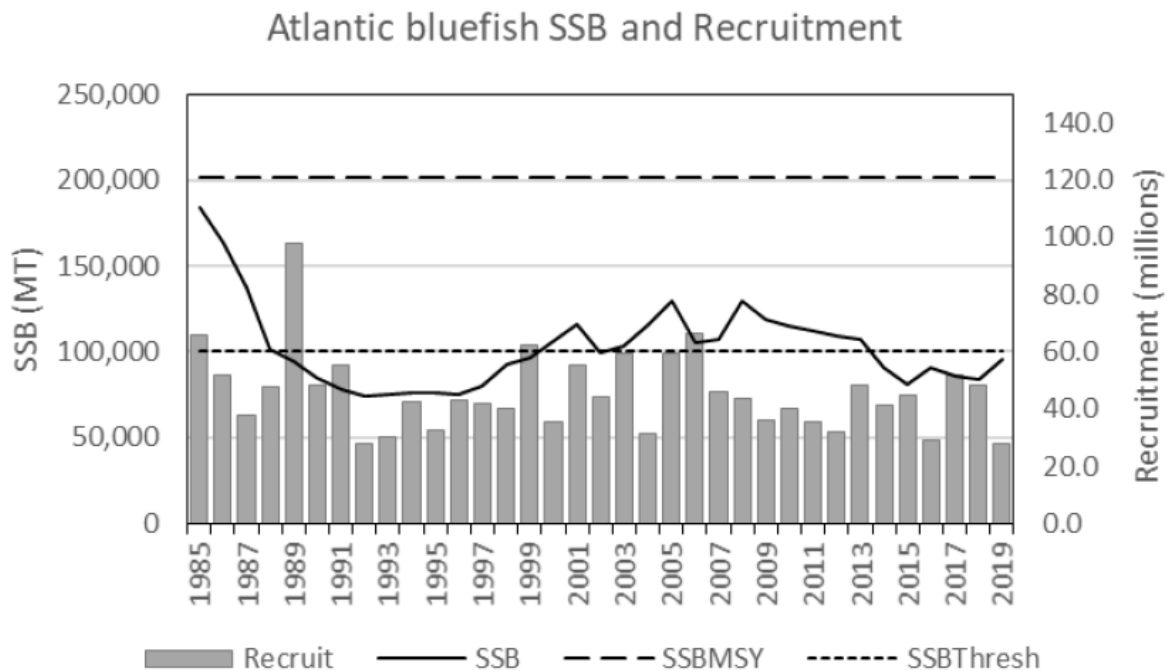


Figure 2. Atlantic bluefish spawning stock biomass (SSB; solid black line) and recruitment at age 0 (R; gray vertical bars) by calendar year. The horizontal dashed line is the updated SSB_{MSY} proxy = SSB_{35%} = 201,729 MT, and the dotted black line is the SSB_{Threshold} = 100,865 MT.

Atlantic bluefish total catch and Fishing Mortality

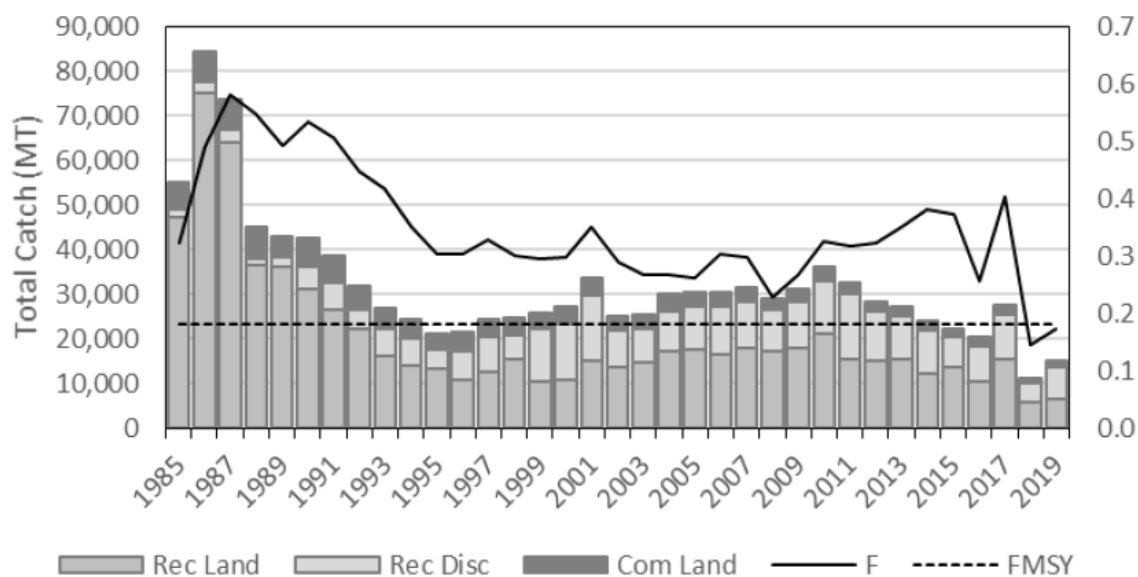


Figure 3. Total fishery catch (metric tons; MT; solid line) and fishing mortality (F, peak at age 3; squares) for Atlantic bluefish. The horizontal dashed line is the updated F_{MSY} proxy = $F_{35\%}$ = 0.181.

The 2021 management track assessment indicated the bluefish stock has experienced a decline in SSB over the past decade, coinciding with an increasing trend in F. Recruitment has remained fairly steady, fluctuating just below the time-series mean of 46 million fish. Both commercial and recreational fisheries have had lower catches in recent years. These lower catches are possibly a result of availability.

Review of Prior SSC Recommendations

In July 2021, the SSC recommended new ABCs for 2022-2023, which incorporated the results of the 2021 management track stock assessment. To make this recommendation, the SSC reviewed 2020 fishery performance and materials from the management track assessment.

The SSC also discussed the Council-approved rebuilding schedule, including the treatment of the rebuilding F proposed by the Council and its implications for generating ABCs. The Council’s rebuild policy is to achieve rebuilding within a seven-year period commencing in 2022. A constant F strategy was selected such that biomass in 2028 has a 50% chance of exceeding the Bmsy proxy rebuilding target. Given the basis for the rebuilding, the SSC determined that the constant F for rebuilding in seven years (denoted as $F_{rebuild,7} = 0.154$) should be treated as a Fmsy proxy. As such, the usual Council risk policy, P* criteria, and OFL CV process should apply. Failure to include scientific uncertainty through the direct application of $F_{rebuild,7}$ alone could generate instances where the probability of overfishing exceeded 0.5 between 2022 and 2028. Accounting for scientific uncertainty and the resulting lower ABCs should also increase the chance (i.e., greater than 50%) of exceeding the Bmsy target to rebuild the stock within the seven year timeframe.

The SSC recommended that a CV of 100% be applied to the OFL estimate as an appropriate ABC and noted that the chief uncertainty for Bluefish relates to patterns in the revised MRIP estimates.

The SSC also discussed the most significant sources of uncertainty, ecosystem considerations, and research recommendations to reduce uncertainty. These discussions can be found summarized here: <https://www.mafmc.org/s/July-2021-SSC-Report.pdf>.

Staff Recommendation for 2023 ABC

Staff recommend maintaining the previously implemented 2023 ABC for bluefish of 30.62 million pounds (13,890 mt). In 2022, a research track assessment is ongoing and scheduled for peer review in December 2022. This assessment may change the overall model used to assess bluefish, and in turn update all biological reference points and the resulting rebuilding plan. This assessment will ultimately inform the 2024-2025 specifications package.

Sector Specific Catch and Landings Limits

The flow chart in Figure 4 on page 9 was used to derive the sector specific catch and landings limits shown in Table 1. No transfers between sectors occur when the stock is overfished.

Recreational

In 2021, MRIP reported the recreational fishery landed 12.46 million pounds compared to the 8.34 million pounds RHL. This RHL overage along with recreational discards likely results in an ACL overage, in which case accountability measures will be triggered. Official 2021 recreational discard estimates are not yet available from GARFO, however they are expected to be released before the August Council and Board meeting. Bluefish recreational accountability measures require a pound for pound overage payback when the stock is overfished. A separate recreational management measures memo will outline staff recommendations for 2023 recreational management measures, based on a payback-adjusted RHL, to be discussed by the MC at their July 2022 meeting.

Commercial

In 2021, the commercial fishery landed 2.07 million pounds compared to the 2.77-million-pound quota and commercial discards are assumed to be zero. Staff recommend no changes to the 2023 implemented commercial ACL, ACT, and quota.

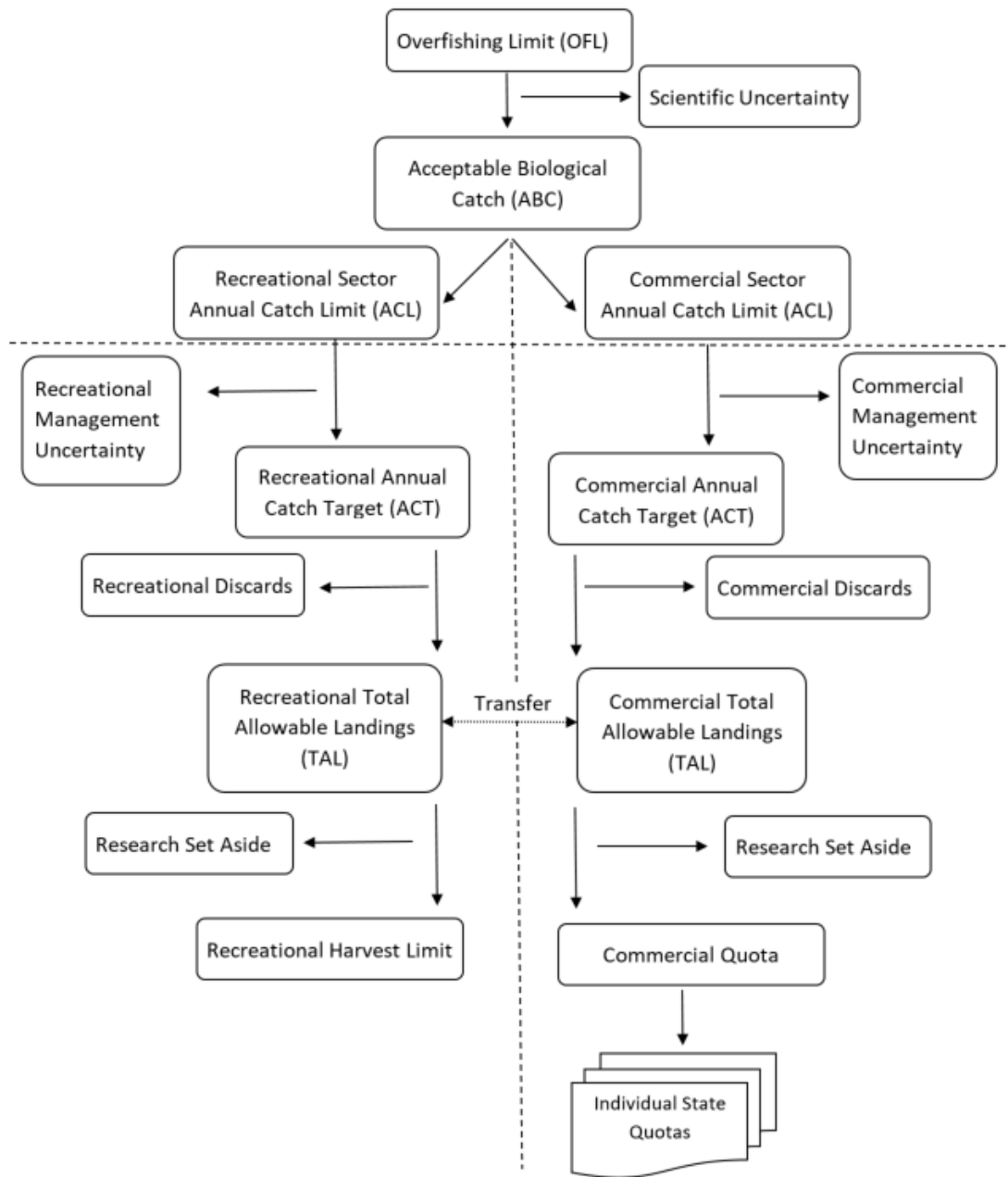


Figure 4. Bluefish flow chart from the Bluefish Allocation and Rebuilding Amendment, which includes sector specific management uncertainty. The research set aside program is currently discontinued so no further calculations are needed from the sector specific TALs to the RHL and commercial quota.