

Issues For Consideration When Reviewing¹ and Making Allocation Decisions

Background

Allocation is defined by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) as "a direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete user groups or individuals" (50 CFR 600.325). Allocation can be across jurisdictions (e.g., international, state, regional), across sectors (e.g., commercial, recreational, tribal, research), and within sectors (e.g., individual fishermen, gear types). Allocation of fishery resources is a complex issue facing fishery managers because of the economic value associated with access to fishery resources, the history and tradition of access to fishery resources, and the perceptions of equity that arise with allocation decisions.

In addition, fisheries management is not static and needs to be adaptable as environmental, ecological, social, and economic influences change. Therefore, allocation decisions need to be considered in the context of adaptive management².

In 2011 NMFS hired George Lapointe to interview stakeholders about allocation issues. The report (Lapointe, 2012)³ is the first-ever comprehensive compilation of fisheries allocation issues. NOAA commissioned the report to provide a framework that will facilitate a productive discussion about allocation and other socio-economic objectives for fisheries management. It summarizes input from discussions with a wide range of stakeholders and suggests five steps NMFS can take to address allocation issues: 1) increase stakeholder engagement in allocation decisions, 2) increase biological and social science research and data, 3) review allocation decisions, 4) compile a list of past allocation decisions, and 5) create a list of issues to consider when making allocation decisions.

This document addresses the fifth recommendation by providing a summary of best practices, and guidance on allocation factors that a regional fishery management council (Council) should consider when making allocation or re-allocation decisions. The Council Coordinating Committee is creating a sister document that describes triggers that can be used to determine when to review allocation decisions, answering the third of Lapointe's recommendations. For the other three recommendations, NMFS has published two technical memorandums that contain a list of past allocation decisions^{4,5}, and is continuing to work to increase stakeholder engagement and increase biological and social science research.

¹ The CCC working group clarifies that "review" is the evaluation described above that leads to the decision of whether or not the development and analysis of alternative allocations is warranted, and is not, in and of itself, an implicit trigger to consider alternative allocation.

² Adaptive management in this context means "evaluating success toward the achievement of management objectives and adjusting strategies in response." It does not include large scale scientific manipulations for the sake of answering scientific questions.

³ Lapointe, GD. 2012. Marine Fisheries Allocation Issues: Findings, Discussions and Options. George Lapointe Consulting LLC. 58 pgs. External Assessment Completed for NMFS (December 2012).

⁴ Morrison, W.E., T.L. Scott. 2014. Review of Laws, Guidance, Technical Memorandums and Case Studies Related to Fisheries Allocation Decisions. U.S. Dept. of Commer. NOAA Technical Memorandum NMFS-F/SPO-148, 32 p. www.nmfs.noaa.gov/sfa/laws_policies/national_standards/documents/morrison_scott_nmfs_f_spo_148.pdf

⁵ Plummer, M.L., Morrison, W., and E. Steiner. 2012. The Allocation of Fishery Harvests under the Magnuson-Stevens Fishery Conservation and Management Act: Principles and Practice. U.S. Department of Commerce, NOAA Tech. Memo NMFS-NWFSC-115, 84 p.

1. Existing National Policy

Information relevant for making allocation decisions can be found within the Magnuson-Stevens Fishery Conservation and Management Act (MSA)⁶ as well as other guidance or policy documents written by NOAA or NMFS. Below are brief descriptions of the most relevant documents. For additional documents, see Morrison and Scott⁷.

a. Magnuson-Stevens Fishery Conservation and Management Act (MSA) and National Standard Guidelines.

Language relevant to allocation decisions is found throughout the MSA, most significantly in National Standards 1, 4, 5, and 8 concerning optimum yield, allocation, economic efficiency, and communities, respectively. NMFS provides official guidance on what these National Standards mean for fisheries management⁸. Refer to Morrison and Scott (2014)⁹ for a complete listing of MSA language related to allocation. In addition, the MSA section 303A also specifies requirements for determining allocations for Limited Access Privilege Programs (LAPPs)¹⁰. MSA sections 303(a) 14, 303(b)(6), 303(b)(11), and 304(e)(4)(b) also detail considerations for allocation decision making.

b. NOAA Catch Share Policy.

The NOAA Catch Share Policy provides guidance on making initial allocation decision for catch share¹¹ programs. In addition the policy also states all allocation decisions should be revisited on a regular basis under a catch share program or other management approach.

c. NMFS Economic and Social Impact Assessment Guidance.

NMFS has created guidance for completing economic analyses and social impact analyses for fishery regulations. These documents provide guidance on completing economic and social impact analyses for any fishery management decision, including allocation decisions.

d. NOAA National Saltwater Recreational Fisheries Policy.

"The policy identifies goals and guiding principles to be integrated into NMFS' planning, budgeting, decision-making, and activities, and includes examples of implementation concepts and strategies supported by NMFS." Under principle 2, one example of an implementation strategy is the "recurring evaluation of fishery allocations to facilitate equitable distribution of fishing opportunities as fisheries develop and evolve."

2. Guiding Principles

When making allocation decisions, there are several recommended practices that facilitate effective conversations and improve the process. These recommendations are not comprehensive and may not be applicable for all circumstances. A list of practices is provided below, with examples where possible.

a. Update Council and Fishery Management Plan Objectives.

⁶ www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf

⁷ *Op. Cit.* Morrison and Scott 2014

⁸ www.nmfs.noaa.gov/sfa/laws_policies/national_standards/index.html

⁹ *Op. Cit.* Morrison and Scott 2014

¹⁰ Limited Access Privilege Programs are a subset of Catch Share Programs

¹¹ Catch Share is a general term for several fishery management strategies that allocate a specific portion of the fisheries total allowable catch to individuals, cooperatives, communities, or other entities. Each recipient of a catch share is directly accountable to stop fishing when its exclusive allocation is reached. The term includes specific programs defined in law such as "limited access privilege" (LAP) and "individual fishing quota" (IFQ) programs, and other exclusive allocative measures such as Territorial Use Rights Fisheries (TURFs) that grant an exclusive privilege to fish in a geographically designated fishing ground.

Council fishery management decisions often involve trade-offs between fisheries under their jurisdiction or between meeting the objectives within a fishery, as defined in the FMP. For example, social goals may be in contrast to economic efficiency goals. In the Apalachicola Bay Oyster Fishery, managers chose to employ over 300 oystermen using tongs instead of using dredges which could have efficiently harvested all the oysters with two boats. Updated and quantifiable objectives at both the Council and FMP level help clarify how to approach these trade-offs. If the Council does not have objectives, then the Council should determine a transparent process for analyzing and determining trade-offs between fisheries. If FMP objectives are not current, clear, or measurable, a Council should re-assess the FMP objectives prior to initiating the allocation discussion¹². In order to articulate these trade-offs, the objectives should be as clear and measurable as possible.

b. Minimize Conflict.

Often the specific needs and interests of the different types of fishery participants or sectors within a fishery may vary. For example, recreational fishermen may be more interested in stable fishing opportunities than absolute numbers of fish retained. Therefore, articulating the needs of each type or sector should be completed near the beginning of the allocation process to facilitate identification of alternatives which may reduce conflict. In addition, information used for decisions should be public (when possible given data confidentiality requirements) and there should be specific opportunities for public input.

c. Use Best Data Available¹³.

All allocation decisions are based on incomplete data. Existing data, such as the status of the stock¹⁴, economic indicators for catch share¹⁵ and non-catch share fisheries, regional fishing community profiles¹⁶, and trends in catch, effort, and participation¹⁷ can be used, as well as other available data, including qualitative data. Councils, in coordination with their Science and Statistical Committees and their NMFS Science Centers or Regional Offices, should specify a process for determining what data is appropriate for making allocation decisions.

d. Minimize Speculative Behavior.

In order to limit situations which may lead to speculative behavior or practices¹⁸, whenever allocations are being considered, the Council should consider a control date. The control date clarifies that any entrance or increased effort into a fishery beyond said date will not be used to determine allocations. This is common practice when creating catch share programs, but should also be used for allocation decisions between gears, sectors, or groups.

e. Plan For Future Conditions.

Consider pre-arranged management responses (such as if/then management decisions) where possible, and consistent with the MSA, Administrative Procedure Act, National Environmental Protection Act, and other applicable law, to plan for potential future conditions. Three examples follow. First, the allocation of Bering Sea and Aleutian Islands (BSAI) yellowfin sole between sectors varies depending on the total allowable catch (TAC). If the TAC for the two sectors is greater than 125,000 metric tons (mt), then the Amendment 80 Sector is allocated 60

¹² See National Standard 1 Guidance. Proposed rule published January 20, 2015 (80 FR 2786).

¹³ http://www.nmfs.noaa.gov/sfa/laws_policies/national_standards/documents/national_standard_2_cfr.pdf

¹⁴ http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/

¹⁵ <http://www.st.nmfs.noaa.gov/economics/fisheries/commercial/catch-share-program/index>

¹⁶ <https://www.st.nmfs.noaa.gov/humandimensions/community-profiles/index>

¹⁷ <http://www.st.nmfs.noaa.gov/commercial-fisheries/index>

¹⁸ For example, if fishermen expect future allocations to be based on catch history, they then increase catch to improve catch history, etc.

percent and the BSAI Trawl Limited Access Sector is allocated 40 percent. If the TAC for the two sectors is less than 125,000 mt, the Amendment 80 sector receives an increasing apportionment.¹⁹ In a second example, West Coast Pacific salmon allocation depends on the total allowable catch (TAC), with an increased percentage of the TAC going to recreational fishermen when the TAC is low. Finally, Mid-Atlantic bluefish allocation is currently set as 83% recreational and 17% commercial. However, if the recreational fishery is not projected to land its harvest limit for the upcoming year, the commercial catch limit may be increased for that year.

A pre-arranged management response may be one option for allocating catch of a species that is expected to shift its distribution with climate change. Identifying specific conditions that result in changes in allocations could decrease controversy. Note: not all circumstances may be amenable to pre-arranged responses. For example, when external factors have changed where the original analyses of impacts is no longer considered adequate.

Factors²⁰ for Consideration When Reviewing and Making Allocation Decisions

Below is a list of factors a Council should consider when reviewing and making an allocation decision. The list is alphabetical and not all-inclusive as other factors may need to be considered where appropriate. The priority and weight afforded each will vary depending on the objectives of the allocation decision, the objectives of the FMP, and the overarching goals of the Council. If a factor is determined to not be important for the allocation decision in question, then the Council should document its rationale for the decision for the record.

1. Ecological Factors

Weakened or damaged marine ecosystems support a lower abundance and diversity of fish species, and may have a harder time adjusting to acute (hurricane) or long-term (climate change) impacts than healthy ecosystems. Since different fishing practices (locations fished, gears used, etc.) can have varied impacts on the marine ecosystem, decisions that determine the allocation between different sectors or groups must consider the ecological impacts.

a. What are the expected impacts on other fisheries?

Fisheries do not exist in a vacuum and there can be overlap between fisheries. For example, target species in one fishery can be incidental catch or bycatch in another. In addition, if the allocation of one species decreases, fishermen may increase their targeting of another species. Managers should therefore clarify what the impacts of the current sectors or groups on other fisheries are and how these might adjust if the allocation changes. The main mechanisms for these interactions are described below (bycatch, habitat, predator-prey dynamics, etc.). Undocumented sources of mortality to target or bycatch stocks could also be considered.

b. What are the impacts on the marine ecosystem?

Fishing can change an ecosystem through both direct and indirect effects. Direct effects include mortality of target and non-target species (which can change abundance, productivity and distribution of the species), interactions with marine mammals, and disturbing marine habitat. Indirect impacts to the ecosystem include removal of predators, prey, competitors, or structure that could result in shifts in the dominant species. Questions that should be considered include but are not limited to:

¹⁹ Northern Economics, Inc. *Five-Year Review of the Effects of Amendment 80 to the Bering Sea and Aleutian Islands Groundfish Fishery Management Plan*. Prepared for North Pacific Fishery Management Council. April 2014.

²⁰ Factors should be compared between groups for which allocation decision is relevant.

- i. **What are the bycatch rates of both non-target species and protected species?**
- ii. **What is the post-release mortality of this bycatch?**
- iii. **What are the mortality rates of alternate target species?**
- iv. **What are the impacts on habitat?**
- v. **What are the ecological community impacts (i.e. relevant predator, prey, or competitive dynamics)?**

2. Economic Factors

Allocation or reallocation of a fishery resource can result in economic consequences to one or more user groups. Below we discuss two questions (and their associated analyses) that address different aspects of those economic consequences. Cost-benefit analyses estimate how a proposed regulation would impact consumer and producer surplus and thus determine the economic efficiency of the allocation. Comparatively, economic impact analyses examine potential impacts of the proposed regulation on sales, income, value added, and employment in the various sectors of a regional, state, or local economy, including the fishing sectors.

a. **Has economic efficiency been considered²¹?**

Economic efficiency refers to how well resources are utilized in production and consumption²². Economic efficiency is achieved when all resources are in their most productive use, no mutually beneficial trades of goods and services are possible, and net economic value is maximized. For analyzing the allocation of a fishery's harvest, economic value reflects how various individuals or sectors place a monetary value on their share of the harvest. Methods for estimating the economic efficiency of an allocation decision are being continually improved (see best practices in the technical guidance document²³).

b. **What are the economic impacts (e.g., employment, income, etc.) of potential changes in allocation?**

Economic impact analyses are used to determine how an allocation decision would change regional or national income and other economic measures such as sales, expenditures, and employment. Economic impact analyses are useful when evaluating the potential short term distributive effects among different sectors within a regional economy. Economic impact models should not be used for long term decisions as they are based on input variables (e.g. cost of fuel, ice, etc.) at one point in time and could differ considerably as these variables change. *Therefore, allocation decisions should be based on cost benefit analyses and not on economic impacts.* NMFS technical guidance on best practices clarifies emerging issues and the appropriate use of economic impact and economic efficiency analyses²⁴.

3. Performance

²¹ Note: National Standard 5 states: "Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose." According to the National Standard 5 Guidelines "this standard prohibits only those measures that distribute fishery resources among fishermen on the basis of economic factors alone, and that have economic allocation as their only purpose." However, these Guidelines also state: 1) "Given a set of objectives for the fishery, an FMP should contain management measures that result in as efficient a fishery as is practicable or desirable", 2) "'conservation' constitutes wise use of all resources involved in the fishery, not just fish stocks", and 3) "An FMP should demonstrate that management measures aimed at efficiency do not simply redistribute gains and burdens without an increase in efficiency."

²² *Op. Cit.* Plummer et al. 2012

²³ Add link for Technical Best Practices document when it is completed

²⁴ *Ibid*

a. What are the trends in catch/landings?

Trends in catch and landings can provide important information about demand. Past overages or underages, however, should not be used to punish or reward a group or sector²⁵. It is important to look at the reasons behind the overages or underages such as lag time between catch and reporting, poor prediction of catch and ineffective effort controls, or misreporting by fishermen.

Monitoring of catch and landings is another critical component of effective fisheries management, and accuracy should be considered. In addition, monitoring programs need to be created to minimize incentives to misreport. Powers and Brooks (2008)²⁶ suggest that user groups could artificially increase or decrease catch data to influence future allocation decisions. In cases where management uncertainty is an issue, buffers may need to be increased and/or analyses conducted that incorporate this uncertainty when determining best management alternatives (i.e. management strategy evaluations).

b. Are fishery resources rebuilding or have they been recently rebuilt?

When fisheries are rebuilt, a Council should determine who would benefit from any increase in catch limits, and discuss the various costs and benefits of allocating the increases in catch limits to individual sectors.

c. Has the distribution of the species changed?

The distribution of species alter over time for reasons such as climate change (Nye et al. 2009)²⁷ or a higher or lower abundance (Bell et al. 2014)²⁸. This may create jurisdictional disputes when the distribution crosses international or state boundaries. Where the spatial distribution of the species does not match the spatial distribution of the allocation, the allocations may need to be updated. Continuation of the historical allocation can lead to large transportation costs and increased greenhouse gas emissions as the fishermen follow the moving species. Alternatively, switching allocations may disadvantage fishermen historically dependent on the species.

d. What is the quality/availability of information provided by each sector or group?

Allocation decisions should consider the quality and availability of data. Higher quality and availability of data may reduce uncertainty and provide better information on the (biological, social, or economic) performance of the fishery and determine if the fishery is meeting the goals and objectives of the FMP. For example, setting an allocation to zero (all fish caught must be discarded) may result in no data collected on size, age, or growth for that species. This will limit scientists' ability to determine the future status of that species. Similarly, due to scientific uncertainty, data poor stocks are often managed at a lower catch limit than data rich stocks. Increasing an allocation to a group or sector that provides more or better biological information may allow for a higher catch rate (less of a buffer for uncertainty) in the future. Allocation decisions which incentivize cooperative research or self-reported data could also be considered for data poor situations.

The types of information that could be considered include:

²⁵ Caution should be exercised to avoid creating perverse incentive system in the fishery and in its management.

²⁶ Powers, J. E., and E. N. Brooks. 2008. Penalties and rewards for over- and underages of catch allocations. *ICES Journal of Marine Science* 65: 1541-1551.

²⁷ Nye, J. A., Link, J. S., Hare, J. A., and Overholtz, W. J. 2009. Changing spatial distribution of fish stocks in relation to climate and population size on the Northeast United States continental shelf. *Marine Ecology Progress Series* 393: 111-129.

²⁸ Bell, R.J, J.A. Hare, J.P. Manderson, and D. E. Richardson. 2014. Externally Driven Changes in the Abundance of Summer and Winter Flounder. *ICES Journal of Marine Science*. doi: 10.1093/icesjms/fsu069

- i. **What is the quality of catch/release/interaction data (including observer coverage)?**
- ii. **What is the quality of social and economic data? What is the quality or quantity of biological samples (age, growth, information)?**

4. Social Factors

a. **Have fairness and equity been considered?**

Equity is an important issue in fisheries management. National Standard 4 states that “allocation shall be (A) fair and equitable to all such fishermen...” Equity can reference the relative distribution of value and resources among individuals and groups in society according to notions of fairness and justice and interpersonal comparisons of welfare. The understanding of what “fair and equitable” means will vary among individuals and sub-groups.²⁹ Interviews with stakeholders in marine fisheries management, for instance, led Lapointe (2012, pg 12)³⁰ to note:

“Many of these stakeholders use the fishery management process to promote their respective positions about what they believe “fair and equitable” means. This can mean maintenance of status quo allocation provisions, a shift from commercial to recreational fisheries, a shift from small boats to big boats, or big boats to small boats, a shift of allocation among states or regions, or some other perceived measures of fairness and equity. It also appears that many of these stakeholders will continue to view allocation systems as unbalanced or unfair unless the outcomes are close to the positions they seek³¹.”

Plummer et al. (2012)³² briefly touches on the subject of fairness of an allocation decision. The technical memo suggests looking at stakeholder perceptions towards the suggested change in allocation. The best allocation is one in which each group affected by the change prefers its incremental change over another group’s incremental change (Baumol, 1986)³³.

Equity analyses may consider the effects of policy on any and all relevant sectors and sub-populations. Relevance is determined based on specific policies and those most likely to be impacted by them. Relevant sectors and subgroups may include vessels of different size categories, different target species, different gears; communities of different sizes and different levels of social vulnerability and fisheries dependence; and large versus small businesses. These will provide quantitative evaluations of relative impact that can point to disproportionate levels of impact, though assigning labels of “fairness” will remain subjective.

b. **Has environmental justice been considered?**

Review proposals to consider if agency programs and actions could have disproportionate and adverse effects on low-income and/or minority groups³⁴. These groups may be in the harvest, dealer, or processing sectors. Unlike social and economic impact assessments which primarily

²⁹ *Op. cit.* Lapointe 2012

³⁰ *Ibid*

³¹ In cases where perceived fairness is expected to be an issue that may lead to litigation, use of mutually agreed upon external decision making groups may be beneficial to reduce perceptions of bias (see section 9.2 in Morrison and Scott 2014). If all interested parties can agree ahead of time to adhere to the allocation decision of the external group, then the allocation decision can be made without later dissent due to claims of bias toward any party.

³² *Op. Cit.* Plummer et al. 2012

³³ Baumol, W. 1986. Super-fairness. MIT Press, Cambridge, MA as referenced in Plummer et al. 2012.

³⁴ Executive Order 12898 prohibits programs, policies and activities that disproportionately affect the health or environment of minority and low-income populations.

target regulated individuals and entities, environmental justice assessments also covers individuals and entities that are only indirectly regulated (e.g., minority processing workers whose jobs might be affected by a change in fisheries regulations that impacts the amount and/or timing of fish processing).

c. Importance of Fishery Resources to Fishing Communities

In 1996 the MSA added provisions that required Councils to consider fishing communities. National Standard 8 stipulates “Conservation and management measures shall, consistent with the conservation requirements of this Act..., take into account the importance of fishery resources to fishing communities...” It further provides for the sustained participation in fishing of communities and the minimization of adverse economic impacts. A summary of some of the issues that may be considered are listed below. Questions that could be considered include but are not limited to:

i. What is the individual, local, and regional dependence and engagement in each sector^{35,36}?

What is the current dependence and engagement and how are these expected to change in the future (for status quo and for allocation alternatives being considered)? Fishing dependence and engagement analyses should include potential impacts to commercial, recreational, and subsistence fishing as well as shoreside support industries and should be considered at various levels (local regional/national). Dependence and engagement may decrease locally but increase on a regional level based on greater opportunities in a different fishery. In addition, the importance of a species of fishing activity to a culture should be considered when making allocation decisions. In most cases there should be some documentation of the use of a particular fish or species group for cultural purposes (i.e., ceremonial use, use within particular festivals or religious holidays, etc.).

ii. What is the community vulnerability and adaptive capacity?

Some communities are more negatively impacted by changes to fishing production or fishery access than others. Social indicators have been developed that describe the vulnerability of a fishing community to “disruptive events” (Jepson and Colburn 2013)³⁷ such as a change to a group or sector’s access to a fishing resource. For example, a community’s current and historical dependence on a fishery can suggest how easily the community will be able to adapt to changes.³⁸ In addition, communities that are able to respond and adapt well to changes, will be more resilient in the long run than those who cannot. Mathis et al. (2014)³⁹ created a metric to investigate the vulnerability of communities to changes due to ocean acidification that includes a metric of the community’s adaptive capacity. Modification of this metric to investigate how communities may be able to adapt to changes in allocation may be useful.

iii. Are there other social impacts?

³⁵ *Op. Cit.* Guidance for Social Impact Assessment

³⁶ Sepez, J., K. Norman and R. Felthoven. 2007. A quantitative model for ranking and selecting communities most involved in commercial fisheries. *NAPA Bulletin* 28, 43-56. 160.

³⁷ Jepson, M., and L. L. Colburn 2013. Development of Social Indicators of Fishing Community Vulnerability and Resilience in the U.S. Southeast and Northeast Regions. U.S. Department of Commerce, NOAA Tech. Memo NMFS-F/SPO-129, 64p. see <http://spo.nmfs.noaa.gov/tm/TM129.pdf>

³⁸ *Op. Cit.* Guidance for Social Impact Assessment

³⁹ Mathis, J. T., S. R. Cooley, N. Lucey, S. colt, J. Ekstrom, T. Hurst, C. Hauri, W. Evans, J. N. Cross, R.A Feely. 2014. Ocean acidification risk assessment for Alaska’s fishery sector. *Progress in Oceanography*.

Changes to how fisheries are managed can have other social impacts. For example, safety may be decreased if the opportunity to access a fishery is restricted to a limited number of days, and fishermen must decide whether to fish despite unsafe conditions or miss the year's landings of that fishery (referred to as "derby" fishing). Another example includes the non-consumptive uses of the resource, such as tourism or the intrinsic beauty of the ecosystem. Will other groups (e.g., beach goers, whale watchers, birders) or the intrinsic beauty of the system be affected by a change in allocation? In addition, in some circumstances, changes can impact the social structure of the community, constraining the fishery's ability to provide necessary social support and services to the families and communities⁴⁰.

⁴⁰ *Op. Cit.* Guidance for Social Impact Assessment