

Introduction to the NPFMC Harvest Specifications Process

Balancing Opportunity and Risk

Key
Terms

MSA: The Magnuson-Stevens Act (MSA) is the primary law governing the management of fisheries in U.S. Federal waters (3-200 nm). It establishes the system of U.S. Regional Fishery Management Councils, including NPFMC, tasked with making recommendations for fishery conservation and management.

National Standards: The MSA includes ten National Standards, with which all management recommendations must be consistent.

National Standard 1: Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

National Standard 2: Conservation and management measures shall be based upon the best scientific information available.

Harvest specifications refers to the Council's annual process of recommending scientifically-based catch limits for managed stocks. Through this process, managers balance the mandates of the Magnuson-Stevens Act (MSA), the National Standards (NS) and the NS guidelines to optimize fisheries yield, use the best scientific information available, provide benefits to the public, and maintain the long term sustainability of fish stocks and fishing communities.

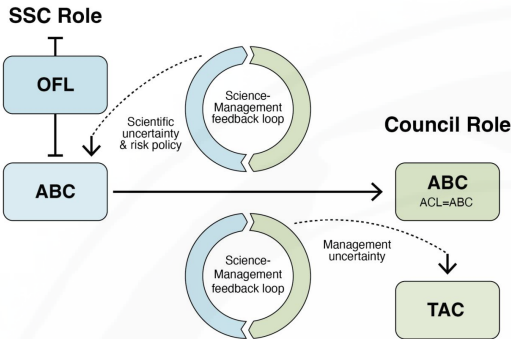
Accounting for uncertainty and risk
The harvest specifications process is a structured approach to considering **uncertainty** and **risk** in setting harvest levels. Uncertainty and risk can be reduced and accounted for, but not eliminated entirely.

There are two types of uncertainty involved in setting harvest levels:

- Scientific uncertainty** refers to a relative lack of information or confidence in the reliability of that information. All stock assessments involve some level of uncertainty. For example: How accurate is our knowledge about how quickly a stock can grow and reproduce? How well does an assessment model reflect actual conditions?
- Management uncertainty** refers to how well management tools can constrain harvest to a desired level. For example, what is the level of precision involved in estimating catch and discards? How quickly can this information be used for in-season management to prevent catch from reaching a specified limit?

Risk refers to the likelihood of an adverse event, and the severity of the consequences. In the context of harvest specifications, risk refers to the potential for fishing at a level that results in overfishing, and could cause a stock to be overfished. Within the bounds of the MSA and NS1 guidelines, the Council considers uncertainty and makes a policy decision about how risk tolerant or risk averse to be. The Council follows a precautionary, ecosystem-based approach to managing Federal fisheries.

Relative considerations of scientific uncertainty and risk in setting an ABC control rule (left side) and the roles of both the SSC and the Council in balancing scientific and management decisions in doing so. Also shown (to right) is the policy role in using management uncertainty considerations in recommending TAC for groundfish stocks. For crab stocks, TAC is set by ADF&G.



Steps in the Harvest Specifications Process
The harvest specifications process includes the following steps for each of the Council's Fishery Management Plans (FMP)s. The timing and division of responsibilities among the Council, National Marine Fisheries Service (NMFS), and the State of Alaska varies by FMP.

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The Overfishing Limit (OFL) is a maximum upper limit on the amount of catch for a stock. If this limit is exceeded, overfishing will occur.

Acceptable Biological Catch (ABC) is the amount of fish scientists recommend could be caught in one year while accounting for scientific uncertainty and the risk of overfishing.

Total Allowable Catch (TAC) is the total amount of fish that can be harvested in a year while accounting for management uncertainty.

Assessment: Agency scientists develop stock assessment products (which may include assessments, harvest projections, and catch reports) to estimate current biomass and productivity. These products are reviewed by FMP-specific Plan Teams, which include agency and academic experts in stock assessment, ecosystem dynamics, and fishery management.

Setting scientific limits: Based on these assessment products, the Council's Scientific and Statistical Committee (SSC) applies predetermined formulas known as harvest control rules (HCRs) to recommend an Overfishing Limit (OFL) and an Acceptable Biological Catch (ABC) for each stock or stock complex.

ABC is set below OFL to account for scientific uncertainty in the estimation of OFL. If uncertainty is low ABC may be set close to OFL. For higher levels of uncertainty a more risk averse approach with a larger buffer may be appropriate. The SSC also has discretion to set ABC at a lower level than the maximum level specified by the harvest control rule, for example due to concerns about the assessment model or environmental conditions. There is no flexibility for the SSC to recommend an ABC higher than the maximum permissible resulting from the harvest control rule. The Council cannot recommend harvest levels that exceed the SSC's recommendation for ABC.

Management recommendations: The Council recommends Total Allowable Catch (TAC) for groundfish stocks. The State of Alaska sets TACs for crab and scallop stocks. TACs must be set at or below ABC. TAC recommendations account for management uncertainty, and can also consider socioeconomic information and concerns. The Council's stated policy is that socio-economic factors should be considered during the TAC setting process at the Council and not incorporated into the ABC recommendations. The Council may further divide groundfish TACs among fisheries, gear types, and areas.

Implementation, management, and monitoring: NMFS implements final harvest specifications through the Federal rulemaking process for groundfish. NMFS manages the groundfish fisheries in-season to avoid exceeding TACs, and monitors total catch and bycatch. ADF&G conducts in-season monitoring and management for the crab fisheries. This information informs the following year's harvest specifications process.

Differences between Groundfish and Crab Harvest Specifications

While the overall harvest specifications process is similar for groundfish and crab stocks, there are some important distinctions due to differences in the timing of the fisheries, the information available to inform assessment products, and division of management responsibilities.

- **Assessments:** Groundfish stock assessments are primarily produced by NMFS. NMFS and ADF&G share responsibility for crab assessments.
- **TAC setting:** For both groundfish and crab stocks, the SSC recommends OFL and ABC. The Council also recommends TACs for groundfish, while for crab TACs are set by ADF&G.
- **Timing:** The Council recommends final groundfish harvest specifications every December. The timing of harvest specifications for crab follows a set annual schedule that varies by stock.
- **Accounting for scientific uncertainty:** For groundfish, harvest control rules are used to apply a formula to a biomass estimate, based on a predetermined analysis of risk and uncertainty, to set a maximum ABC. For crab, the SSC applies a qualitative buffer (a percentage reduction) to set ABC below the maximum permissible level.

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OFL

ABC

TAC