



Examples of Fisheries Management Framework/Inseason Management Actions that allow a more nimble response to changes in fisheries

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Introduction to Framework Fisheries Management Plans

Harvest frameworks within fisheries management plans should embody dynamic and adaptive management approaches for achieving harvest and fisheries population goals over a protracted period of time (up to ten years). The scope of harvest frameworks usually relate to a defined geographical area or food web (e.g., national, regional, coastal basin, ecosystem, etc.). Incremental decision points (e.g., annual, seasonal) are identified to systematically allocate resources based upon critical data inputs and new scientific information, while assuring the sustainability of harvested fishery resources and the protection of sensitive species and their habitats. For fisheries, they can proactively and dynamically integrate provisions of the National Environmental Policy Act, Administrative Procedures Act, Endangered Species Act, Marine Mammal Protection Act, Magnuson-Stevens Fisheries Conservation and Management Act, and other laws and regulations pertinent to the scope of a specific framework action. Framework fishery management plans, similar to their underlying comprehensive fishery management plans, utilize the best available science and best management practices, and allow varying levels of flexibility in making tradeoffs within ecosystems. Such tradeoffs can be adjusted inseason based upon changing climatological trends, population levels, harvest techniques, infrastructure, and values of constituents without requiring the more complex procedural steps of a fishery management plan amendment, which often cannot be accomplished within a fishing season.

The advantages of framework approaches include predictable outcomes based on agreed upon goals and objectives; a more predictable business model for fishing operations; and the ability to adjust management regimes more rapidly due to climatological variations, population dynamics, technological advances, or consumer demand. Since critical decisions are based upon goals and priorities that were established through a full fishery management plan development process – complete with environmental review and public participation -- the framework process substantially reduces the overall administrative burdens and time requirements.

NOAA Fisheries reviewed framework actions while developing its policy on NEPA compliance for Fishery Management Actions under the Magnuson-Stevens Act on February 19, 2013. The process involved a public comment period and resulted in Policy Directive PD 30-12 (see <http://www.nmfs.noaa.gov/op/pds/documents/30/30-132.pdf>). The PD is supportive of framework actions consistent with the tiering approach recognized under the NEPA regulations, 40CFR1500.

NOAA together with the FMCs has an opportunity to develop a blueprint for expanding the adaptive management approach through framework actions. Incumbent in that blueprint is a need

to make clear how tiering can best be used and how public involvement would be appropriately engaged throughout the process. It bears mentioning as well that the availability of near real-time and appropriate data inputs as well as competent interpretive analytical capability is critical to the ability of fishery managers to implement dynamic management processes in a timely manner and to avoid management actions that result in unintended consequences.

Another promising approach being used by the NOAA Fisheries Science Centers is Management Strategy Evaluation (MSE). According to the NOAA Fisheries Ecosystem-Based Fisheries Management Roadmap, “a wide range of simulations using MSEs will help determine which management options will most likely accomplish desirable outcomes and are most robust to accommodate a range of considerations. MSEs help evaluate trade-offs among different management scenarios and can highlight key gaps in data and understanding of ecosystem processes and human impacts. Executing MSEs at the ecosystem level can capture major drivers, pressures, and responses, as well as emergent properties that would be missed if explored on a taxa-by-taxa basis. NOAA Fisheries will ensure that Ecosystem MSEs link to multispecies and single species MSEs, inclusive of economic, socio-cultural, and habitat considerations and objectives. There are many examples of how various elements of framework actions and inseason management have been used over time in FMP’s as well as by other Federal agencies for corollary actions. The challenge ahead of us is to more purposely integrate adaptive management approaches into fishery management plans.”

Two sections follow. The first is a table that includes examples of frameworks and inseason management measures from actual fishery management plans, and two examples from other agencies, the Federal Emergency Management Administration (FEMA) and Migratory Bird Management, under the Department of the Interior, U.S. Fisher and Wildlife Service (USFWS). Details of these examples and excerpts from the framework documents are provided in the Appendix. The second section includes abstracts from peer reviewed academic publications about decision triggers and adaptive management.

I. Examples of Framework Actions, Inseason Management Tools, or Other Adaptable Fishery Management Options Currently Used in Fishery Management Plans

Summary of Framework and Inseason Management Actions or other adaptable fishery management options.

Region	Year	Title	Purpose
GMFMC		Gulf of Mexico Shrimp Amendment 14 Framework Action to Reduce Red Snapper Bycatch	Closes an area of high interaction with juvenile red snapper to shrimp bottom trawling when a specified level of shrimp effort is reached.
NPFMC		North Pacific Groundfish Gulf of Alaska Management Plan 3.8.2 Flexible Management Authority 3.8.2.1 Inseason Adjustments	Respond to new information and data relating to stock status which warrant inseason adjustments to a fishery.
NPFMC		North Pacific Automatic Reallocations for Bering Sea and Aleutian Islands	FMP includes pre-arranged “if/then” allocations for yellowfin sole between two sectors depending on the total allowable catch (TAC).
MSFMC		Mid-Atlantic Bluefish	If the recreational sector is not projected to land its harvest limit for the upcoming year, then the commercial catch limit may be increased for that year as long as the combination of the projected recreational landings and the commercial quota does not exceed the total allowable landings
		Highly Migratory Species (HMS) Framework Actions for Atlantic Bluefin Tuna	Consolidate and refine the criteria that NMFS must consider prior to conducting any inseason, and some annual, actions
PFMC	2016	Pacific Coast Salmon Fishery Management Plan	Inseason adjustments in management measures are consistent with escapement goals, conservation of the salmon resource, any federally recognized Indian fishing rights, and the ocean allocation scheme.
NPFMC		Gulf of Alaska Groundfish Fishery Management Plan, North Pacific	RA is authorized to make three types of in-season adjustments: Modify seasons in part or all of a management area; Modify allowable gear in all or part of a management area; adjust TAC and PSC limits.
NEFMC		Framework Adjustment 55 to the Northeast Multispecies Fishery Management Plan	Update changes to the status determination criteria, to adopt specifications, to adopt U.S./ Canada Total Allowable Catches (TACs), to implement new sectors, to modify the process of approving sectors, to change a net definition, to modify the at-sea monitoring program, to facilitate the transfer of ACE between management areas, and to modify the recreational component of the Gulf of Maine Cod Protection measures.
PFMC	2011	Pacific Whiting Amendment 20 Mothership Catcher Vessel Cooperative	The cooperative coordinates harvest by 37 commercial trawlers with pooled quota for harvest of whiting and pooled bycatch quota.

Region	Year	Title	Purpose
WPFMC	2014	Framework for Catch and Effort Limits for U.S. Participating Territories, Amendment 7	Framework for annual specification of catch and effort limits for US participating territories to implement regional fishery management organization conservation and management measures related to catch and effort under the Magnuson- Stevens Act (MSA) process.
FEMA	2016	FEMA National Planning Framework	A Framework for each of the five mission areas, Prevention, Protection, Mitigation, Response, and Recovery.
USFWS	2016	Migratory Bird Management Framework	Adaptive resource management for regulating duck harvests in the United States.

II. Peer Reviewed Published Articles on Decision Triggers and Adaptive Management

Decision triggers are a critical part of evidence-based conservation.

C.N. Cook, Kelly de Bie, David A. Keith, Prue F.E. Addison. *Biological Conservation* Vol.195. 2016. p46–51.

Abstract: Conservation managers face complex decisions about if, when and how to intervene in managed systems. To support these decisions, approaches are needed that utilize the best available evidence to guide actions when a system is moving into an undesirable state. Assigning some form of critical threshold that if crossed would trigger action (a decision trigger) is growing in favor in the scientific community. Likewise, there is increasing interest from the conservation management community in using decision triggers as part of evidence-based management. In this article, we reinforce calls for the use of decision triggers and highlight how they can complement many approaches for evidence-based conservation. There are many benefits to using decision triggers to link evidence to action. For management organizations, decision triggers offer a way to improve the clarity and transparency of management decisions. There has been recent progress in developing methods to set robust decision triggers that utilize rigorous biological monitoring data, such as receiver operating characteristic curves, control charts and participatory modelling. When monitoring data are not readily available, approaches that set decision triggers based on utility thresholds (i.e., value-based judgements) or expert elicitation methods, and refine trigger points over time, hold promise. Despite the many benefits, there remain challenges for both developing and implementing decision triggers. There is a pressing need for a process that can guide organizations in setting defensible decision triggers based on the best available science, and that can be used for a wide range of management contexts. We believe decision triggers can be integrated into existing management processes within organizations to improve decisions about when and how to act to protect biodiversity, and to support managers to achieve evidence-based conservation.

Decision-Making Triggers in Adaptive Management

Martin A. Nie and Courtney A. Schultz. *Conservation Biology*. Volume 26, No. 6. p1137–1144.

Abstract: We analyzed whether decision-making triggers increase accountability of adaptive-management plans. Triggers are pre-negotiated commitments in an adaptive management plan that specify what actions are to be taken and when on the basis of information obtained from monitoring. Triggers improve certainty that particular actions will be taken by agencies in the future. We conducted an in-depth, qualitative review of the political and legal contexts of adaptive management and its application by U.S. federal agencies. Agencies must satisfy the judiciary that adaptive-management plans meet substantive legal standards and comply with the U.S. National Environmental Policy Act. We examined 3 cases in which triggers were used in adaptive-management plans: salmon (*Oncorhynchus* spp.) in the Columbia River, oil and gas development by the Bureau of Land Management, and a habitat conservation plan under the U.S. Endangered Species Act. In all the cases, key aspects of adaptive management, including controls and pre-identified feedback loops, were not incorporated in the plans. Monitoring and triggered mitigation actions were limited in their enforceability, which was contingent on several factors, including which laws applied in each case and the degree of specificity in how triggers were written into plans. Other controversial aspects of these plans revolved around who designed, conducted, interpreted, and funded monitoring programs. Additional contentious issues were the level of precaution associated with trigger mechanisms and the definition of ecological baselines used as points of comparison. Despite these challenges, triggers can be used to increase accountability, by predefining points at which an adaptive management plan will be revisited and reevaluated, and thus improve the application of adaptive management in its complicated political and legal context.

Scientifically Defensible Fish Conservation and Recovery Plans: Addressing Diffuse Threats and Developing Rigorous Adaptive Management Plans

Kathleen G. Maas-Hebner, Carl Schreck, Robert M. Hughes, J. Alan Yeakley & Nancy Molina. 2016. *Fisheries*. 41:6. 276-285. DOI: 10.1080/03632415.2016.1175346

Abstract: We discuss the importance of addressing diffuse use threats to long-term species and habitat viability in fish conservation and recovery planning. In the Pacific Northwest, USA, salmonid management plans have typically focused on degraded fresh-water habitat, dams, fish passage, harvest rates, and hatchery releases. However, such plans inadequately address threats related to human population and economic growth, intra- and interspecies competition, and changes in climate, ocean, and estuarine conditions. Based on reviews conducted on eight conservation and/or recovery plans, we found that though threats resulting from such changes are difficult to model and/or predict, they are especially important for wide-ranging diadromous species. Adaptive management is also a critical but often inadequately constructed component of those plans. Adaptive management should be designed to respond to evolving knowledge about the fish and their supporting ecosystems; if done properly, it should help improve conservation efforts by decreasing uncertainty regarding known and diffuse threats. We conclude with a general call for environmental managers and planners to reinvigorate the adaptive management process in future management plans, including more explicitly identifying critical uncertainties, implementing

monitoring programs to reduce those uncertainties, and explicitly stating what management actions will occur when pre-identified trigger points are reached.

By definition, adaptive management is a structured decision-making process for recurrent management decisions made under uncertainty (Runge 2011). Therefore, adaptive management should (1) explicitly identify existing knowledge and critical uncertainties, (2) clearly articulate management expectations, (3) design and implement targeted monitoring programs aimed at gaining knowledge related to the critical uncertainties identified, (4) update predictive models based on ongoing monitoring information, and (5) adjust future management decisions based on new knowledge about the resource being managed (Runge 2011). Within this framework, plans must also explicitly state what will and will not occur when pre-identified trigger points for decision-making are reached.

APPENDIX. Details and Excerpts of Framework Actions

This appendix provides references and the background information for each of the frameworks and inseason management measures noted in Table 1. The text in this section is largely taken directly from the fishery management plan documents, the Federal Emergency Management Administration (FEMA), and the Migratory Bird Management, as referenced. It is important to note that these have not been exhaustively researched to determine how successful each framework example has been in operation.

A. Gulf of Mexico Shrimp Amendment 14 Framework Action to Reduce Red Snapper Bycatch¹

Amendment 14 was part of the Joint Reef Fish Amendment 27/Shrimp Amendment 14 and was submitted to the NOAA Fisheries in June 2007. At the time, the Gulf of Mexico red snapper stock was overfished and undergoing overfishing. The Gulf of Mexico Fishery Management Council (Council) recognized that the status of this stock is influenced not only by fishing mortality rates in the commercial and recreational red snapper fisheries, but also by red snapper bycatch mortality rates in the shrimp trawl fishery. The red snapper catch and bycatch rates of all fisheries needed to be substantially reduced to end overfishing between 2009 and 2010, which was the time frame in which the Council committed to ending overfishing in the red snapper rebuilding plan.

The primary purpose of Amendment 27/14 was to revise the rebuilding plan strategy to incorporate additional red snapper catch and bycatch reduction measures that had a reasonable probability of successfully ending overfishing and rebuilding the red snapper stock on schedule. In particular, it established a target reduction goal for juvenile red snapper mortality by reducing

¹ Gulf of Mexico Fishery Management Council. *Final Amendment 27 to the Reef Fish Fishery Management Plan and Amendment 14 to the Shrimp Fishery Management Plan*. June 2007. Sections: Abstract (p. vi –vii) and Preferred Alternatives (p. x-xi).
<http://gulfcouncil.org/Beta/GMFCWeb/downloads/Final%20RF%20Amend%2027-%20Shrimp%20Amend%2014.pdf>

red snapper shrimp trawl bycatch mortality on red snapper 74 percent less than the average of benchmark years of 2001-2003 with a reduction in this target to 60 percent on or before 2032.

The framework actions approved to achieve this were:

- Established if necessary a seasonal closure beginning on the same start date as the closure of the EEZ off Texas in the 10 to 30-fathom zone of selected areas within statistical subzones 10-21 in the Gulf of Mexico. The need for the closure and its extent and duration will be determined based on the annual evaluation of the level of shrimp effort and associated red snapper mortality. Any closure would be implemented in accordance with the framework outlined in Action 8 taking into consideration the mortality reductions associated with improved BRDs and other gear improvements; and
- Established a framework procedure to adjust the effort target and closed season for the shrimp fishery in the Gulf of Mexico within the scope of the preferred alternatives identified in Actions 6 and 7. The Southeast Fisheries Science Center (SEFSC) will conduct an annual assessment of the previous year's shrimp effort from the 10 to 30-fathom area in the Gulf (Statistical Subzones 10-21) and determine the area and duration of a closure and report this to the Regional Administrator for administrative action.

B. North Pacific Groundfish Gulf of Alaska Management Plan 3.8.2 Flexible Management Authority 3.8.2.1 Inseason Adjustments²

In a sub-section on Inseason Adjustments under Flexible Management Authority (3.8.2.1), the North Pacific Council describes how it annually sets harvest levels for each groundfish species or species group for a new fishing year based on the best biological, ecological, and socioeconomic information available. During the course of that fishing year, new information and data relating to stock status may become available to the Regional Administrator and/or the Council. Changes in stock status may not have been anticipated nor sufficiently understood at the time harvest levels were set, only became known from events within the fishery as it proceeded, or may have become known from analysis of scientific survey data. In these cases, the Council recognized that inseason adjustments to a fishery may be warranted.

The Council understood that certain changes warrant swift action by the Regional Administrator to protect the resource from biological harm by instituting gear modifications or adjustments through closures or restrictions. Other changes could warrant action to provide greater fishing opportunities for the industry by instituting time/area adjustments through openings or extension of a season beyond a scheduled closure.

The need for inseason action may be related to several circumstances. When new information indicates that a species has decreased in abundance, it is not prudent to allow a fishery to continue to a harvest level now known to be too high since it could increase the risk of overfishing that species. Conservation measures limited to establishing prohibited species catch may be necessary during the course of the fishery to prevent jeopardizing the well-being of prohibited species stocks. Conversely, new information may indicate that a prohibited species is

² North Pacific Fishery Management Council. November 2016. *Fishery Management Plan for Groundfish of the Gulf of Alaska*. Section 3.8.2.1, p57 -59. <https://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmppdf>

more abundant than was anticipated when limits were set. Closing a fishery on the basis of the preseason prohibited species catch (PSC) limit that is proven to be too low would impose unnecessary costs on the fishery. It may become appropriate to increase the PSC limits if the additional mortality would not be detrimental to the stock or cause unreasonable costs on a fishery that utilize the prohibited species. However, adjustments to the total allowable catch (TAC) or PSC limits that are not initially specified on the basis of biological stock status is not appropriate.

The Council found that inseason adjustments are accomplished most effectively by management personnel who are monitoring the fishery and communicating with those in the fishing industry who would be directly affected by such adjustments. The Council authorized the Secretary, and by delegation, the Regional Administrator of NMFS, to make inseason adjustments to conserve fishery resources on the basis of all relevant information. Using all available information, the Regional Administrator may extend, open, or close fisheries in all or part of a regulatory area, or restrict the use of any type of fishing gear as a means of conserving the resource. He or she may also change any previously specified TAC or PSC limit if such are proven to be incorrectly specified on the basis of the best available scientific information or biological stock status. Such inseason adjustments must be necessary to prevent one of the following occurrences:

- a. The overfishing of any species or stock of fish, including those for which PSC limits have been set; and/or
- b. The harvest of a TAC for any groundfish, the taking of a PSC limit for any prohibited species, or the closure of any fishery based on a TAC or PSC limit that, on the basis of currently available information, is found by the Secretary to be incorrectly specified.

The types of information that the Regional Administrator must consider in determining whether conditions exist that require an inseason adjustment or action are described as follows, although he or she is not precluded from using information not described but determined to be relevant to the issue:

- a. The effect of overall fishing effort within an area.
- b. Catch per unit of effort and rate of harvest.
- c. Relative abundance of stocks within an area.
- d. The condition of a stock in all or part of a regulatory area.
- e. Any other factor relevant to the conservation and management of groundfish species or any incidentally-caught species that are designated as a prohibited species or for which a PSC limit has been specified.

The Regional Administrator is constrained, however, in his or her choice of management responses to prevent potential overfishing by having to first consider the least restrictive adjustments to conserve the resource. The order in which the Regional Administrator must consider inseason adjustments to prevent overfishing were specified as: 1) any gear modification that would protect the species in need of conservation protection, but that would still allow fisheries to continue for other species; 2) a time/area closure that would allow fisheries for other species to continue in non-critical areas and time periods; and 3) total closure of the management area and season.

The procedure that the Secretary must follow requires that the Secretary publish a notice of proposed adjustments in the *Federal Register* before they are made final, unless the Secretary finds for good cause that such notice is impracticable or contrary to the public interest. If the Secretary determines that the prior comment period should be waived, he or she is still required to request comments for 15 days after the notice is made effective, and respond to any comments by publishing in the *Federal Register* either notice of continued effectiveness or a notice modifying or rescinding the adjustment.

To effectively manage each groundfish resource throughout its range, the Regional Administrator must coordinate inseason adjustments, when appropriate, with the State of Alaska to assure uniformity of management in both State and Federal waters.

Any inseason time/area adjustments made by the Regional Administrator will be carried out within the authority of this FMP. Such action is not considered to constitute an emergency that would warrant a plan amendment within the scope of section 305(e) of the Magnuson-Stevens Act. Any adjustments will be made by the Regional Administrator by such procedures provided under existing law. Any inseason adjustments that are beyond the scope of the above authority will be accomplished by emergency regulations as provided for under section 305(e) of the Magnuson-Stevens Act.

The Inseason Management Branch of the Alaska Region of the NMFS³ prepares the proposed and final harvest specification documents. The branch supports the Regional Administrator in the day-to-day operations of the fisheries using the harvest specifications and current regulations. The Data Quality and Catch Accounting Branch compiles catch and production data from at-sea catcher/processor vessels, motherships, shore plants, and groundfish observers, which is used by the Inseason Management Branch to monitor the catch and allocations. The Inseason Management Branch announces openings and closures using Information Bulletins and publications in the *Federal Register*. Processors, vessel operators, and other businesses servicing the fishing industry, and the media, are quickly notified by email of any actions through Information Bulletins posted on the Alaska Region web site.

C. North Pacific Automatic Reallocations of Yellowfin Sole for Bering Sea and Aleutian Islands⁴

Amendment 80 (AM80) to the Bering Sea and Aleutian Islands (BSAI) Groundfish FMP includes pre-arranged “if/then” allocations for yellowfin sole between two sectors depending on the TAC. The North Pacific Fishery Management Council established the BSAI Trawl Limited Access (TLA) and provided a schedule for apportioning the Initial Total Allowable Catch (ITAC)—the portion of the Total Allowable Catch (TAC) after Western Alaska Community Development Quota Program (CDQs) allocation have been removed—of yellowfin sole between the AM80 and BSAI TLA Sectors. If the TAC for the two sectors is greater than 125,000 metric

³ Alaska Region Groundfish Harvest Specification and Inseason Management Overview. April 2017. Inseason Management Branch, Alaska Region, National Marine Fisheries Service. <https://alaskafisheries.noaa.gov/sites/default/files/harvestdiscussion.pdf>

⁴ Northern Economics, Inc. October 2014. *Five-Year Review of the Effects of Amendment 80 to the Bering Sea and Aleutian Islands Groundfish Fishery Management Plan*. Section 1.2.1, p4. Prepared for North Pacific Fishery Management Council. <https://www.npfmc.org/amendment-80-cooperatives/>.

tons (mt), then the AM80 sector is allocated 60 percent; if the TAC for the two sectors is less than 125,000 mt, then this sector receives an increasing apportionment. If the ITAC is less than 87,500 mt, the AM80 Sector is allocated 93 percent of the ITAC.

D. Mid-Atlantic Bluefish⁵

The Mid-Atlantic bluefish FMP provides an example of a mechanism that incorporates more discretion than the example provided above. The Mid-Atlantic bluefish allocation is currently set as 83% recreational and 17% commercial, based on the historic proportions of recreational and commercial landings. However, the FMP states that if the recreational sector is not projected to land its harvest limit for the upcoming year, then the commercial catch limit may be increased for that year as long as the combination of the projected recreational landings and the commercial quota does not exceed the total allowable landings.

E. HMS Framework Actions for Atlantic Bluefin Tuna (BFT) Management⁶

In 2006, NOAA Fisheries consolidated multiple Atlantic Highly Migratory Species Fishery Management Plans into a single consolidated plan that incorporated robust framework provisions. The following are proposed preferred alternatives that were later finalized in the Final FMP (71 FR 58058). As shown, the Agency chose to implement framework management approaches that allowed maximum agility to adapt both to changes in species dynamics as well as changes outside of their control due to the international nature of recommendations regarding management of these species by the International Commission for the Conservation of Atlantic Tunas.

“Western Atlantic BFT are overfished, and one of the main objectives of the Consolidated HMS FMP is to end overfishing and rebuild overfished stocks, while providing reasonable fishing opportunities to harvest the limited quota that is available under the BFT rebuilding plan. Since the 1999 FMP, BFT management has become increasingly complicated and difficult for the public to understand and may no longer accurately reflect the needs of the fishery and goals of the 1999 FMP. These issues are evident on a daily basis from the number of constituent inquiries addressed by NMFS and the number of inseason management actions necessary throughout the season. In addition, NMFS has received a petition from the State of North Carolina Department of Marine Fisheries (NMDMF) for rulemaking to adjust the quota allocations to provide for a General category fishery off North Carolina in the winter. NMFS considers these requests and considers ways of clarifying BFT management.

Two of the preferred alternatives would amend the time period and sub quotas for the General category and clarify the procedures for calculating the Angling category school-size fish. These alternatives are expected to enhance NMFS' flexibility to address inherent variability in the BFT fishery while still allowing for business planning. They also respond in part to the NCDMF's

⁵ Mid Atlantic Fishery Management Council. 2000. Amendment 1 to the FMP for the Atlantic Bluefish Fishery, 65 FR 45844. <http://www.mafmc.org/fisheries/fmp/bluefish>.

⁶ NMFS. 2006. *Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan*. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division. Silver Spring, MD. Public Document. 1600 p. <http://www.nmfs.noaa.gov/sfa/hms/documents/fmp/consolidated/total.pdf>

Petition for Rulemaking and would allow for a formal General category winter BFT fishery while still recognizing the historical BFT catch rates in the New England area fishery. These preferred alternatives would also clarify the procedures NMFS used to implement the ICCAT recommendation regarding the eight percent tolerance limit of school BFT as well as maintain the recreational North/South dividing line as a management tool.

Two other preferred alternatives would provide participants in the BFT fishery a timely and stable baseline quota allocation from one year to the next, the ability to address under/overharvest from the previous year, the ability to establish the General category effort controls as well as recreational and commercial handgear daily retention limits for the upcoming season, and streamline the annual rulemaking process. Additionally, providing NMFS the authority to implement a cap on the amount of quota that may be carried forward from one fishing year to the next would allow NMFS to manage to harvest of BFT with more finite precision and minimize the occurrence of 'stockpiling' in any one quota category.

Another preferred alternative would consolidate and refine the criteria that NMFS must consider prior to conducting any inseason, and some annual, actions. This preferred alternative would assist in meeting the Consolidated HMS FMP's objectives in a consistent manner, providing reasonable fishing opportunities, increasing the transparency in the decision making process, and balancing the resource's needs with users' needs."

The 2006 Consolidated plan noted that the 1999 FMP, Amendment 1 to the 1999 FMP, and Amendment 1 to the Billfish FMP outlined the process for amending or modifying regulations via regulatory framework adjustment or FMP amendment. To provide an understanding of the different types of actions that could be done via framework adjustment prior to 2006, we list them here (they are also listed in 50 CFR part 635.34):

- actions to implement ICCAT recommendations, as appropriate;
- domestic quotas;
- Atlantic tunas Purse Seine category cap on BFT quota;
- commercial retention limits;
- recreational retention limits;
- maximum sustainable yield or optimum yield levels based on the latest stock assessment or updates in the SAFE report;
- species size limits;
- permitting and reporting requirements;
- monitoring and tracking programs (e.g., landing tag);
- composition of the species groups;
- fishing year or season;
- time/area restrictions;
- target catch requirements;
- gear prohibitions, modifications, or use restrictions;
- effort restrictions;
- essential fish habitat;
- any shark species management group based on additions to or removals from the prohibited species list;

- classification system within shark species groups;
- shark management regions and the regional quotas; and,
- quota allocations between shark fishing seasons.

Additions to the list as a result of the 2006 Final Consolidated HMS FMP added:

- changes to the Atlantic blue and white marlin annual landings limit;
- additions, changes, or modifications to time/area closures; and
- workshop requirements.

Each of these preferred alternatives related to framework actions described in this section are listed here:

“Alternative F3 Amend the management procedures regarding General category time-periods, subquotas, as well as geographic set-asides to allow for future adjustments to take place via a regulatory framework action - Preferred Alternative

This alternative would amend the status quo management procedures which establish and adjust the General category time-periods, subquotas, as well as geographic set-asides. More specifically, this alternative would revise the detailed language regarding General category time- periods, subquota allocations, and geographic set-asides contained in the 1999 FMP to be more general, similar to Alternative F2. However, under this alternative, the specific details pertaining to management of the General category would be established in the regulatory text implementing the consolidated FMP, versus established annually (as in Alternative F2), thereby providing a level of consistency from one year to the next. By moving the specific language from the FMP to the implementing regulations, NMFS would be able to provide consistent time-periods and subquotas while also gaining the ability to amend these General category time-periods, subquota allocation percentages, and geographic set-asides, if deemed necessary, via a regulatory framework action, versus an FMP amendment.

Additionally, because the General category baseline quota, time-periods, and associated subquotas would be contained in the implementing regulations, the annual BFT specification process would not be necessary for the fishery to commence on the first day of the fishing year. Factors that may warrant future adjustments may include, but may not be limited to, ICCAT recommendations that modify BFT management measures, shifts in protected species interactions and bycatch rates, consideration of historic allocations and landings, stability and predictability of quotas, total landings reported, weather conditions, levels of effort, the amount of unharvested quota rolling from one year to the next, and the projected ability of the vessels to harvest the subquotas. If the specific management measures contained in the regulatory text need to be changed, then an appropriate analytical document (*i.e.*, EA or EIS, RIR, IRFA, etc.) may need to accompany the proposed and final rule in the regulatory amendment. However, as long as the ICCAT recommended annual U.S. BFT quota remains consistent, and the established General category time-period subquota allocation percentages are specified in whole weight, the regulatory, environmental, social, and economic analyses

conducted for the consolidated HMS FMP would constitute the supporting documentation for the annual regulatory framework action.

This alternative would also amend the actual General category time-periods as well as the corresponding subquota allocation percentages for each time-period. These subalternatives would support the preferred alternative in Section 2.3.2, which would adjust management of all HMS fisheries to a calendar year basis, by providing separate time-period subquota for December and January, ensuring that the time-periods do not span two calendar years. The status quo General category time-periods and subquotas are described in Alternative F1. The range of sub-alternatives analyzed in this document are intended to further meet the objectives of the Magnuson-Stevens Act, ATCA, as well as the consolidated HMS FMP, and are drafted in accordance with the preferred CY/FY alternatives contained in Section 2.3.2. These alternatives specifically address public comments received during the scoping period of this action as well as the North Carolina Department of Marine Fisheries' (NCDMF) Petition for Rulemaking (see Notice of Receipt of Petition, 67 FR 69502, November 18, 2002). The sub-alternatives are as follows:

Alternative F3(c) Revise General category time-periods and subquotas to allow for a formalized winter fishery (June-Aug, 50 percent; Sept, 26.5 percent; Oct-Nov, 13 percent; Dec, 5.2 percent; and Jan, 5.3 percent) - Preferred Alternative

This sub-alternative would remove the New York Bight set-aside allocation and divide the coast-wide General category season into five distinct time-periods, June through August, September, October through November, December, and January. This alternative would shift slightly more quota from the start of the season to the October through November fishery (relative to Alternative F3(b)) where demand has been increasing in recent years, and to the December and January time-periods (relative to Alternative F1) providing for a formal winter BFT fishery in the South Atlantic region. As described in Alternative F3 (b), the historical General category BFT fishery was primarily prosecuted in the waters off New England during the summer and early fall months. This resulted in a General category time-period and subquota allocation scheme heavily weighted to the New England fishery (*i.e.*, See Alternative F1 for the status quo). The time-periods, and associated subquotas, of this alternative would allocate fishing privileges to further achieve optimum yield without excluding traditional participants in the fishery. Thus, this alternative would establish time-period subquota allocation percentages as follows: 50 percent (June through August), 26.5 percent (September), 13 percent (October through November), 5.2 percent (December), and 5.3 percent (January) (Figure 2.12).

Alternative F6 Revise the annual BFT quota specification process to refer back to the supporting analytical documents of the consolidated HMS FMP and include seasonal management measures in annual framework actions - Preferred Alternative

This alternative is similar to Alternative F5, in that BFT quota specifications would be conducted on an annual basis; however, the range of impacts associated with annual BFT specifications would be analyzed in the appropriate analytical documents of the consolidated HMS FMP, as opposed to a separate EA or EIS. The consolidated HMS FMP analyses would then be referred to and used in subsequent quota specifications as the supporting analytical

documents for regulatory, environmental, social, and economic impact analyses. Analytical documents would accompany the annual BFT quota specifications only if the analyses associated with the consolidated HMS FMP no longer applied, (*i.e.*, if ICCAT were to amend its recommendation regarding the total U.S. BFT TAC). Currently, ICCAT recommendations for BFT TACs cover multiple years, and usually coincide with the most recent BFT stock assessment. The ICCAT-recommended U.S. BFT TAC would be allocated to the domestic quota categories per the allocation percentages listed in the consolidated HMS FMP (see introductory paragraph for Section 2.3.1.2). The equivalent quota tonnage associated with these percentages would be specified in the regulatory text implementing the consolidated HMS FMP, therefore formally establishing annual baseline quotas, in whole weight, for each of the domestic quota categories and therefore removing the need to analyze them on an annual basis as they would remain consistent.

The baseline quota percentages, for each domestic quota category, would remain in the consolidated HMS FMP, while the corresponding quota allocation for each quota category, denoted in metric tons, would be specified in the regulatory text implementing the consolidated HMS FMP. These baseline quota allocations may be adjusted on an annual basis to account for under/overharvests that occur in the previous year, per ICCAT recommendations. The range of these quota adjustments would also be analyzed in the supporting analytical documents of the consolidated HMS FMP and referred to in the annual BFT specifications (see Section 4.3.1.1, Alternative F8). This alternative would implement annual adjustment procedures that provide NMFS the authority to allocate any quota remaining in the Reserve category at the end of a fishing year to any fishing category, provided such allocation is consistent with the applicable determination criteria currently listed in the regulations. Section 2.3.1.3 addresses the multiple sets of determination criteria listed in the current regulations and the preferred alternative of this section which would consolidate the multiple lists for consistency purposes. As any annual quota transfers from the Reserve category are similar to an inseason quota transfer, the determination criteria discussed in Section 2.3.1.3 would also be addressed prior to conducting an annual transfer from the Reserve category.

This alternative would also include seasonal management measures in the annual framework rulemaking. Under the No Action alternative (*i.e.*, in comparison to Alternative F5), inseason management is conducted separately from the annual rulemaking. These seasonal management measures may include, but would not be limited to, establishing recreational daily BFT retention limits and their duration and General category effort controls, such as RFDs and daily BFT retention limits. Including seasonal management measures in the annual BFT specifications would provide prior notice of, and an opportunity for the public to comment on any proposed actions. Subsequent inseason actions would likely still be necessary to close fisheries, alter seasons, and/or alter retention limits as changing fishery conditions warrant them. This alternative would also maintain the inseason action authority as discussed under Section 2.3.1.3.

Alternative F10 Revise and consolidate criteria considered prior to performing inseason and certain annual BFT management actions - Preferred Alternative

This alternative would revise and consolidate the sets of criteria that NMFS considers for any and all inseason management actions, as well as certain annual management actions, including, but not limited to adjustments in daily retention limits, annual quota adjustments to/from the Reserve, inseason quota transfers, fishery closures, and interim fishery closure/reopenings. This alternative would enhance the flexibility and consistency regarding the determination criteria analyzed prior to conducting inseason management actions and/or some annual management actions as discussed in the previous alternatives. The criteria listed below are in no particular order of importance and in some circumstances not all criteria would be relevant in the decision making process.

This alternative would also move the determination criteria from § 635.27(a)(7) into a stand-alone section. Thus, this alternative would implement the following consolidated criteria:

- (A) The usefulness of information obtained from catches in the particular category for biological sampling and monitoring of the status of the stock;
- (B) The catches of the particular category quota, and/or subquota, to date and the likelihood of closure of that segment of the fishery if no interim closure or quota allocation is made;
- (C) The projected ability of the vessels fishing under the particular category quota and/or subcategory quota to harvest the remaining and/or additional amount of BFT before the end of the fishing year;
- (D) The estimated amounts by which quotas for other gear categories of the fishery might be exceeded;
- (E) Effects of the action on BFT rebuilding and overfishing;
- (F) Effects of the action on accomplishing the objectives of the consolidated HMS FMP;
- (G) Review of variations in seasonal distribution, abundance, or migration patterns of BFT;
- (H) Effects of catch rates in one area, precluding participants in another area from having a reasonable opportunity to harvest a portion of the category quota; and
- (I) Review of dealer reports, daily landing trends, and/or availability of the species on the fishing grounds.

This alternative would maintain and implement regulations to close a domestic quota category, other than the Purse seine category quota due to the IFQ nature of this category, based on when that quota is reached, or is projected to be reached. The closure would be effective for the remainder of the fishing year or for a specified period as indicated in the closure notice published as an inseason action in the final rule section of the Federal Register.”

F. Pacific Coast Salmon Fishery Management Plan 2016⁷

The Pacific Coast Salmon Fishery Management Plan is for commercial and recreational salmon fisheries off the coasts of Washington, Oregon, and California. The FMP, as revised through Amendment 19, notes that inseason modifications of the regulations may be necessary under certain conditions to fulfill the Council's objectives. Inseason actions include "fixed" or "flexible" actions. Chapters 10.2 and 10.3 describe the possible flexible inseason actions and the procedures for taking an inseason action, respectively.

10.2 FLEXIBLE INSEASON ACTIONS

Fishery managers must determine that any inseason adjustment in management measures is consistent with escapement goals, conservation of the salmon resource, any federally recognized Indian fishing rights, and the ocean allocation scheme in the Section 5.3. In addition, all inseason adjustments must be based on consideration of the following factors:

- Predicted sizes of salmon runs
- Harvest quotas and hooking mortality limits for the area and total allowable impact limitations if applicable
- Amount of the recreational, commercial, and treaty Indian fishing effort and catch for each species in the area to date
- Estimated average daily catch per fisherman
- Predicted fishing effort for the area to the end of the scheduled season
- Other factors as appropriate (particularly, fisher safety affected by weather or ocean conditions as noted in Amendment 8)

Flexible inseason provisions must take into consideration the factors and criteria listed above and would include, but not be limited to, the following.

1. Modification of quotas and/or fishing seasons would be permitted. Redistribution of quotas between recreational and commercial fisheries would be allowed if the timing and procedure are described in preseason regulations. If total quotas or total impact limitations by fishery are established, subarea quotas north and south of Cape Falcon, Oregon can be redistributed within the same fishery (north or south of Cape Falcon). Other redistributions of quotas would not be authorized. Also allowable would be establishment of, or changes to, hooking mortality and/or total allowable impact limitations during the season. Action based on revision of preseason abundance estimates during the season would be dependent on development of a Council approved methodology for inseason abundance estimation.
2. Modifications in the species that may be caught and landed during specific seasons and the establishment or modification of limited retention regulations would be permitted (e.g., changing from an all-species season to a single-species season, or requiring a

⁷ Pacific Fishery Management Council (PFMC). 2016. Pacific Coast Salmon Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California as Amended through Amendment 19. PFMC, Portland, OR. Pp 74-76; http://www.pcouncil.org/wp-content/uploads/2016/03/FMP-through-A-19_Final.pdf

certain number of one species to be caught before a certain number of another species can be retained).

3. Changes in the recreational bag limits and recreational fishing days per calendar week would be allowed.
4. Establishment or modification of gear restrictions would be authorized.
5. Modification of boundaries, including landing boundaries, and establishment of closed areas would be permitted.
6. Temporary adjustments for fishery access due to weather, adverse oceanic conditions, or other safety considerations (see Council policy of September 18, 1992 regarding implementation of this action).

The flexibility of these inseason management provisions imposes a responsibility on the Regional Administrator to assure that affected users are adequately informed and have had the opportunity for input into potential inseason management changes.

10.3 PROCEDURES FOR INSEASON ACTIONS

1. Prior to taking any inseason action, the Regional Administrator will consult with the Chairman of the Council and the appropriate State Directors.
2. As the actions are taken by the Secretary, the Regional Administrator will compile, in aggregate form, all data and other information relevant to the action being taken and shall make them available for public review upon request, contact information will be published annually in the Federal Register and announced on the telephone hotline.
3. Inseason management actions taken under both the "fixed" and "flexible" procedures will become effective by announcement in designated information sources (rather than by filing with the Office of the *Federal Register* [OFR]). Notice of inseason actions will still be filed with the OFR as soon as is practicable.

The following information sources will provide actual notice of inseason management actions to the public: (1) the U.S. Coast Guard "Notice to Mariners" broadcast (announced over Channel 16 VHF-FM and 2182 KHZ); (2) state and federal telephone hotline numbers specified in the annual regulations and (3) filing with the *Federal Register*, email or other electronic forms of notification. Identification of the sources will be incorporated into the preseason regulations with a requirement that interested persons periodically monitor one or more source. In addition, all the normal channels of informing the public of regulatory changes used by the state agencies will be used.

G. Gulf of Alaska Groundfish Fishery Management Plan⁸

The process for in-season adjustments is: The Secretary of Commerce, acting through the RA, is authorized to make three types of in-season adjustments:

1. Modify seasons in part or all of a management area.

⁸ North Pacific Fishery Management Council (NPFMC). 1998. Summary of the Gulf of Alaska Groundfish Fishery Management Plan. NPFMC, Anchorage, AK. 14pThe. <http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOASummary.pdf>

2. Modify allowable gear in all or part of a management area.
3. Adjust TAC and PSC limits.

It must be determined first, however, that the adjustment is necessary to prevent overfishing of any species, finfish or shellfish; or prevent further harvest of a target groundfish species or bycatch of a prohibited species because the TAC or PSC has been found, scientifically, to be mis-specified. In choosing whether to modify seasons or gears, the Regional Administrator must use the least restrictive action of the following that will still serve the purpose:

1. A gear modification which would protect a species needing conservation but still allow other fisheries to continue.
2. A time/area restriction which would allow other fisheries to continue in noncritical areas and times.
3. A complete closure of an area to all groundfish fishing.

H. Framework Adjustment 55 to the Northeast Multispecies Fishery Management Plan⁹

Periodic frameworks are used to adjust strategies in response to the evaluations that adjust rebuilding plans and overfishing. This framework (FW55) is intended to incorporate any status changes for groundfish stocks, set specifications for several groundfish stocks, modify fishery program administration, and adjust management measures for commercial and recreational fisheries that catch groundfish stocks. The need for this action is to meet regulatory requirements and adjust management measures that are necessary to prevent overfishing, ensure rebuilding, and help achieve optimum yield in the fishery consistent with the status of stocks and the requirements of MSA of 2006, and to provide additional flexibility within the sector system in the face of changing regulations.

There are several purposes of FW55: to update changes to the status determination criteria, to adopt specifications, to adopt U.S./Canada Total Allowable Catches (TACs), to implement new sectors, to modify the process of approving sectors, to change a net definition, to modify the at-sea monitoring program, to facilitate the transfer of Annual Catch Entitlement (ACE) between management areas, and to modify the recreational component of the Gulf of Maine Cod Protection measures.

The measures analyzed in the Environmental Assessment to this action were intended to meet the goals and many of the objectives of the Northeast Multispecies FMP, as modified in Amendment 16.

I. Pacific Whiting Amendment 20 (2011) Mothership Catcher Vessel Cooperative¹⁰

This cooperative coordinates harvest by 37 commercial trawlers with pooled quota for harvest of whiting and pooled bycatch quota. One of the primary purposes of the Whiting Mothership

⁹ New England Fishery Management Council. 2016. Framework Adjustment 55 to the Northeast Multispecies FMP. http://s3.amazonaws.com/nefmc.org/160408_FW55_formal_submission_resubmit_corrected.pdf

¹⁰ Whiting Mothership Cooperative (WMC). 2011. Preliminary WMC Report on the Current Year Pacific Whiting Fishery submitted to the Pacific Fishery Management Council. http://www.pcouncil.org/wp-content/uploads/E6c_SUP_MOTHERSHIP_CO-OP_NOV2011BB.pdf. Note, the Final Report in 2013 is found

Cooperative is the management of bycatch of the four allocated overfished rockfish species and Chinook salmon. Members are obligated to modify fishing behavior according to the rules of the cooperative to avoid this bycatch. The cooperative retained a private company, Sea State, Inc. as their monitoring agent. Sea State, Inc. has access to the observer database and vessel monitoring system in real time for the vessels in the cooperative. Sea State, Inc. provides daily catch and bycatch data for the fleet as a whole for the most recent eight day period and the seasonal bycatch rates by individual vessel. The cooperative functions to stay within harvest and bycatch quota.

The cooperative mitigates against exceeding bycatch and harvest limits using these mechanisms:

- Precautionary closures of past bycatch hotspots.
- Night fishing restrictions
- Fleet relocation triggers and fleet to fleet reporting
- In season “hot spot” closure authority
- Seasonal apportionments (“pools”) of whiting and bycatch allowances
- Sanctions against vessels that have exceeded a bycatch rate within a seasonal pool.

J. Amendment 7 to the Fishery Ecosystem Plan (FEP) for Pelagic Fisheries of the Western Pacific Region¹¹

The Western and Central Pacific Fisheries Commission (WCPFC), of which the United States is a member, develops and agrees on management measures for highly migratory species caught by WCPFC members and Participating Territories in the Western and Central Pacific Ocean. The U.S. Participating Territories include American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. The WCPFC may agree on conservation and management measures, such as catch and effort limits, that are applicable to U.S. pelagic fisheries operating in the western and central Pacific Ocean. This amendment to the Fishery Ecosystem Plan for Pacific Pelagic Fisheries of the Western Pacific Region (Pelagics FEP) establishes:

- 1) A management framework to establish catch or effort limits applicable to the U.S. Participating Territories that includes the authorization for the U.S. Participating Territories to use, assign, allocate, and manage the pelagic management species catch and effort limits agreed to by the WCPFC through agreements with U.S. vessels permitted under the Pelagics FEP for the purposes of responsible fisheries development. The Western Pacific Fishery Management Council (Council) could also recommend and the National Marine Fisheries Service (NMFS) could specify catch or effort limits in the absence of such limits or additional or more restrictive limits than the WCPFC for conservation and management purposes. The framework also provides for consistency review of Territory agreements with the Pelagics FEP and other applicable laws by the

here: http://www.pcouncil.org/wp-content/uploads/IR3_2013_Final_WMC_Am20_AnnualRpt_JUNE2014BB.pdf

¹¹ Western Pacific Fishery Management Council and Pacific Islands Regional Office, NMFS. 2014. Amendment 7 Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region Regarding the Use and Assignment of Catch and Effort Limits of Pelagic Management Unit Species by the U.S. Pacific Island Territories And Specification of Annual Bigeye Tuna Catch Limits for the U.S. Pacific Island Territories. 279 p. http://www.fpir.noaa.gov/SFD/pdfs/feps/Pelagics_Amendment_7.pdf

Council and NMFS, as well as annual review and specification recommendations by the Council.

- 2) This action also includes the specification of catch limits for bigeye tuna caught by longline of 2,000 metric tons (mt) per year for each of the U.S. Participating Territories, of which 1,000 mt may be transferred annually under agreements consistent with the Pelagics FEP and other applicable laws to eligible U.S. vessels permitted under the Pelagics FEP.

K. Federal Emergency Management Agency’s National Planning Frameworks¹²

The Federal Emergency Management Agency (FEMA) has established National Planning Frameworks, and the agency’s webpage on Frameworks describes how the [whole community](#) works together to achieve the [National Preparedness Goal](#). The Goal is: “A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.” There is one Framework for each of the five mission areas, Prevention, Protection, Mitigation, Response, and Recovery. The intended audience includes: individuals, families, communities, the private and nonprofit sectors, faith-based organizations, and local, state, tribal, territorial, insular area, and Federal governments. FEMA and its partners released the updated National Planning Frameworks for each mission area on June 16, 2016.

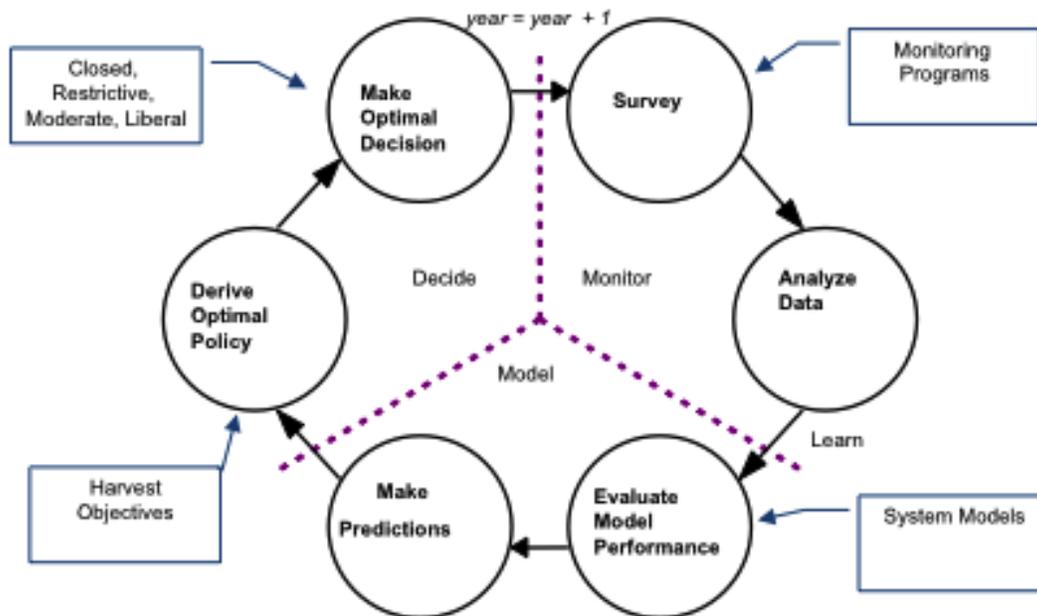
L. USFWS Migratory Bird Management Framework¹³

In 1995, the USFWS adopted the concept of adaptive resource management for regulating duck harvests in the United States. The adaptive approach explicitly recognizes that the consequences of hunting regulations cannot be predicted with certainty, and provides a framework for making objective decisions in the face of that uncertainty. Inherent in the adaptive approach is an awareness that management performance can be maximized only if regulatory effects can be predicted reliably. Thus, adaptive management relies on an iterative cycle of monitoring, assessment, and decision making to clarify the relationships among hunting regulations, harvests, and waterfowl abundance (see schematic below with pros and cons).

¹² <https://www.fema.gov/national-planning-frameworks>

¹³ Adaptive Harvest Management, on the Department of the Interior, U.S. Fish and Wildlife Service website: <https://www.fws.gov/birds/management/adaptive-harvest-management.php>

Adaptive Duck Harvest Management in the US decision framework under Programmatic EIS



Adaptive Harvest Management

Pros

- Formalized approach to learning about management in the face of uncertainty
- Decisions are optimal relative to objectives and are driven by learning
- Cooperative, adaptive, transparent decision process

Cons

- Rigorous technical requirements with high start-up costs
- Long-term commitment to monitoring and assessment
- Complicated process that is difficult to communicate and maintain