



## Quota allocation policies in U.S. federal fisheries management and implications for climate resilience

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Abstract:	Quota allocation, which divides fishing catch or effort between regions, sectors, subsectors, individuals, and/or seasons, is one of the most important and contentious processes in fisheries management. Quota allocation policies often aim to advance fairness and equity goals by preserving levels of historical participation and access. However, this reliance on historical patterns makes allocation policies vulnerable to climate change, which is shifting the accessibility of marine resources among historical and new participants. Despite this, there is little guidance on best practices for adapting allocation policies to climate change. In the United States, regional flexibility to design locally relevant allocation policies has innovated a diversity of approaches that can be studied for their climate vulnerability and/or adaptivity. Here, we synthesize the diverse allocation policies used to manage U.S. federal fisheries (491 stocks, 42 management plans, 8 regions) and evaluate the vulnerability of these policies to climate change. We find that allocation policies are used to manage 46% of federally managed stocks. Although most policies are based on historical catch, many include features that promote climate adaptiveness, including the ability to transfer quota between states, sectors, or individuals; adjustment of allocations based on current resource distribution or abundance; set aside of quota to support research and experimentation; and gradual phase in of policy changes. Ultimately, we provide eight transferable recommendations for improving the ability for allocation policies to advance their fairness and equity goals under climate change.



# 1 Quota allocation policies in U.S. federal fisheries management 2 and implications for climate resilience

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## 10 Abstract

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12 individuals, and/or seasons, is one of the most important and contentious processes in fisheries  
13 management. Quota allocation policies often aim to advance fairness and equity goals by  
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29

30 **Keywords:** adaptive management, catch allocations, catch shares, climate change, equity,  
31 fairness

32

33 **Short title:** Quota allocation and climate resilience

## 34 1. Introduction

35 Climate change is shifting the abundance, distribution, and phenology of harvested  
36 marine resources, which is challenging the ability for managers to maintain the conservation  
37 and socioeconomic goals set for global fisheries (IPCC, 2019). To achieve conservation goals,  
38 managers must establish catch or effort controls that maintain sustainability as stocks  
39 experience climate-driven shifts in their productivity and distribution (Gaines et al., 2018). To  
40 meet socioeconomic goals, managers must further ensure that access to shifting resources  
41 remains fair and equitable despite changing oceanographic conditions (Tokunaga et al., 2023).  
42 This can be achieved through a combination of management policies ranging from permitting,  
43 which governs who can access resources, to quota allocation, which governs how much catch  
44 or effort is available to those with permitted access (Ojea et al., 2017).

45

46 Quota allocation is arguably one of the most important and contentious processes in  
47 fisheries management as it dictates how access is shared among fishery participants. While the  
48 establishment of catch limits is a largely objective and scientific process (Punt, 2010), decisions  
49 about how to distribute the resulting quota is more subjective and depends on complex  
50 socioeconomic considerations (Morrison & Scott, 2014). Quota allocations are often made  
51 between jurisdictions (e.g., international, regional, state), sectors (e.g., commercial, recreational,  
52 tribal, research), subsectors (e.g., gillnets, longlines), individuals (e.g., catch shares), and  
53 seasons. Allocations are often based on relative levels of historical catch or effort as they  
54 frequently aim to maintain proportional access for fishing communities historically dependent on  
55 fishery resources (Cox, 2009; FLSF, 2010; Lynham, 2014). However, climate change is causing  
56 rapid departures from historical conditions, which can lead to unfair, inequitable, and inefficient  
57 resource use when access is based solely on historical dynamics (Palacios-Abrantes et al.,  
58 2020, 2023; Pinsky et al., 2018; Vogel et al., 2024). As a result, fisheries managers will need to  
59 develop procedures for adapting quota allocation policies so that they continue to advance their  
60 fairness and equity objectives despite changing ocean conditions.

61

62 The challenge posed by climate change is arguably most direct for spatial quota  
63 allocation policies as climate change will rearrange the distribution of stocks. Spatial allocations,  
64 which allocate quota across different management areas (e.g., countries, regions, states),  
65 generally aim to ensure that harvest is proportional to either the biological availability of the  
66 resource or the historical dependence of fishing communities on the resource. However,  
67 climate-driven shifts in the distribution of marine species imply that historical benchmarks used

68 to set spatial allocations will not reflect future distributions (Palacios-Abrantes et al., 2020, 2023;  
69 Pinsky et al., 2018). This can present a number of conflicts, inequities, and inefficiencies. For  
70 example, if allocations are not updated to reflect shifted distributions, some fishing communities  
71 may be unable to capitalize on increases in local availability, which would be especially  
72 challenging if other species in their portfolio are negatively impacted by climate change (Cline et  
73 al., 2017; Samhouri et al., 2024). Worse still, fisheries may be at increased risk of closure if they  
74 are unable to avoid a newly abundant resource for which they have little allocation.  
75 Furthermore, vessels from a region maintaining its allocation based on historical distributions  
76 may need to travel farther to fulfill their quota (Young et al., 2019), increasing costs, safety  
77 concerns, and carbon emissions (Papaioannou et al., 2021; Scherrer et al., 2024). Thus, there  
78 is an urgent need to develop frameworks for adapting spatial allocation policies to shifting  
79 species distributions resulting from climate change.

80

81 The allocation of quota between and within fishing sectors has less direct though still  
82 important connections to climate change. Allocations among sectors guarantee access for  
83 diverse fishery participants and, like spatial allocations, are often allocated in proportion to  
84 historical dependence (Edwards, 1990). However, climate change is pushing resources deeper  
85 (Pinsky et al., 2013), which could challenge the ability for nearshore recreational fisheries and/or  
86 small-scale commercial vessels to attain their historical quotas (Papaioannou et al., 2021).  
87 Allocations among gears within a sector similarly protect diverse access, but can also be used  
88 to limit effort by gears with larger bycatch or habitat impacts (Jenkins & Garrison, 2013).  
89 However, because climate change is also altering bycatch patterns (Free, Anderson, et al.,  
90 2023), allocations based solely on historical landings could exacerbate bycatch issues. Finally,  
91 allocations between individuals or groups (e.g., fishing cooperatives or communities), often  
92 termed “catch shares,” can improve safety-at-sea by slowing the race to fish (Birkenbach et al.,  
93 2017) and improve sustainability by better aligning conservation and economic incentives (e.g.,  
94 catch shares only hold value if a stock is healthy and the quota is large) (Costello et al., 2008).  
95 However, these policies are also largely based on historical catch patterns (Lynham, 2014),  
96 which makes them vulnerable to climate change (Tokunaga et al., 2023). Equity issues can  
97 arise as distribution shifts further the distance between the share owners and the resource  
98 (Edwards & Pinkerton, 2019). Furthermore, catch shares often lead to less diverse fishing  
99 portfolios (Holland et al., 2017), which can reduce resilience to climate change.

100

101       The laws governing U.S. federal fisheries management mandate that allocation policies  
102 be fair, equitable, and transparent, but gives regional managers immense flexibility in how they  
103 achieve these goals. The Magnuson-Stevens Fishery Conservation and Management Act, the  
104 primary legislation governing U.S. federal fisheries, provides ten National Standards to define  
105 management requirements, of which National Standard 4 directly relates to quota allocations  
106 (MSA, 2007). This provision specifies that allocations must be “*(1) fair and equitable to all such  
107 fishermen; (2) reasonably calculated to promote conservation; and (3) carried out in such  
108 manner that no particular individual, corporation, or other entity acquires an excessive share of  
109 such privileges*” (§ 600.325 National Standard 4—Allocations, 1998). Given the absence of  
110 feasible alternatives, both official guidance and adopted practices have generally aimed to be  
111 fair and equitable by maintaining historical access and harvests, though with additional  
112 considerations for new entrants, bycatch, economic efficiency, and other factors (Plummer et  
113 al., 2012). This openness gives the eight regional Fishery Management Councils (FMCs)  
114 (**Figure 1**) flexibility to design allocation policies tailored to their specific socioeconomic and  
115 ecological contexts. However, these approaches may have different strengths and weaknesses  
116 in their ability to fulfill National Standard 4 in maintaining fairness and equity under climate  
117 change.

118

119       In 2011, the U.S. National Marine Fisheries Service (NMFS) launched an effort to  
120 provide more detailed guidance on allocation, but these recommendations do not explicitly  
121 consider climate change impacts on U.S. fisheries (Lapointe, 2012). This process began with a  
122 review of the allocation policies used in U.S. federal fisheries management (Morrison & Scott,  
123 2014; Plummer et al., 2012), which provided the context for subsequent guidance on criteria for  
124 triggering the review of allocation policies (Morrison, 2016a) and for factors to consider when  
125 conducting such reviews (Morrison, 2016b, 2017c). This guidance, which was cemented as  
126 national policy between 2016 and 2017 (Morrison, 2017b, 2017a), calls for an adaptive process  
127 for evaluating whether allocations are meeting management objectives and for adjusting  
128 allocations when objectives are not being met. These policies suggest that the review of an  
129 allocation policy could be triggered based on a tracked performance indicator, public input, or at  
130 regular time intervals. They also highlight that the ability to transfer quota between states,  
131 sectors, or individuals offers in-season adaptability. While both of these guidelines provide some  
132 inherent climate resilience, the connection to climate change is not explicit, and more guidance  
133 on strategies for climate-adaptive allocation policies is needed (US GAO, 2022).

134

135 In this paper, we synthesize the diverse allocation policies used to manage U.S. federal  
136 fisheries, evaluate the vulnerability or adaptivity of these policies to climate change, and provide  
137 recommendations for increasing the climate-adaptiveness of allocation policies. We begin by  
138 cataloging the allocation policies of 491 stocks managed by the 42 fisheries management plans  
139 developed by the 8 FMCs into a standardized database. This provides a platform for  
140 understanding the myriad of allocation approaches taken across the U.S. and for understanding  
141 how approaches differ by region. We then evaluate the vulnerability or adaptiveness of these  
142 policies to climate change and offer recommendations for increasing the ability for these policies  
143 to maintain equity and fairness under climate change. We draw these recommendations from  
144 best practices identified from both U.S. and international fisheries management. These  
145 recommendations provide a roadmap for any federal, state, or international fishery seeking to  
146 maintain the fairness and equity of their allocation policies under climate change.

147 **2. Methods**

148 **2.1 Systematic review of U.S. allocation policies**

149 We inventoried the quota allocation policies currently implemented in U.S. federal  
150 fisheries management by reviewing all 42 Fishery Management Plans (FMPs; including 5  
151 “Fishery Ecosystem Plans” or FEPs) and their associated amendments for descriptions of their  
152 allocation policies (**Table S1**). We prepared a brief summary of each allocation policy to provide  
153 a clear and concise description of these often complex policies using a consistent structure and  
154 terminology. Each summary describes the types of allocation policies used, the recipients of  
155 quota, the amount of quota allocated to each recipient, and the basis for the allocation amounts.  
156 When necessary, we reviewed documents in addition to the FMPs, FEPs, and amendments to  
157 gather this information (e.g., Environmental Impact Statements and Final Rulings in the Federal  
158 Register). In some cases, we also summarized the history of changes made to the allocation  
159 policy and the motivation for these changes. These historical adjustments provide critical  
160 insights into considerations and pathways for adapting allocation policies in response to climate  
161 change. However, we only recorded this information when it was readily accessible to keep the  
162 scope of our review manageable. The summaries are provided in **Appendix A**.

163

164 We used the summaries to develop a database describing the allocation policies used to  
165 manage 491 federally managed marine fish and invertebrate stocks with a common set of  
166 characteristics (**Figure 1; Table S1**). The database summarizes: (1) basic information on each

167 stock (i.e., FMC, management plan, species group); (2) the allocation policy types used to  
168 manage the stock; and (3) traits of each of the implemented allocation policy types. We  
169 classified allocation policy types into five categories: spatial, sector-based (among sectors),  
170 subsector-based (within a sector), catch shares, or seasonal (**Figures 2 & 3**). A spatial policy  
171 allocates quota among countries, states, or other management areas. A sector-based policy  
172 allocates quota among commercial, recreational, tribal, and research sectors. A subsector-  
173 based policy allocates quota to groups (e.g., gear types, vessel size tiers, product end uses)  
174 within one of these sectors. A seasonal policy allocates quota across different seasons. We use  
175 “catch shares” as a general term for allocation policies that distribute quota among individual  
176 fishermen, groups of fishermen, cooperatives, fishing communities, or other entities, which  
177 include individual fishing quotas (IFQs), territorial use rights for fisheries (TURFs), and limited  
178 access privilege programs (LAPPs). We excluded limited access permits that were not  
179 specifically associated with an effort or catch allocation. We recorded the basis for each  
180 allocation type, i.e., whether the allocation amount was derived based on historical catch or  
181 effort, recent catch or effort, recent resource distributions, equal catch or effort, an auction, or a  
182 combination of approaches. We also recorded the number and identity of geographies, sectors,  
183 or subsectors receiving allocations. The structure of the database is illustrated in **Table S2**.

184

185 We confirmed the accuracy of our summaries and database by comparing them to  
186 information synthesized in other relevant but less comprehensive reports (FLSF, 2010; Morrison  
187 & Scott, 2014; Plummer et al., 2012; Tokunaga et al., 2023) (**Figure S1 & S2**) and by asking  
188 FMC staff members with expert knowledge of allocation policies to review the summaries. We  
189 received reviews from FMC staff members for 34 of 42 FMPs (81%).

## 190 2.2 Brief review of international allocation policies

191 To broaden our search for climate-adaptive quota allocation policies, we supplemented  
192 our systematic review of allocation policies used in U.S. federal fisheries management with a  
193 brief review of allocation policies used in other fisheries around the world. We focused this  
194 review on international fisheries whose allocation policies have been well summarized in a few  
195 key sources (i.e., where an exhaustive review was not required to generate a comprehensive  
196 understanding of each entity’s quota allocation policies). The selected vignettes and their key  
197 references are as follows: Europe (Carpenter & Williams, 2021; Scholaert, 2023; Seas At Risk,  
198 2024), Australia (Knuckey et al., 2019; Mazur et al., 2020; McShane et al., 2021), New Zealand  
199 (Lock & Leslie, 2007), and the Parties to the Nauru Agreement (PNA) for Pacific skipjack tuna

200 (*Katsuwonus pelamis*, Scombridae) (Aqorau et al., 2018). The successes and failures of these  
201 allocation policies are highly instructive to the U.S. and any other country that allocates quota in  
202 the context of rapid environmental change.

203 2.3 Identifying best practices for climate-adaptive allocation policies

204 We used our systematic review of U.S. allocation policies and brief review of  
205 international policies to identify best practices for climate-adaptive allocation policies. We  
206 identify these practices as policies that either (1) directly consider climate change in the  
207 allocation of quota or (2) support the adaptive management of allocation policies, which  
208 indirectly but effectively bolsters management responsiveness to climate change. Adaptive  
209 management views management strategies as experiments that can be iteratively studied and  
210 adjusted in response to outcomes (Walters, 1986). By periodically reviewing and updating  
211 management strategies to ensure that management objectives are being met (Bahri et al., 2021;  
212 Walters & Hilborn, 1976), adaptive management provides inherent climate resilience by  
213 ensuring that management is responsive to changing conditions, especially under high  
214 uncertainty (Bahri et al., 2021). As a result, the United Nations Food and Agricultural  
215 Organization (FAO) identifies adaptive management as a “fundamental principle of climate-  
216 adaptive management” and highlights flexible management that is robust to uncertainty as  
217 especially valuable (Bahri et al., 2021). Adaptive management is often implemented through a  
218 cyclic process that can be divided into the following stages: (1) planning, (2) doing, (3)  
219 evaluating and learning, and (4) adjusting (Jones, 2005). We organized the identified best  
220 practices for climate-adaptive allocation within this cyclic adaptive management framework.

221 3. Allocation policies in U.S. fisheries

222 3.1. Overview

223 A large portion (46%; 228 of 491 stocks) of federally managed fish and invertebrate  
224 stocks are managed using some form of quota allocation policy (**Figure 3**). Sector-based  
225 allocation policies are most common, followed by catch shares, subsector-based, spatial, and  
226 seasonal policies. Allocation policies are especially commonly used by the U.S. East Coast  
227 FMCs (i.e., the Mid-Atlantic, South Atlantic, and New England, in order of decreasing  
228 frequency.).

229 3.2. Spatial allocations

230 Spatial allocation policies are used in the management of 12% (n=57 stocks) of federally  
231 managed stocks (**Figure 3**). All regions except for the South Atlantic, Gulf of Mexico, and  
232 Caribbean employ country-based spatial allocations of transnational stocks (**Figure 4A**). The  
233 lack of country-based allocations in the South Atlantic is likely due to its distance from an  
234 international border (**Figure 1**). The lack of country-based allocations in the Gulf of Mexico,  
235 which neighbors Mexico, and in the Caribbean, which neighbors many island nations, is likely  
236 due to (1) a lack of data to quantify the transnational distribution of resources and (2) the  
237 regional prevalence of reef fish, which exhibit higher site fidelity and more granular population  
238 structure than other fish taxa (Biggs & Nemeth, 2016; Carson et al., 2011; Coleman et al.,  
239 1999). In the Pacific, country-based allocations for coastal pelagic species are based on fixed  
240 percentages (**Figure 4B**), despite awareness that these stocks experience dynamic shifts in  
241 distribution as a response to oceanographic conditions (Pozo Buil et al., 2021). In New England,  
242 country-based allocations for Eastern Georges Bank haddock (*Melanogrammus aeglefinus*,  
243 Gadidae), Atlantic cod (*Gadus morhua*, Gadidae), and yellowtail flounder (*Pleuronectes*  
244 *ferruginea*, Pleuronectidae) are jointly managed by the U.S. and Canada through the  
245 Transboundary Management Guidance Committee (TMGC). The TMGC determines annual  
246 allocations for all three stocks by combining both historical landings and current resource  
247 distribution according to fisheries independent trawl surveys (Andrushchenko et al., 2022). This  
248 approach is climate-adaptive because it incorporates information on recent distribution shifts. By  
249 retaining the influence of historical landings, it also balances current distributions with historical  
250 dependence. This policy was first implemented in 2003 weighing historical landings at 40% and  
251 current distribution at 60% and was annually adjusted in 5% increments until reaching the target  
252 90% current distribution to 10% historical landings weighting in 2010 (Andrushchenko et al.,  
253 2022). Such gradual changes, termed “phase ins,” allow time for fleets to adapt to changes in  
254 their allocation, which presents a good practice for reducing socioeconomic impacts when  
255 changing fisheries policies (S. Cox et al., 2019).

256

257 The Mid-Atlantic and the Gulf of Mexico are the only regions to allocate quota among  
258 constituent states (**Figure 4A**). The North Pacific likely lacks state-based allocations because  
259 Alaska is the only state in the region. The lack of state-based spatial allocations in the Pacific is  
260 likely because Pacific groundfish stocks are often assumed to have stock structure matching  
261 state boundaries and thus have state-specific catch limits (PFMC, 2023b). Although the  
262 Western Pacific and Caribbean regions have island territories similar to states (**Figure 1**), they

263 do not use territorial allocations because catch limits are calculated at the island territory level,  
264 similar to the approach in the Pacific. Although state-based allocations for Mid-Atlantic bluefish  
265 (*Pomatomus saltatrix*, Pomatomidae) are fixed percentages (**Figure 4C**), they are transferable  
266 between states, which increases their adaptiveness to climate-driven shifts in distribution. In  
267 contrast, the state-based allocations for Mid-Atlantic black sea bass (*Centropristes striata*,  
268 Serranidae) and summer flounder (*Paralichthys dentatus*, Paralichthyidae) are dynamically  
269 updated, weighing both historical landings and current distribution or abundance. Specifically,  
270 when summer flounder abundance is below 9.55 million pounds, quota is allocated based on  
271 the default percentages (**Figure 4C**); when it is above this threshold, the excess quota is  
272 allocated in equal shares (with the exception of Maine, New Hampshire, and Delaware, which  
273 split 1% of the additional quota above 9.55 million pounds). Black sea bass allocations are even  
274 more spatially dynamic: 75% of the quota is allocated using the historical landings-based default  
275 percentages and the remaining 25% is regionally allocated based on regional biomass  
276 distributions estimated by the most recent stock assessment (**Figure 4C**).  
277

278 Area allocations are the only spatial allocation strategy used in the South Atlantic and  
279 are also widely used in the North Pacific and New England (**Figure 4A**). In the South Atlantic,  
280 area allocations divide quota between (1) the Gulf of Mexico and South Atlantic for black  
281 grouper (*Mycteroperca bonaci*, Serranidae), yellowtail snapper (*Ocyurus chrysurus*, Lutjanidae),  
282 and mutton snapper (*Lutjanus analis*, Lutjanidae); (2) northern and southern zones for South  
283 Atlantic king mackerel (*Scomberomorus cavalla*, Scombridae) and (3) northern, southern, and  
284 western zones for Gulf of Mexico king mackerel (**Figure 4D**). In New England, Atlantic herring  
285 (*Clupea harengus*, Clupeidae) quota is allocated among statistical areas (**Figure 4D**) and  
286 Atlantic scallop (*Placopecten magellanicus*, Pectinidae) quota is allocated among “open access”  
287 and “specified access” areas. Finally, in the North Pacific, quota is allocated among various  
288 zones and statistical areas.

### 289 3.3. Sector allocations

290 Sector allocations are used in the management of 27% (n=134 stocks) of federally  
291 managed stocks (**Figure 3**). The approach to allocating catch between commercial,  
292 recreational, tribal, and research sectors differs widely by region. In the South Atlantic, Gulf of  
293 Mexico, and Mid-Atlantic, which have the largest recreational fisheries of the eight management  
294 regions (NMFS, 2022) (**Figure 1**), allocations between commercial and recreational sectors are  
295 implemented as a fixed percentage of the total allowable catch, which is generally based on

historical reference periods (**Figure 5AB**). The percentage and reference periods vary by region and stock. In a nationally unique example, the management of Mid-Atlantic bluefish allows for in-season quota transfers between the commercial and recreational sectors. In the Caribbean, there are no explicit allocations of quota between commercial and recreational sectors, but the use of a constant catch harvest control rule that sets catch limits for each sector based on landings during a historical reference period (Free, Mangin, et al., 2023) represents an implicit allocation policy, as the allocation of catch remains fixed based on historical precedent (**Figure 5C**). In the remaining regions with smaller recreational fisheries, allocations to the recreational fishery are largely done through “set asides,” which remove projections of the expected recreational catch from the total allowable catch and allocate the remainder to the commercial fishery. The only exceptions are for Gulf of Maine Atlantic cod (*Gadus morhua*, Gadidae) and haddock (*Melanogrammus aeglefinus*, Gadidae) in New England, which are allocated using fixed percentages (**Figure 5A**), and for Pacific salmon (*Oncorhynchus* spp., Salmonidae), which is allocated using policies that increase the percent allocation to recreational fisheries at low population sizes to ensure reasonable recreational fishing opportunities (**Figure 5D**). Allocations to tribal fisheries and research are also assigned through set asides. Allocations for research are common for the scientific surveys (e.g., bottom trawl surveys) that support stock assessments as well as for programs that support cooperative research (e.g., “exempted fishing permits” program or the “research set asides” program of the New England and Mid-Atlantic).

### 3.4. Subsector allocations

Subsector, or within sector, allocations are used in the management of 15% (n=73 stocks) of federally managed stocks (**Figure 3**). They are especially widely used in the New England, North Pacific, and Pacific regions, which support a multitude of different fleets targeting diverse groundfish species (**Figures 3 & 6**). They are not used in the Western Pacific or Caribbean, potentially as a result of insufficient fleet-specific catch data. Subsector allocations are primarily used to divide catch within the commercial fishing sector (**Figure 6A**). Gulf of Mexico red snapper (*Lutjanus campechanus*, Lutjanidae), which allocates recreational catch between the for-hire (a.k.a., party boat, head boat, charter boat, 42.3%) and private fleets (57.7%), is the only stock managed using subsector allocations within the recreational sector. Commercial quota for Gulf of Alaska Pacific cod (*Gadus macrocephalus*, Gadidae) is divided between fifteen subsectors, the maximum number of divisions of any subsector-based allocation policy (**Figure 6B**). Within the commercial sector, subsector allocations are divided between fleets that differ in their: catch share program participation (16 stocks), gear type (e.g., longline,

329 gillnet, trap; 16 stocks), end use of catch (e.g., bait or food; 6 stocks), target species (e.g.,  
330 herring, non-herring; 3 stocks), and vessel tier (e.g., specialists vs. generalists; 2 stocks)  
331 (**Figure 6A**). Atlantic mackerel (*Scomber scombrus*, Scombridae) and golden tilefish  
332 (*Lopholatilus chamaeleonticeps*, Malacanthidae), both managed by the Mid-Atlantic FMC, are  
333 the only stocks for which quota is allocated among vessels exhibiting different “tiers” of  
334 participation or specialization in the fishery. The Northeast Skate Complex FMP, implemented in  
335 New England, allocates catch among vessels targeting skates for bait or for human  
336 consumption (“wing” fishery), and is the only FMP to allocate based on end use. The Northeast  
337 Multispecies FMP, also implemented in New England, is the only FMP to allocate catch among  
338 commercial fleets that do or do not participate in a catch share program.

339 3.5. Catch share allocations

340 Catch shares are used in the management of 23% (n=111 stocks) of federally managed  
341 stocks (**Figure 3**). There are currently 18 catch share programs for federally managed species  
342 in the U.S. The first program (Mid-Atlantic: Surf Clam and Ocean Quahog) was implemented in  
343 1990, and the most recent (North Pacific: Pacific Cod Trawl Cooperative Program) in 2024  
344 (**Table S3; Figure 7**). Additionally, in 2000, scallop permit holders in Alaska formed a self-  
345 organized, voluntary catch share that is managed through the Weathervane Scallop  
346 Cooperative that we include in our analyses. Catch shares are most common in the North  
347 Pacific. Currently, neither the Caribbean nor the Western Pacific implement any catch share  
348 programs. Initial allocations are typically distributed to active participants in the fishery at the  
349 time of program implementation, and are based on best years of landings during a historical  
350 reference period (**Figure 7**). However, alternative allocation procedures exist. For example, the  
351 Atlantic Sea Scallops IFQ bases allocations on historical landings and vessel size. In the case  
352 of the voluntary scallop cooperative program in Alaska, allocations are negotiated on a yearly  
353 basis by participants. For highly self-regulated programs such as AI Pollock and Alaska CDQ,  
354 allocations are also negotiated internally. In some programs, participants transfer individual  
355 allowance (quota, catch history, etc.) to cooperatives or sectors (e.g., “potential sector  
356 contribution” for New England Multispecies) on either a mandatory or voluntary basis. Some  
357 programs, including the Bering Sea and Aleutian Islands Non-Pollock (Amendment 80)  
358 Cooperative Program and the U.S. Atlantic Bluefin Tuna Longline Individual Bluefin Quota  
359 Program, were implemented to manage bycatch of non-target species in a fishery.  
360

361        Many of the catch share programs in the U.S. share characteristics common to these  
362 types of programs. New entrants are uncommon because of the high cost of entry (e.g., cost of  
363 buying or leasing quota on top of cost of vessel, gear, gas, etc.). Currently, most programs allow  
364 transfers of both quota shares (permanent sale) and annual allocations (temporary lease)  
365 among entities. However, quota share caps (holdings cap) and annual allocation caps (use  
366 caps) are commonly implemented to limit consolidation (Brinson & Thunberg, 2016). Transfers  
367 can act as a mechanism for entry to a fishery, but quota is often too expensive for entry to be  
368 feasible for early career fishermen (Holland et al., 2017). To combat this obstacle, programs  
369 such as the Gulf of Alaska's Halibut and Sablefish IFQ's Community Quota Entities rely on non-  
370 profits to buy quota, and lease it to community members, although these programs tend to be  
371 underutilized (Soliman, 2015). Although uncommon, adaptive catch share programs aim to  
372 facilitate new entrants, reduce the prevalence of absentee quota owners, and ensure allocation  
373 is representative of current species distributions and fishery activity (Stephen et al., 2019). For  
374 example, the West Coast Groundfish Trawl Catch Share Program sets aside 10% of quota to  
375 address issues common to catch share programs, but this reserve has consistently been  
376 passed-through to IFQ participants because the Pacific FMC has not yet identified ways to  
377 address issues with the set-aside quota (NOAA, 2014). Adaptive catch share programs can also  
378 allow management to reclaim and redistribute quota, which presents a potential mechanism for  
379 adaptively revising allocation policies to better achieve equity and fairness goals under climate  
380 change.

### 381        3.6. Seasonal allocations

382        Seasonal quota allocations are only used to manage 7% (n=34 stocks) of federally  
383 managed stocks (**Figure 8**). Seasonal allocations are most common on the U.S. East Coast  
384 (**Figure 8**). On the West Coast, they are only used for Pacific sardine (*Sardinops sagax*,  
385 *Alosidae*) and select species managed by the Bering Sea-Aleutian Island and Gulf of Alaska  
386 Groundfish FMPs (not illustrated; percents unknown). Existing seasonal allocations are divided  
387 among quarters (e.g., New England silver and red hake), trimesters (e.g., Mid-Atlantic longfin  
388 inshore squid), or seasons (e.g., South Atlantic king mackerel) (**Figure 8**). In general, seasonal  
389 allocations are used to avoid catch limit overages and to curb the race to fish. A notable  
390 exception is the seasonal allocation policy for Atlantic herring (*Clupea harengus*, Clupeidae),  
391 which is used to ensure that the majority of catch comes when the demand for bait for the  
392 American lobster (*Homarus americanus*, Nephropidae) fishery is highest and the herring fishery  
393 is therefore most profitable. The Atlantic herring allocation policy is also noteworthy because of

394 its flexibility, which makes it climate-adaptive. The policy is determined annually and can be  
395 allocated across bi-monthly, trimester, or seasonal periods based on the recommendations of  
396 constituent states.

397 4. Allocation policies in international fisheries

398 4.1. Europe

399 The Common Fisheries Policy (CFP), which governs fisheries management in the  
400 European Union (EU), allocates EU Member States a fixed percentage of the annual total  
401 allowable catch (TAC) of more than 200 stocks based on each state's historical (1973-1978)  
402 catch (Carpenter & Williams, 2021). This policy aims to provide so-called "relative stability" for  
403 each Member State. Although the CFP provides guidance on how Member States should further  
404 distribute their allocated quota among subnational fleets, it awards States ultimate authority over  
405 these distributions. Specifically, Article 16 of the CFP states that "*each Member State shall*  
406 *decide how the fishing opportunities that are allocated to it...may be allocated to vessels flying*  
407 *its flag*" and Article 17 suggests that allocations use "*transparent and objective criteria including*  
408 *those of an environmental, social and economic nature, [which could include] the impact of*  
409 *fishing on the environment, the history of compliance, the contribution to the local economy, and*  
410 *historic catch levels*" (Carpenter & Williams, 2021). However, to date, the vast majority of  
411 subnational allocations have been based on historical catches and have rarely considered other  
412 social, economic, or environmental criteria (Carpenter & Williams, 2021; Scholaert, 2023; Seas  
413 At Risk, 2024). As a result, two-thirds of consulted stakeholders report that they do not think that  
414 Member States implement Article 17 in a satisfactory manner (Posti & Rudh, 2022). The most  
415 common reason for allocations to deviate from historical catches has been to support small-  
416 scale fishing opportunities or to support low impact fishing gears, which often go hand in hand  
417 (Seas At Risk, 2024). For example, the Swedish scampi (*Nephrops norvegicus*, Nephropidae)  
418 fishery incentivizes the use of lower impact creel traps over higher impact bottom trawls, by  
419 allocating more quota to small-scale creel fishers than would be awarded based on historical  
420 catch proportions. In a few cases, allocations have been used to encourage new entrants. For  
421 example, Ireland's coastal multispecies fishery and Malta's bluefin tuna (*Thunnus thynnus*,  
422 Scombridae) fishery reserves quota for fishermen without previous participation and catch  
423 records. Finally, Greece's bluefin tuna fishery allocates quota for vulnerable populations,  
424 including fishermen with island residency, disabled children, small vessels, or small crews.

425 These examples, though exceptions to the rule, illustrate the broad array of ecological,  
426 economic, and social objectives that quota allocation can be used to support.

427 4.2. Australia

428 Australian allocation policies vary widely across subnational jurisdictions (states and  
429 territories). In 2010, the Australian Fisheries Managers Forum identified allocation as one the  
430 most important policy issues to address (AFMF, 2010). In response, the Fisheries Research and  
431 Development Corporation formed a working group to synthesize existing allocation policies and  
432 provide recommendations for reform (FRDC, 2012). The working group report found that only  
433 two of the country's six coastal jurisdictions (Western Australia and South Australia) had clear  
434 policies for guiding allocation decisions (Neville, 2012). In 2016, another government report  
435 concluded that "*the basis for allocation is often opaque, uncertain, and/or of questionable*  
436 *efficiency*" and that "*stated policy objectives include multiple and sometimes competing goals*  
437 *that often provide limited guidance on how judgements should be made*" (Productivity  
438 Commission, 2016). Since these reports, Queensland, New South Wales, and Northern  
439 Territory have written allocation policies but have yet to implement them. Victoria and Tasmania  
440 have yet to write an allocation policy (Knuckey et al., 2019). In Western Australia and South  
441 Australia, sector allocations are made between commercial, recreational, and Indigenous fleets,  
442 and have been primarily based on historical catch, despite the fact that these allocation plans  
443 recognize the importance of other social, cultural, and economic values in making allocation  
444 decisions (Smyth et al., 2018). A lack of data on Indigenous catch has led to a default allocation  
445 of 1% to Indigenous fishermen for most fisheries with sector allocations, which is analogous to  
446 the "*de minimis*" allocations employed by the U.S. Mid-Atlantic FMC. However, the South  
447 Australia management plan for Goolwa pipi (*Latona deltoides*, Donacidae), a small saltwater  
448 clam, allows for trading between sectors, and the Indigenous allocation has reached as high as  
449 25% of the catch. A 2021 review of all Australian allocation policies found no examples of  
450 subsector allocations, which the review described as being difficult to implement due to their  
451 controversial political nature (McShane et al., 2021). In several jurisdictions, panels of  
452 independent experts and fishing industry representatives are convened to make or adjust  
453 allocation policies (Mazur et al., 2020). These reviews can be triggered when there is sufficient  
454 stakeholder feedback, when a sector exceeds its allocation, or when the management plan is  
455 reviewed or changed substantially. If the panel determines a review is necessary based on the  
456 collected evidence, which includes information on historical catch, current allocation and  
457 management practices, and species biology, the panel makes recommendations to the minister

458 of the relevant department, who makes the ultimate decision. This process is similar to NOAA  
459 guidelines for U.S. allocation policy reviews (Morrison, 2016a, 2017b), except for its use of an  
460 independent panel to make unbiased judgements.

461 4.3. New Zealand

462 The majority of New Zealand's harvested marine species are managed through the  
463 Quota Management System (QMS), which is the national program under which catch limits are  
464 set and allocated between commercial, recreational, and customary fishery sectors (Lock &  
465 Leslie, 2007). Customary fisheries, which are managed by *tangata whenua* (people of the land  
466 with authority in a particular *rohe moana* [fishing area]) for non-commercial food gathering, were  
467 secured by the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992. The allocation  
468 between sectors varies by species (Fisheries of New Zealand, 2024a) but is generally  
469 dominated by the commercial sector (**Figure S3**). Within the commercial sector, quota is  
470 allocated among commercial fishermen that individually own Annual Catch Entitlements (ACEs)  
471 in the QMS catch share system. ACEs may be sold or leased, but there are species-specific  
472 maximum holding limits to curtail aggregation, diversify ownership, and promote pathways for  
473 entering the fishery. There are also minimum holdings limits (Fisheries of New Zealand, 2024b),  
474 which are presumably used to reduce complexity, increase attainment, and/or encourage  
475 stewardship, though we cannot find a stated motivation for these limits. Initial allocations were  
476 made based on each vessel owner's catch history (i.e., owner's choice of catch from the  
477 1981/82, 82/83, or 83/84 season) and negotiations through a complex appeal process. When  
478 first introduced in 1986, these allocations were made as a fixed tonnage based on the  
479 Government's misguided belief that catch limits would only increase with improved management  
480 (Lock & Leslie, 2007). However, in 1990, the near collapse of the orange roughy (*Hoplostethus*  
481 *atlanticus*, Trachichthyidae) fishery led the Government to convert shares to a fixed proportion,  
482 based on quota owners holdings at the time of the transition. In the interim years, the  
483 Government bought back surplus quota when the sum of quota exceeded the catch limit, which  
484 was predictably expensive and inefficient. The Māori, the indigenous people of New Zealand,  
485 were excluded from the initial commercial quota allocation process. The 1996 Fisheries Act  
486 determined that the Māori would be allocated 20% of the commercial quota for all new species  
487 added to the QMS and the remainder would be allocated to fishing permit holders based on  
488 their catch history. In 2022, the Māori were reported to own 33% of commercial quota (47% by  
489 value) and 100% of the customary quota (Hudson, 2022).

490 4.4. Pacific Island skipjack tuna

491 The Parties to the Nauru Agreement (PNA) (PNA Tuna, 2010), which governs the  
492 management of skipjack tuna (*Katsuwonus pelamis*, Scombridae) in nine Pacific Island  
493 countries, has been heralded as one of the best climate-adaptive spatial allocation systems  
494 (Aqorau et al., 2018). The PNA’s “vessel day scheme” (VDS) (PNA Tuna, 2011) was explicitly  
495 developed to cooperatively manage this highly migratory species as it shifts its distribution  
496 across the waters of PNA members due to changing oceanographic conditions. The VDS is a  
497 “cap and trade” system that sets the total annual purse-seine fishing effort at ~45,000 days and  
498 allocates these days to member countries based on the area of their Exclusive Economic Zones  
499 (EEZs) and the preceding 7-8 years of catch. Importantly, the VDS also provides a pathway for  
500 PNA members to trade quota in response to El Niño Southern Oscillation (ENSO). During the  
501 La Niña phase of ENSO, the catch is concentrated in the west, whereas during the El Niño  
502 phase, the catch is concentrated in the east (Lehodey et al., 1997). With trading, the VDS allows  
503 countries to purchase fishing days when tuna are located in their region and sell fishing days  
504 when tuna are located elsewhere. In this way, the VDS allows member countries to profit  
505 regardless of where skipjack tuna are caught that year. This system is expected to provide  
506 community resilience as skipjack tuna shift east due to directional climate change (Bell et al.,  
507 2013). The expectation is that, over time, PNA countries in the east will gradually receive  
508 greater allocations as their catch history increases relative to countries in the west, and  
509 countries in the west will be compensated for these directional losses through the annual  
510 leasing of their remaining allocation (Aqorau et al., 2018).

511 5. Best practices for climate-adaptive allocation policies

512 Based on our systematic review of U.S. allocation policies and brief review of  
513 international policies, we identified eight best practices for implementing or enhancing the  
514 adaptive management of quota allocation policies (**Figure 9**). These best practices are to: (1)  
515 define clear and measurable management objectives; (2) define and collect data required to  
516 assess and adjust allocation policies; (3) facilitate quota transfers between regions, sectors, and  
517 individuals; (4) balance historical and contemporary resource access in setting allocations; (5)  
518 ensure opportunities for new entrants; (6) allocate quota for research and experimentation; (7)  
519 reduce impacts of changes to allocation policies on stakeholders; and (8) conduct regular  
520 reviews of allocation policies. We detail these recommendations in the sections below.

521 5.1 Define clear and measurable management objectives

522 The adaptive management of quota allocation policies depends on the definition of clear  
523 and measurable management objectives (Plummer et al., 2012). Without these, managers will  
524 be unable to track whether objectives are being met or determine if adjustments are necessary,  
525 which is especially problematic as climate-driven changes in resource availability accelerate the  
526 need for policy modifications. We recommend that each FMP/FEP or other relevant policy  
527 document (e.g., catch share policy) define allocation objectives, discuss tradeoffs between  
528 competing objectives (Heen et al., 2014; Mardle et al., 2000), and identify data sources that can  
529 be used to monitor progress towards the objectives (see *section 5.2* for more details). Adaptive  
530 management of allocation policies provides inherent climate resilience by ensuring that policies  
531 are regularly revisited to ensure that they are achieving their objectives as both oceanographic  
532 and socioeconomic conditions change. There may also be opportunities to explicitly incorporate  
533 climate change into allocation policy objectives. For example, allocation could be used as a tool  
534 for mitigating the negative impacts of climate change, especially on vulnerable communities, by  
535 allocating the most climate-vulnerable communities (Colburn et al., 2016; Himes-Cornell &  
536 Kasperski, 2015; Koehn et al., 2022) more quota than their historical share (**Figure 10C**). While  
537 allocations have historically sought to maintain “horizontal equity” where allocations are  
538 proportional to historical access (**Figure 10B**), the Magnuson-Stevens Act and associated  
539 guidelines leave the door open for alternative definitions of equity (W. Morrison, 2016b). For  
540 example, managers could set goals for “vertical equity” (**Figure 10C**) and use allocation as a  
541 tool for compensating communities disadvantaged by historical allocations or by the impacts of  
542 contemporary or future climate change (Kourantidou et al., 2021).

543 5.2 Define and collect data required to assess and adjust allocation policies

544 The adaptive management process hinges on the definition and evaluation of indicators  
545 for tracking management performance and for determining when adjustments need to be made  
546 to management strategies or even management objectives (Walters, 2007). This requires  
547 resources to be directed to data collection and analysis that can inform whether allocations are  
548 achieving their objectives and subsequently guide revisions if they are not. The following list of  
549 potential indicators is not comprehensive but illustrates some of the data types that could be  
550 useful for tracking performance. First, catch reporting and monitoring should be specific enough  
551 to evaluate attainment (i.e., the percent of the allocation caught annually) among the entities  
552 allocated catch. If rigorous catch monitoring is established and a specific entity (e.g., state,  
553 sector, subsector, etc.) is consistently under its quota, then reallocation of that quota to another

entity, especially if that entity consistently meets its quota, may be justified. Second, reliable estimates of recreational catch, which is notoriously challenging to quantify, and well-designed and well-supported survey methods (National Academy, 2006) are necessary to ensure fair access for this sector (Ryan et al., 2016). Third, reliable estimates of discards may be necessary to determine whether the current allocation is using the resource efficiently and minimizing waste and ecosystem impacts. Fourth, demographic information on fishery participants throughout the supply chain – ranging from owners, captains, crew, processors, and dealers – especially on vulnerable groups, is necessary for evaluating equity and fairness of allocation policies (NAS, 2024). Fifth, knowledge of species distributions, which may require coordination across jurisdictions, will involve collection, curation, and analysis of fisheries-independent survey data (see DisMAP as example; NOAA Fisheries, 2024a). Sixth, regional Climate Vulnerability Assessments (Morrison et al., 2015, 2016; NOAA Fisheries, 2024b) should be revisited to ensure the inclusion of all federally managed species to better support the consideration of climate vulnerability in allocation decisions. Finally, to effectively consider habitat impacts of a gear, protected species bycatch, or other factors in making allocations, data must be collected to inform these judgements. Ultimately, the data collected should be aligned with management objectives; a management objective may prove ineffective if it is not measurable or is not actively measured.

### 572 5.3 Facilitate quota transfers between regions, sectors, and individuals

573 The ability for quota owners to transfer quota access rights – either temporarily through  
574 leasing or permanently through sale – provides flexibility for fishermen to adapt to climate  
575 change and other shocks (Tokunaga et al., 2023). The temporary transfer of quota access  
576 through leasing provides in-season flexibility and the ability for fishermen to rapidly respond to  
577 changes in ways that are more self-governed. The permanent transfer of quota access provides  
578 a mechanism for fishermen who have lost access to a resource to be compensated and  
579 provides capital necessary for adapting to this loss of livelihood provisioning. While the ability to  
580 transfer quota between individuals is a feature of most catch share programs, the ability to  
581 transfer quota between states, sectors, and subsectors is less common, which presents a key  
582 opportunity to enhance climate resilience. As one example, limited ability to transfer or lease  
583 quota between the at-sea and inshore Bering Sea pollock (*Gadus chalcogrammus*, Gadidae)  
584 subsectors have limited the fisheries ability to respond to changes in species distributions,  
585 bycatch management, and market dynamics (Criddle & Strong, 2013). These programs could  
586 be modeled after Mid-Atlantic bluefish, which allows for in-season transfers between the

587 commercial and recreational sectors and between states, and Mid-Atlantic black sea bass  
588 (*Centropristes striata*, Serranidae) and summer flounder (*Paralichthys dentatus*,  
589 Paralichthyidae), which also allows for transfers between states. In catch share programs, a key  
590 risk in allowing transfers is the consolidation of quota among a few individual entities, some of  
591 which may no longer actively fish or even reside in the community; however, this adverse  
592 outcome can be curbed through the use of allocation caps that limit the percent of quota that  
593 can be possessed or used by an individual entity (Brinson & Thunberg, 2016). This is consistent  
594 with National Standard 4, which requires that “*no particular individual, corporation, or other*  
595 *entity acquires an excessive share of such privileges*” (§ 600.325 National Standard 4—  
596 Allocations, 1998). The transferability of quota also serves to: (1) increase economic efficiency,  
597 by ensuring that quota aggregates among those with easiest access to the resource; (2)  
598 promote conservation, by ensuring that fishing effort occurs in proportion to biomass, thereby  
599 avoiding the local depletion that could occur if quota remained tied to areas with declining  
600 abundance (Pinsky & Fogarty, 2012); and (3) provide a mechanism for fishermen losing access  
601 to be directly compensated and for fishermen gaining access to capitalize on emerging  
602 resources, which could compensate for climate-driven losses in other fisheries in their portfolio  
603 (Cline et al., 2017; Samhouri et al., 2024). Finally, the ability to transfer quota is aligned with  
604 resilience principles that encourage self-governance and flexibility (Mason et al., 2022).  
605 Subsequently, the FAO recommends the establishment of tradable fishing rights among nations  
606 as a tool to either respond or (ideally) anticipate distributional shifts, and similar policies could  
607 be implemented across a range of jurisdictional boundaries (Bahri et al., 2021).

608 5.4 Balance historical and contemporary resource access in setting allocations

609 The adaptation of allocation policies to climate-driven changes in resource distribution  
610 will require weighing both historical and contemporary access to resources (**Figure 11**). The  
611 tendency for current allocation policies to interpret equity as the maintenance of historical  
612 access is unlikely to meet fisheries objectives as stocks shift in their availability. A failure to  
613 adjust allocations in response to these shifts could undermine (1) fairness and equity, by  
614 preventing those with growing local fisheries from benefiting from these gains, (2) efficiency, by  
615 requiring vessels to travel further to access the resource, which increases costs, safety  
616 concerns, and carbon emissions (Papaioannou et al., 2021; Scherrer et al., 2024); and (3)  
617 conservation, by promoting local depletion if quota holders continue to fish in areas at the  
618 trailing edge of a shifting distribution (Pinsky & Fogarty, 2012). However, at the other end of the  
619 spectrum, fully adjusting allocation policies in response to contemporary or projected changes in

resource distributions could also introduce inequities by reducing access for stakeholders who have historically relied on the resource (Palacios-Abrantes et al., 2023). Thus, adjusting allocations by weighing both historical and contemporary resource access may present a useful compromise, especially when quota is transferable (see section 5.3). This can be achieved by calculating allocation percentages by weighing historical landings with recent landings (e.g., sector allocations in the majority of South Atlantic snapper-grouper stocks) or with current biomass distribution as estimated from either a survey (e.g., area allocations in the Gulf of Alaska pollock fishery) or an assessment model (e.g., state allocations in the Mid-Atlantic black sea bass commercial fishery). Among these approaches, we recommend weighing current conditions based on the distribution of the resource, as the distribution of the catch lags behind resource shifts and is inherently limited by existing allocation policies and management regulations (Pinsky & Fogarty, 2012). Additionally, we recommend mapping current distributions using fisheries-independent surveys given the high temporal and spatial resolution of these surveys (Maureaud et al., 2024) compared to stock assessments, which are updated less regularly (e.g., every 2-10 years; Neubauer et al., 2018) and represent coarse spatial structure. Ultimately, the weight assigned to historical and contemporary access is a policy decision that should be explicitly linked to policy objectives, but in general, we recommend that historical access be favored for static stocks and that contemporary access be favored for shifting stocks. In the Mid-Atlantic, scientists and managers have begun to explore the viability of an automated “dynamic allocation” procedure that uses both current distributions and historical catch to update allocations for shifting stocks without requiring renegotiations and time intensive FMP amendments (Vogel et al., 2024).

#### 5.5 Ensure opportunities for new entrants

Any policy that allocates natural resources among harvesters should consider new entrants seeking to gain access to the resource (Cox, 2009). The initial capital required to obtain commercial fishing permits, quota, gear, and/or vessels limits new participants (Cullenberg et al., 2017). These barriers are particularly steep in fisheries with catch shares or other forms of limited entry programs, and have played a role in the ‘graying of the fleet,’ or the increased average age of commercial fishermen (Cramer et al., 2018). Climate change is likely to exacerbate the new entrant problem as climate-driven shifts in the distribution of fish and invertebrates will make the resource available to new regions, sectors, and individuals (Pinsky et al., 2018). A pathway for providing access to these new participants is critical for increasing economic efficiency, perceptions of fairness, and the stability of allocation decisions (A. Cox,

653 2009). Access for new entrants could be catalyzed through set asides reserved for new entrants  
654 or through quota and/or permit banks that ease access for new participants. For example,  
655 through the Adaptive Management Program (AMP; Amendment 20 of the Pacific Groundfish  
656 FMP) the Pacific FMC sets aside quota from the groundfish catch share program in a “public  
657 trust pool” that can be used to support conservation, new entrants, community stability, or to  
658 compensate for unintended consequences of the catch share program (PFMC & NMFS, 2010).  
659 Unfortunately, the program has yet to be used and instead AMP quota has been passed to  
660 fishermen in proportion with quota share holding, limiting insights into both the benefits and  
661 pitfalls of new entrant set asides (Nayani & Warlick, 2018). The leasing of quota or permits to  
662 new participants through fisheries trusts (banks), potentially at rates lower than they would  
663 receive from a traditional owner, can help new entrants gain experience and capital before  
664 buying quota or permits themselves (Kauer et al., 2024). For example, in 2010, the Maine  
665 Department of Marine Resources purchased eleven federal Northeast Multispecies permits,  
666 which it leases to fishermen through the Maine Groundfish Permit Bank (Maine DMR, 2022).  
667 Other examples include the Alaska Community Quota Entities, which lease groundfish and crab  
668 quota to catch share members (NPFMC, 2016) and the Monterey Bay Fisheries Trust, which  
669 leases groundfish quota at reduced rates to local fishermen (Kauer et al., 2024). Finally, quota  
670 transfers (see section 5.3) are a useful tool for fishermen seeking to expand their participation in  
671 an emerging fishery, which can enhance climate resilience if other fisheries in their portfolios are  
672 experiencing climate-driven declines (Cline et al., 2017; Samhouri et al., 2024).

673 5.6 Allocate quota for research and experimentation

674 The allocation of quota towards programs that support research and experimentation  
675 could incentivize adaptive innovation in response to climate change. This could include the  
676 reservation of quota for existing programs such as “research set asides” (RSAs) or for  
677 “exempted fishing permits” (EFPs). Research set asides, which have only been used by the  
678 New England and Mid-Atlantic FMCs, represent a portion of quota that is set aside for vessels  
679 engaged in scientific research. The set-aside quota is awarded through a competitive grant  
680 process and the sale of the associated catch both funds the research and compensates the  
681 vessels supporting the research (NOAA, 2024). These programs have been especially  
682 successful for high value stocks such as Atlantic scallops (*Placopecten magellanicus*,  
683 Pectinidae) and monkfish (*Lophius americanus*, Lophiidae) in New England (Vogel et al. 2024),  
684 where they have supported innovative research on climate change and population dynamics,  
685 improved survey methods, and bycatch avoidance (NOAA, 2024). The program in the Mid-

686 Atlantic lasted from 2002-2014 and funded 41 projects totalling \$16 million in value (MAFMC,  
687 2024) on issues ranging from black sea bass trap design to evaluations of summer flounder size  
688 and bag limits (MAFMC, 2021b). The program was discontinued due to concerns of misuse  
689 (e.g., misreporting of landings) and concerns that the quality of the science did not justify the  
690 costs (Seagraves, 2014). While some projects, such as the trawl survey conducted by the  
691 Northeast Area Monitoring and Assessment Program, generated data used in management,  
692 many other projects failed scientific review post-completion, raising concerns about proposal  
693 vetting and project oversight (MAFMC, 2024). Thus, expansion of the research set aside  
694 program would require reforms that address these issues. Exempted fishing permits are a  
695 national program supported by all of the FMCs (NMFS, 1996). These permits allow fishermen  
696 who partner with scientists to conduct cooperative research to fish in ways that may not  
697 otherwise be permitted. The dedicated allocation of quota to these programs could incentivize  
698 research into adaptive actions that promote climate resilience (Bonito et al., 2022). For example,  
699 research could reveal methods for targeting emerging fisheries, avoiding bycatch problems,  
700 generating more reliable indices of abundance that support better management, marketing new  
701 products, or making gears more efficient (Free, Anderson, et al., 2023).

702 5.7 Reduce impacts of changes to allocation policies on stakeholders

703 The adjustment of quota allocation policies in response to climate change and other  
704 socioecological factors will inevitably result in a set of “winners” who gain quota and “losers”  
705 whose quota is taken away. A number of actions can be taken to minimize the socioeconomic  
706 impacts to individuals and communities losing access to quota when allocation policies change,  
707 directly supporting National Standard 8 of the Magnuson-Stevens Act to “minimize adverse  
708 economic impacts on [fishing] communities” (§ 600.345 National Standard 8—Communities,  
709 1998) First, the gradual “phase in” or “phase out” of changes to allocation policies provides time  
710 to adapt. Phased allocation changes have been pioneered by the Mid-Atlantic FMC, which, for  
711 example, used a 7-year phase-in period to reallocate commercial bluefish quota among fourteen  
712 East Coast states (MAFMC, 2021a). Second, the preservation of some minimal amount of quota  
713 through a “*de minimis*” allocation guarantees at least some level of access for historical  
714 participants when allocations are dynamically updated based on the current abundance or  
715 distribution of resources. *De minimis* allocations have been used by the Mid-Atlantic FMC to  
716 preserve minimum levels of commercial access to bluefish by states (MAFMC, 2021a) and have  
717 been used by the Pacific FMC to preserve minimum levels of access to South of Cape Falcon  
718 Coho salmon (*Oncorhynchus kisutch*, Salmonidae) for the recreational sector when biomass

719 fluctuates (PFMC, 2021). Such policies could preserve access if the adjustment of spatial quota  
720 allocations in response to survey-based (e.g., New England TMGC-managed stocks) or model-  
721 based (e.g., Mid-Atlantic black sea bass) estimates of spatial distribution became more  
722 common. Finally, the redistribution of allocation through the sale of quota rather than through  
723 policy adjustments allows those losing quota to be directly compensated, which provides capital  
724 necessary for adaptation (Mason et al., 2022).

725 5.8 Conduct regular reviews of allocation policies

726 Adaptive management requires the periodic review of policies to ensure that objectives  
727 are being met or if adjustments are needed (Walters, 1986). Thus, managers must develop a  
728 clear procedure for determining when to review allocation policies, whether to adjust them, and  
729 how to make adjustments when necessary. A number of NOAA policy documents provide useful  
730 guidance on scheduling and conducting allocation policy reviews (W. Morrison, 2016b, 2017b,  
731 2017c) but implementation of this guidance has lagged (US GAO, 2020). These guidelines  
732 suggest that reviews could be scheduled at regular intervals, prompted by stakeholder  
733 feedback, or triggered by a tracked performance indicator. Managers could blend approaches to  
734 balance the advantages and disadvantages associated with each approach. For example,  
735 allocation reviews require time and resources that compete with other FMC responsibilities  
736 (PFMC, 2023a), and regular reviews should not be scheduled too frequently. Instead, regularly  
737 scheduled reviews could operate as a failsafe in case a review is not triggered by either  
738 stakeholder input or a tracked performance indicator within a set timeframe. The ability for  
739 stakeholder feedback to prompt allocation reviews strengthens inclusive, participatory, and  
740 transparent governance, which are central to climate-resilient fisheries management (Mason et  
741 al., 2022); however, to avoid taking on allocation reviews too frequently, clear criteria for  
742 stakeholder-prompted reviews must be established. Furthermore, some stakeholder groups  
743 may have better representation and access to managing bodies than others, underscoring the  
744 value of regular or indicator-triggered reviews to ensure equity and fairness for  
745 underrepresented groups. Triggering reviews based on a tracked performance indicator is a  
746 compelling approach because it forces managers to define clear and measurable management  
747 objectives. The indicator could be economic (e.g., cost-benefit, economic impact, or economic  
748 efficiency analyses; Edwards, 1990; Plummer et al., 2012), social (e.g., metrics of resilience,  
749 vulnerability, or well-being; Jepson & Colburn, 2013), ecological (e.g., changes in stock status,  
750 increases in discards, changes in species distribution, etc.), or a combination, noting that

751 National Standard 5 prevents allocation decisions from being made based on economics alone  
752 (§ 600.330 National Standard 5—Efficiency, 1998).

## 753 6. Conclusions

754 Quota allocations are a highly versatile fisheries management tool. They can be used to  
755 promote fairness and equity, improve economic efficiency, prevent local depletion, avoid catch  
756 limit overages, reduce bycatch, and curb the race to fish. However, without adaptive  
757 management, climate change threatens the ability for these important policies to achieve their  
758 intended objectives by altering the abundance, distribution, and phenology of both target and  
759 non-target species. First and foremost, the success of adaptive management depends on  
760 clearly defined management objectives so that the performance of management strategies can  
761 be regularly evaluated and updated when needed. Given the “fairness and equity” objectives  
762 common to most national and international allocation policies, a much needed first step for  
763 operationalizing adaptive quota allocation management is clearly defining these important but  
764 often murky concepts. In the absence of clear definitions, the vast majority of quota allocation  
765 policies have envisioned “fairness and equity” as the maintenance of historical access to fishing  
766 opportunities. However, the continuation of such an objective under directional climate change  
767 is ill-advised if not impossible. This opens the door for envisioning new fairness and equity  
768 objectives that could focus on incorporating historically excluded participants, creating  
769 opportunities for new entrants, or offsetting negative impacts from climate change, offshore wind  
770 development, or other factors inhibiting fisheries, all while protecting opportunities for historical  
771 participants and providing time for them to adapt as stocks shift beneath them. Here, through an  
772 analysis of “bright spots” of climate-adaptive allocation policies, we provide a roadmap toward  
773 helping allocation policies to achieve their fairness and equity goals in a rapidly changing ocean.

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786 Data availability statement

787 All of the data used in the paper are either available in the supplemental materials or in the  
788 following GitHub repository: [https://github.com/zoekitchel/cc\\_allocation](https://github.com/zoekitchel/cc_allocation)

789 Conflict of interests statement

790 CMF serves on the Scientific and Statistical Committee (SSC) of the Pacific Fisheries  
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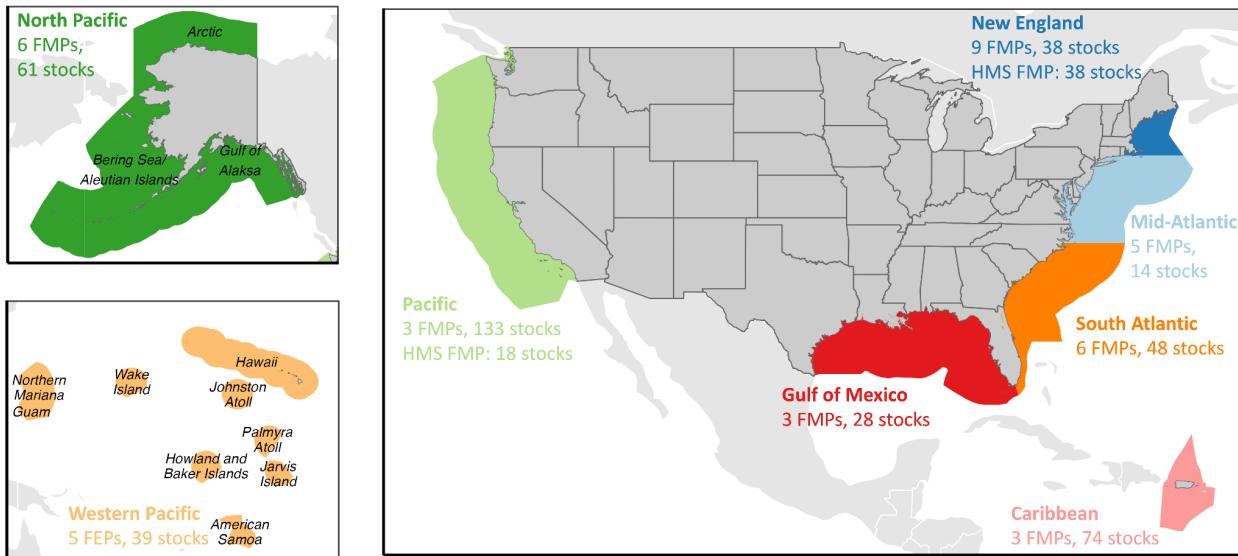
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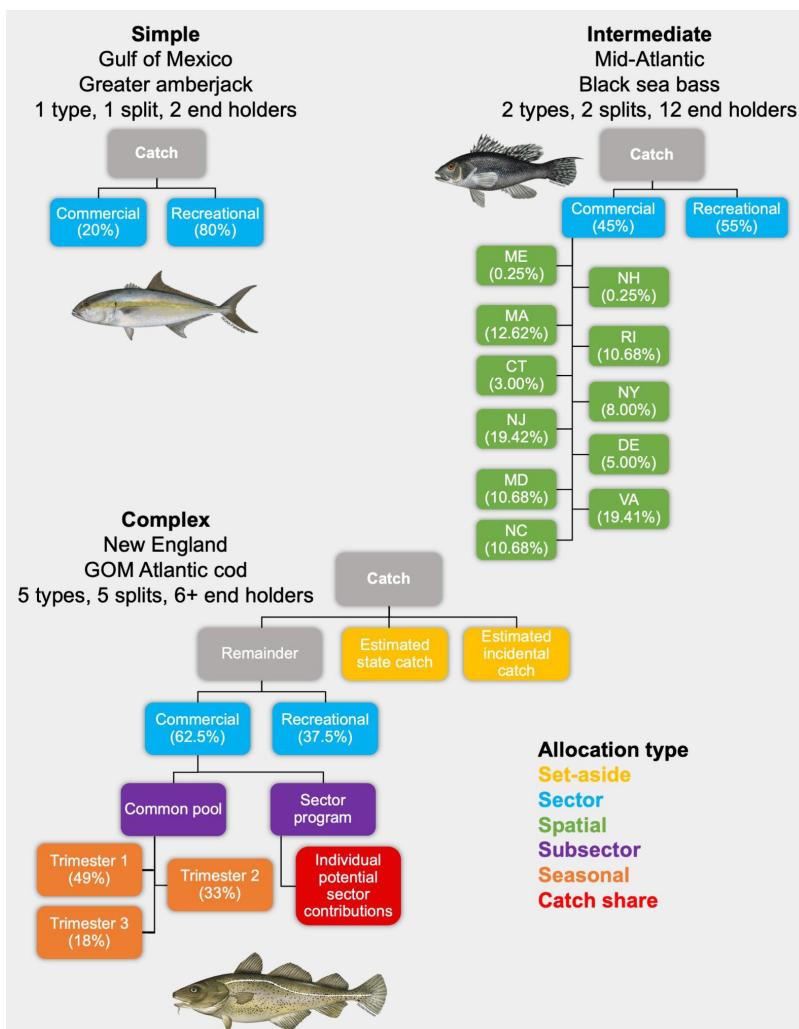
## 1142 Tables and Figures

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**Figure 1.** The jurisdiction of the eight U.S. regional Fishery Management Councils (FMCs), the number of Fishery Management Plans (FMPs) or Fishery Ecosystem Plans (FEPs) developed by each FMC, and the number of stocks managed by each FMC through these FMPs. The Atlantic and Pacific Highly Migratory Species (HMS) FMPs are developed by NOAA but are listed with the Pacific and New England FMCs.

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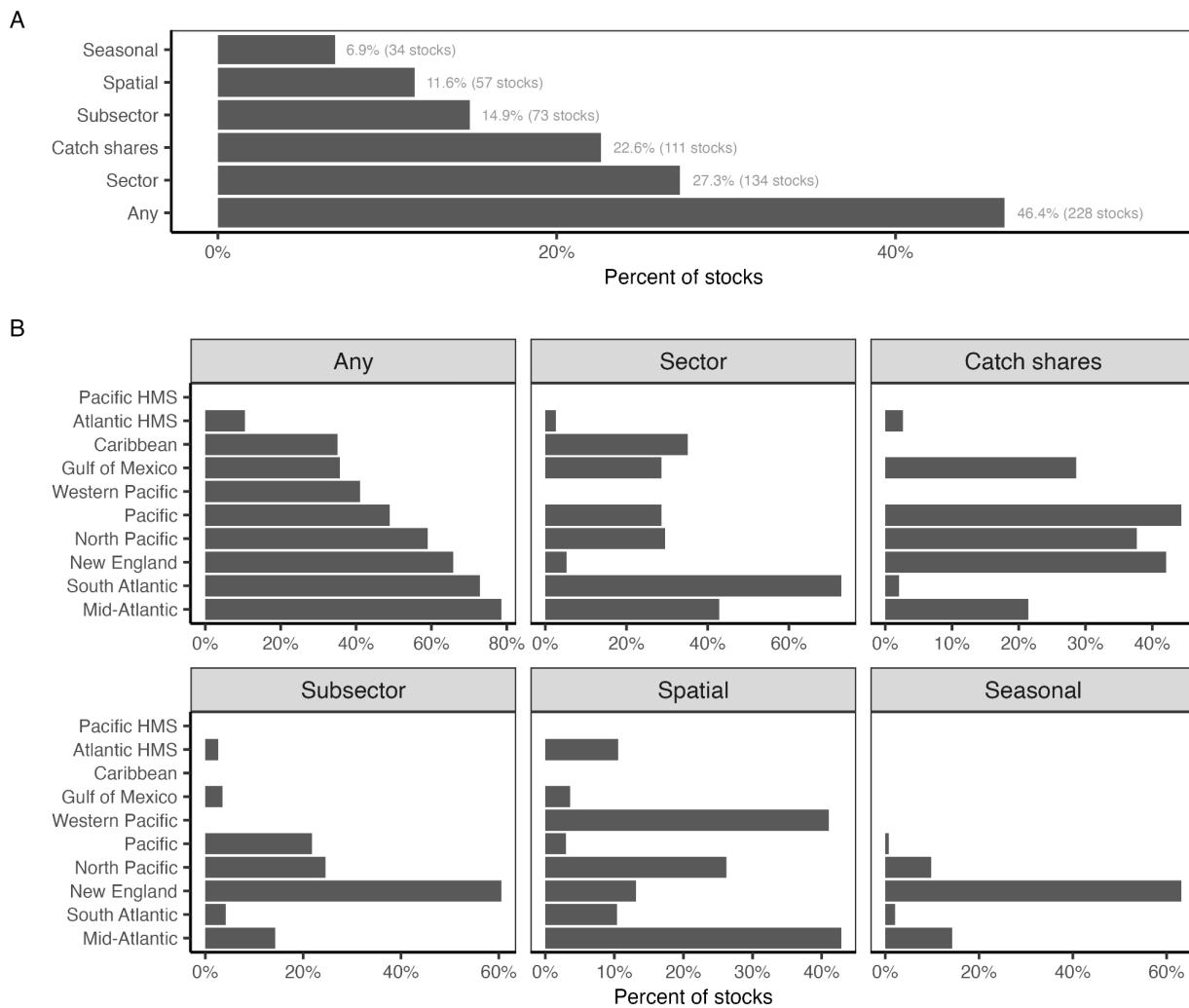
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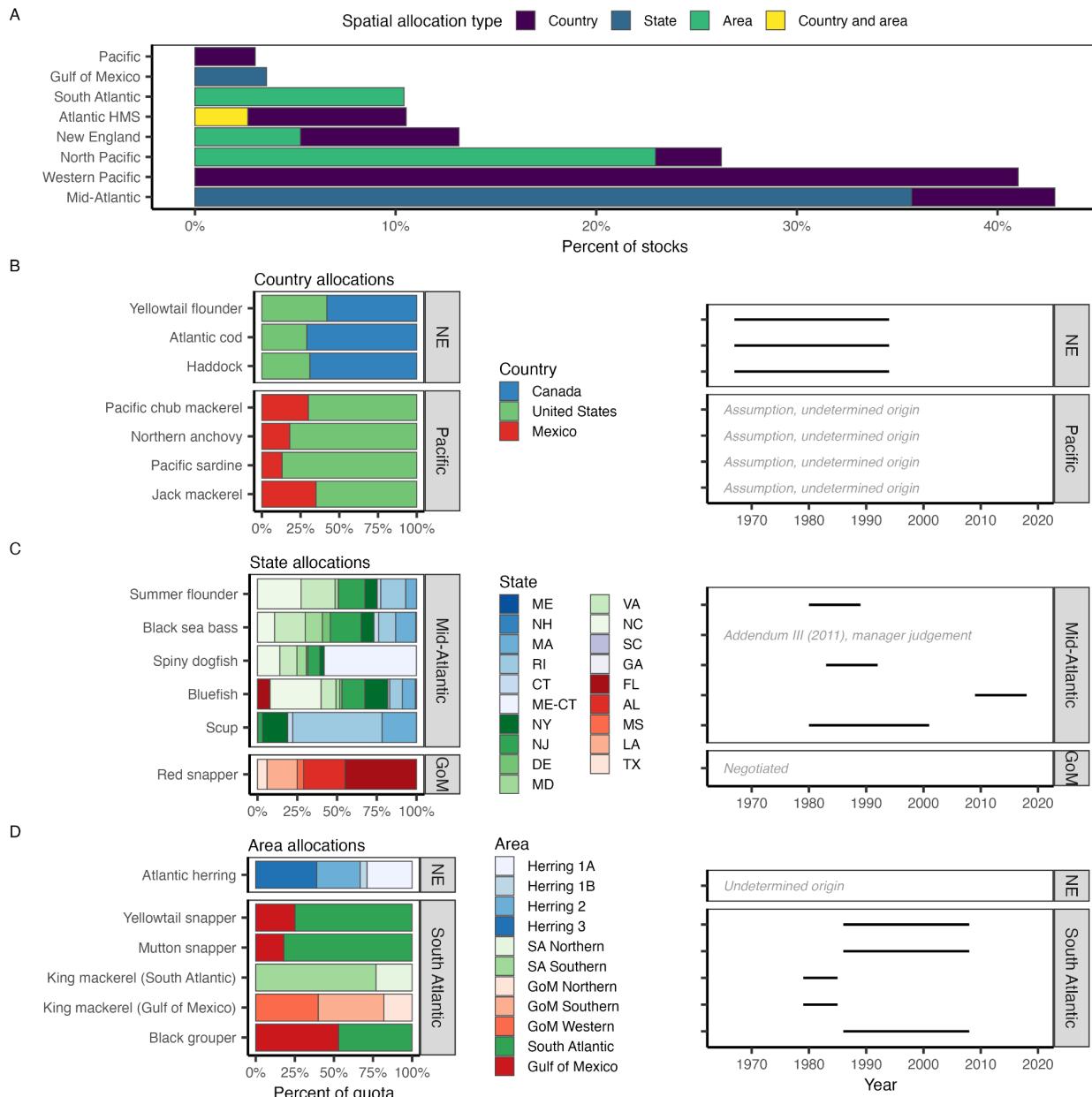
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**Figure 2.** Flowcharts illustrating examples of quota allocation policies of low, medium, and high complexity. Box color indicates the type of quota allocation policy. Both of the illustrated “set asides” are forms of subsector allocations.



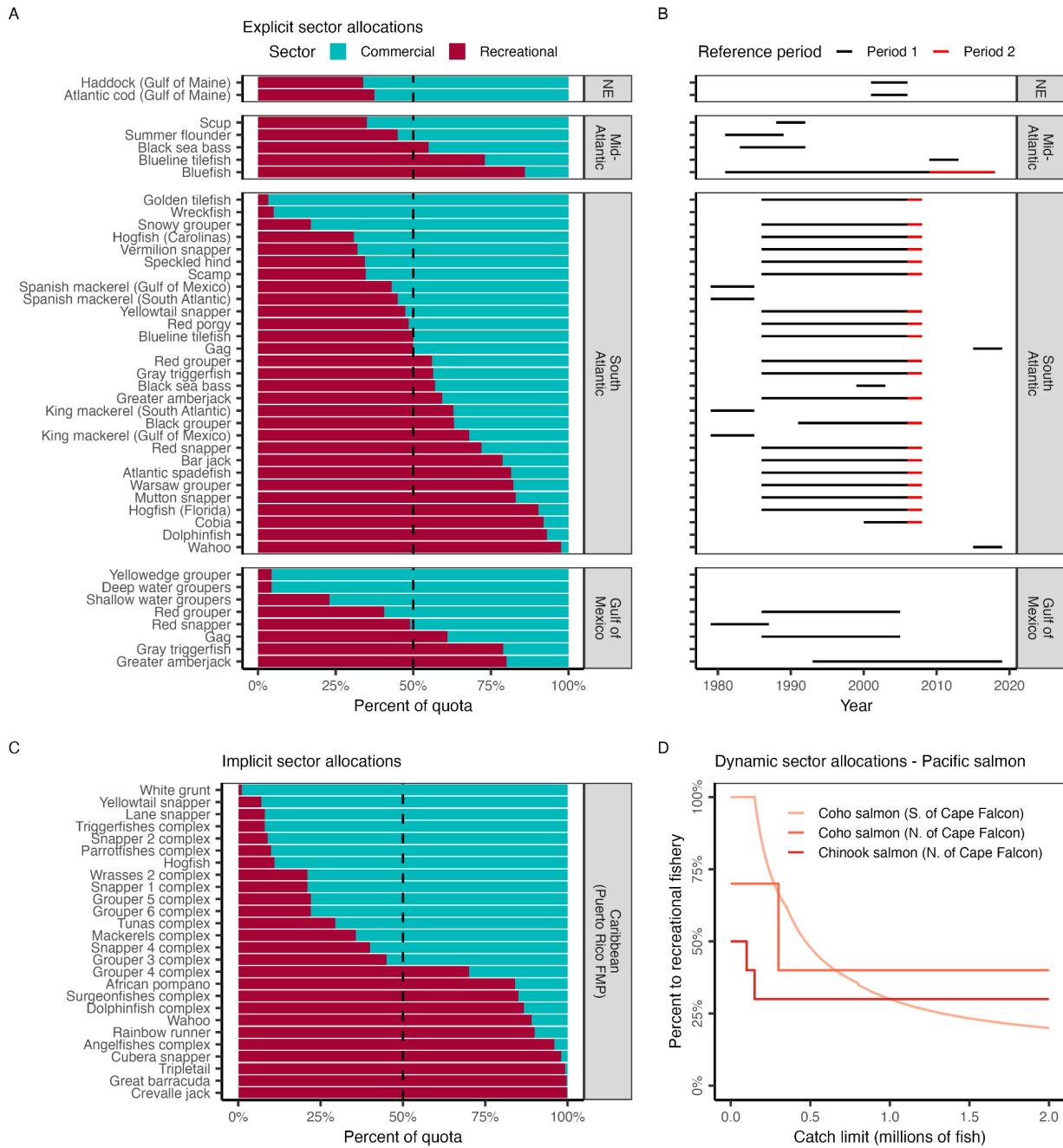
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1156 **Figure 3.** The percent of federally managed fish and invertebrate stocks managed using quota  
1157 allocation policies (A) nationwide and (B) by regional Fishery Management Council.



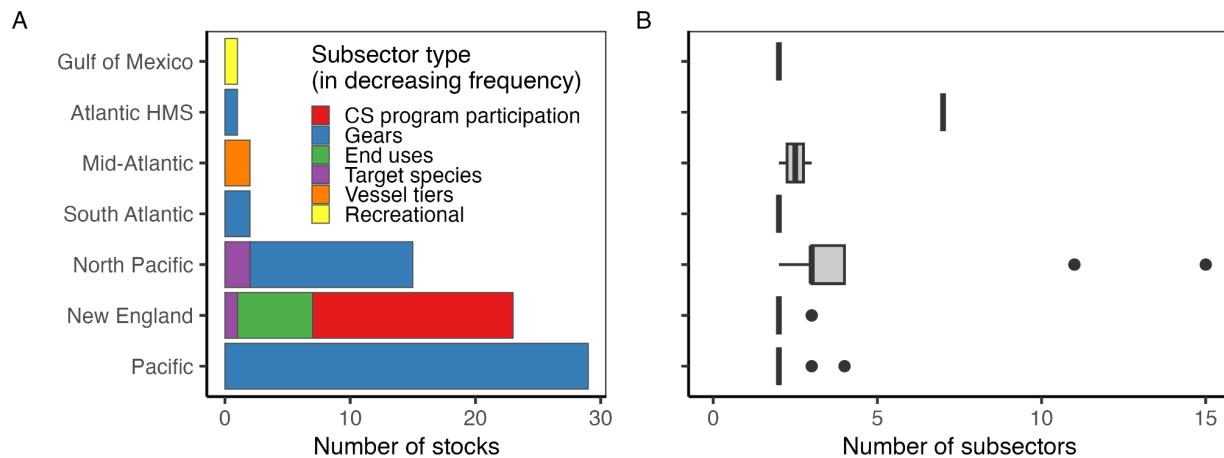
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1159 **Figure 4.** The (A) percent of stocks managed with spatial allocation policies by regional Fishery  
 1160 Management Council (FMC) and spatial allocation type and the percent allocations for stocks  
 1161 managed with (B) country-, (C) state-, and (D) area-based spatial allocation policies. In (C),  
 1162 color groups indicate the FMC representing each state: New England (blues), Mid-Atlantic  
 1163 (greens), South Atlantic (purples), and Gulf of Mexico (reds). In (D), color groups indicate the  
 1164 area scheme: herring zones (blues), South Atlantic king mackerel zones (greens), and Gulf of  
 1165 Mexico king mackerel zones (reds). The Atlantic bluefin tuna stock is managed by the Atlantic  
 1166 Highly Migratory Species (HMS) FMP using both country- and area-based spatial allocations.



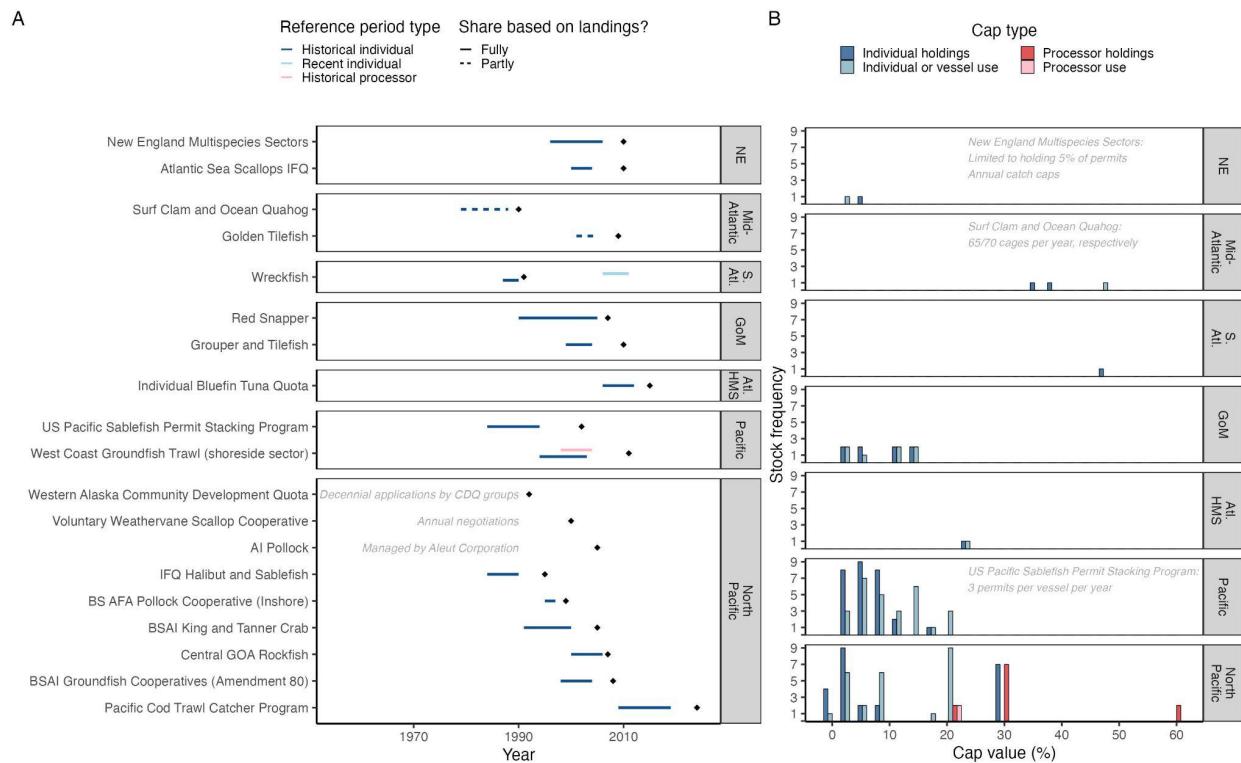
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**Figure 5. Sector-based allocation policies by regional Fishery Management Council (FMC).**  
Panel A shows the percent of quota allocated to commercial and recreational fisheries by FMC and stock. Stocks are sorted in order of increasing allocations to recreational fisheries. The vertical dashed line indicates a 50:50 split. Panel B shows the reference period used to derive the allocation policy (lines). A few policies weigh the recent time period in addition to the selected reference time period. Panel C illustrates the implicit allocation policies resulting from setting fixed catch limits based on historical catch time series for stocks managed by the CFMC Puerto Rico FMP. Panel D shows the dynamic sector allocation policies used to vary sector allocations based on salmon stock size for stocks managed by the PFMC Pacific Salmon FMP.



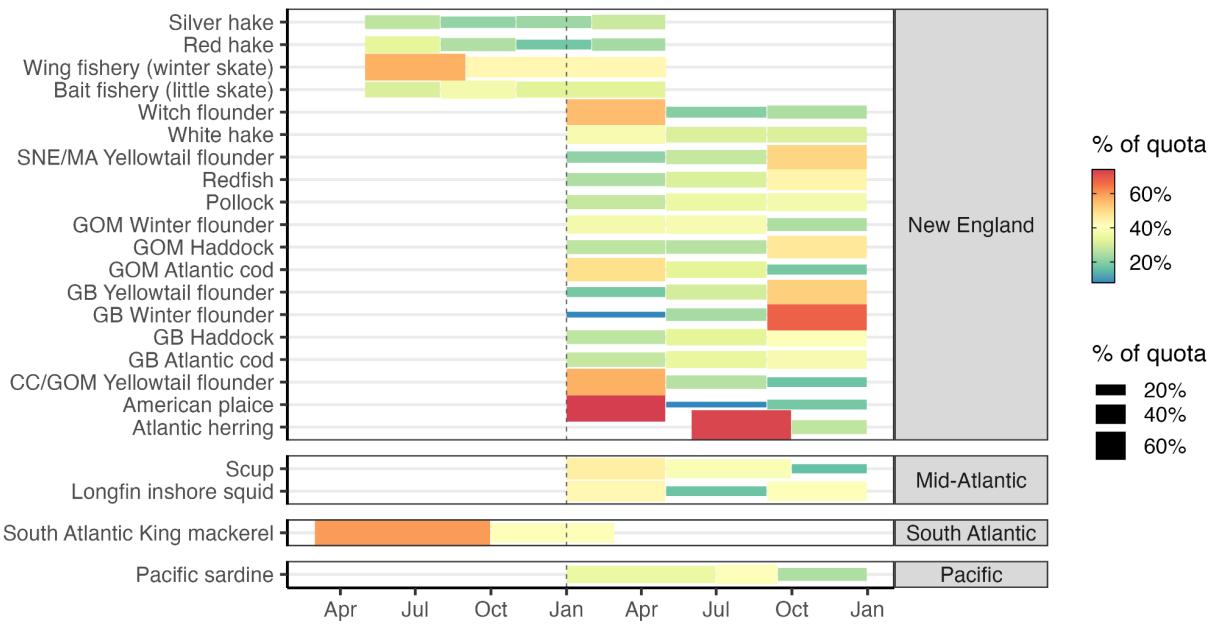
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1178 **Figure 6.** The **(A)** number of stocks managed using subsector allocations by regional Fishery  
1179 Management Council (FMC) and subsector type and **(B)** number of subsectors included within  
1180 the subsector allocation policies implemented by each FMC. In **(A)**, all but the “Recreational”  
1181 subsector type are commercial subsectors. In the boxplots, the solid line indicates the median,  
1182 the box indicates the interquartile range (IQR; 25th to 75th percentiles), the whiskers indicate  
1183 1.5 times the IQR, and points indicate outliers.



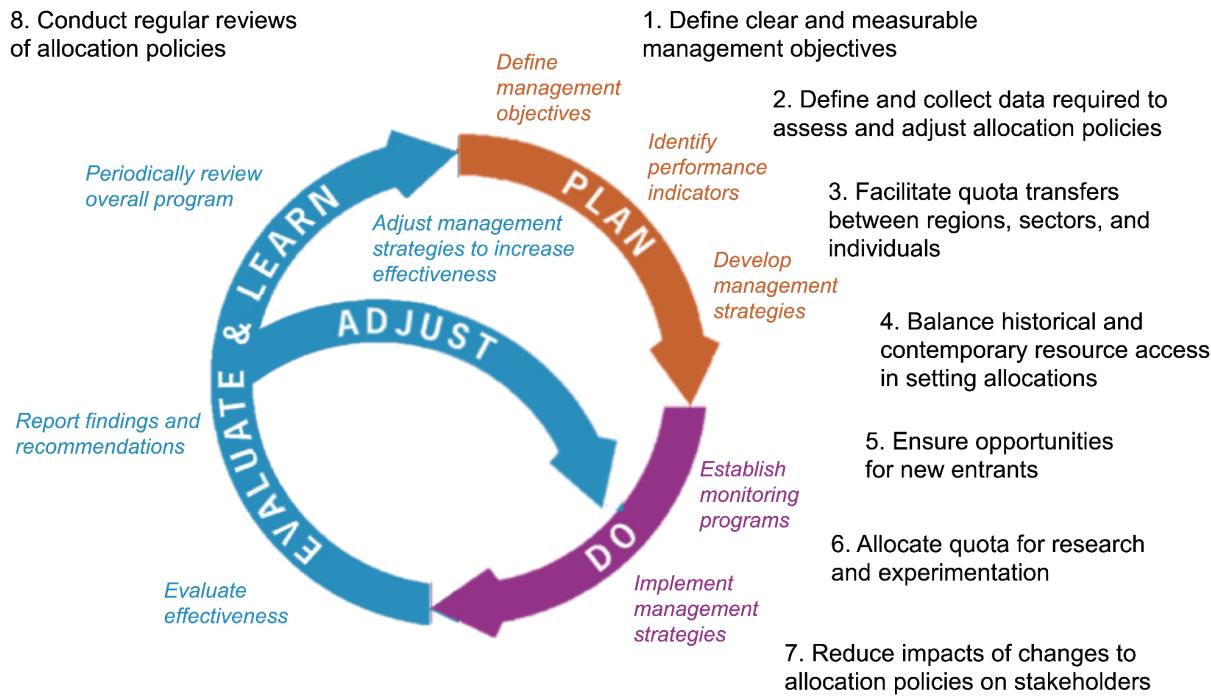
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1185 **Figure 7.** The (A) reference period and year of implementation (diamond) for allocations by  
 1186 program and regional Fishery Management Council (FMC) and (B) stock frequency distribution  
 1187 of holding and use caps by FMC. In (A), reference periods are colored by type (historical vs.  
 1188 recent, individual vs. processor). Programs with reference periods are sorted by implementation  
 1189 year. In 2012, inactive wreckfish quota was redistributed using a recent reference period (light  
 1190 blue). Dashed lines highlight programs in which shares are partly rather than fully based on  
 1191 landings (for Golden Tilefish, also depends on tier; for Surf Clam and Quahog, also depends on  
 1192 vessel size). Gray text explains protocol for programs that do not use landings to determine  
 1193 shares. Reference period can vary by species (New England Multispecies) and permit (Pacific  
 1194 Cod Trawl Catcher Program), therefore most common reference period is illustrated. In (B), cap  
 1195 value frequencies are colored by cap type (holding vs. use, individual vs. processor). Protocol  
 1196 for programs with non percent-based caps described in gray text. Crew, catcher/processor, and  
 1197 cooperative caps are rare and therefore excluded. The Weathervane Scallop Cooperative, W.  
 1198 AK Community Development Quota, and AI Pollock do not employ caps, and are therefore  
 1199 excluded. Halibut is excluded from IFQ Halibut and Sablefish because it is managed by the  
 1200 International Pacific Halibut Commission. Bars are offset by 3 when necessary for visualization.



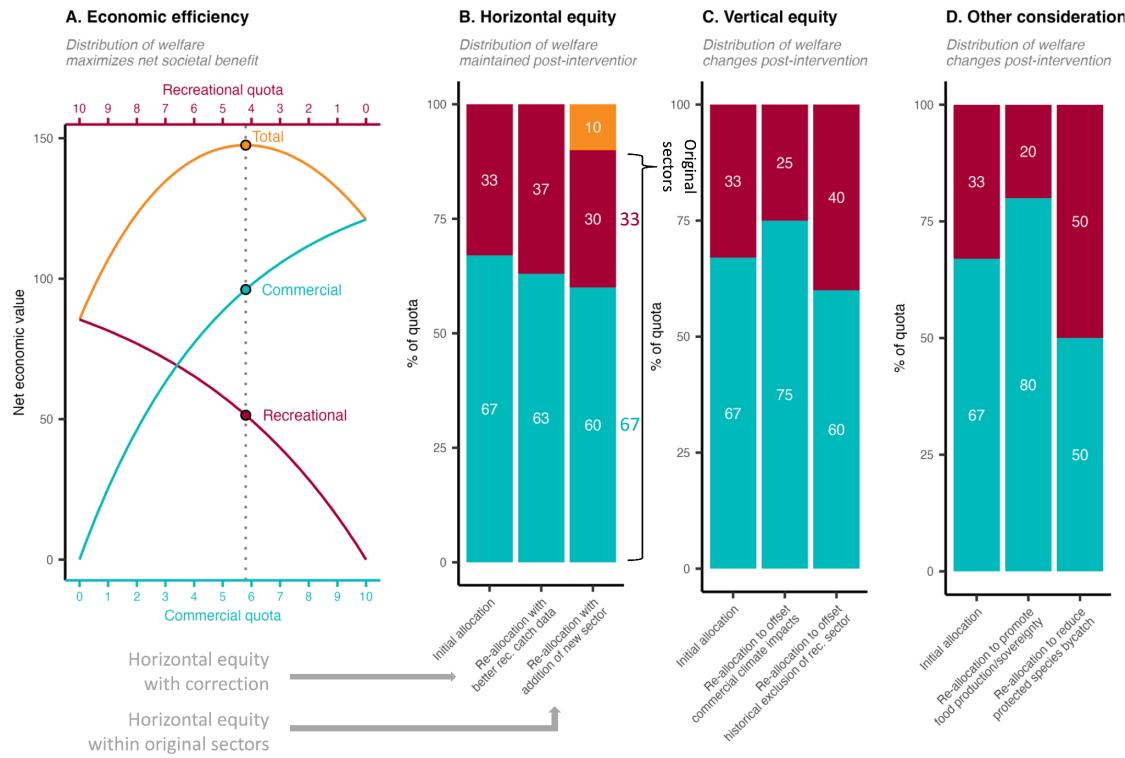
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**Figure 8.** Seasonal allocations of stocks by regional Fishery Management Council. Blocks indicate the temporal extent of each season and block size and color indicate the percent of quota allocated to that season.



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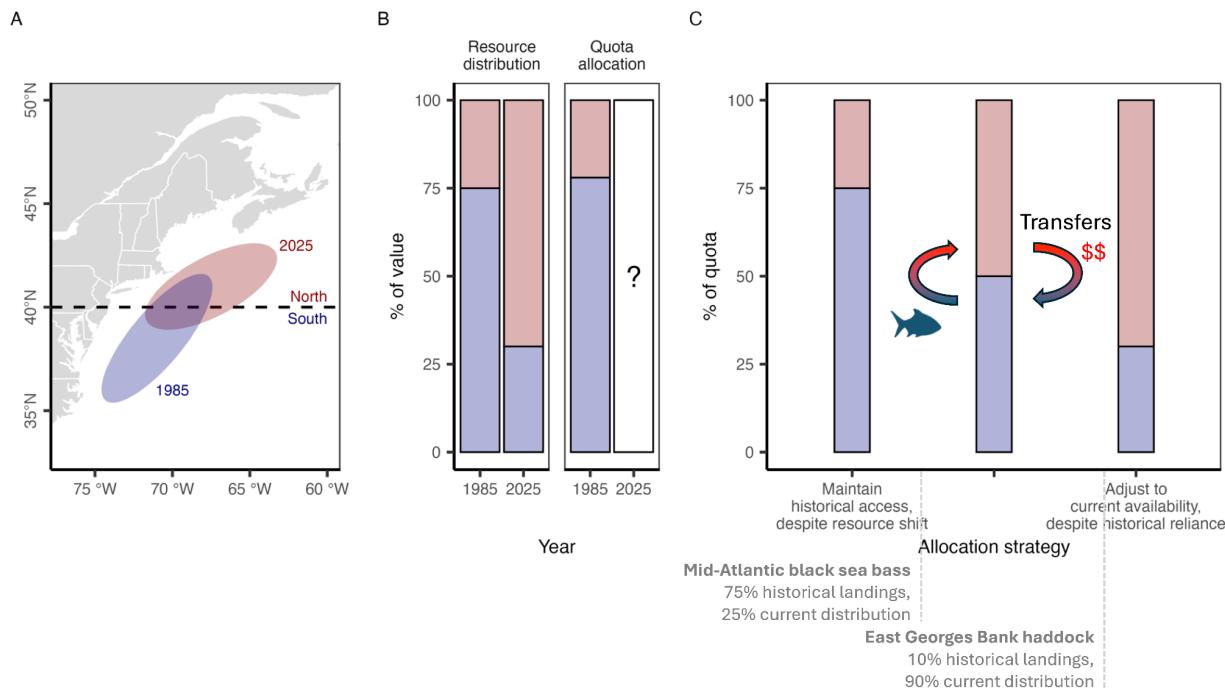
**Figure 9.** A conceptual diagram illustrating the eight best practices (black text) for enhancing the adaptive management of quota allocation policies. The figure is adapted from Jones et al. (2005).



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1211 **Figure 10.** An illustration of alternative conceptualizations of equity in quota allocation policies.  
 1212 Panel **A** illustrates an allocation policy that seeks to optimize economic efficiency by maximizing  
 1213 the net economic benefits of commercial and recreational fisheries. The optimal policy is  
 1214 marked by the vertical dotted line. Panel **B** illustrates a suite of allocation policies that seek to  
 1215 maintain “horizontal equity” whereby the distribution of welfare remains proportional to historical  
 1216 levels. Column 1 shows the initial allocation based on historical catch. Column 2 illustrates a  
 1217 scenario in which the policy is updated with improved estimates of historical recreational  
 1218 catches. Although it results in a different distribution of welfare relative to the initial policy, it is  
 1219 motivated by the same goals (but uses better data) and is therefore still an example of  
 1220 horizontal equity. Column 3 illustrates a scenario in which a historically omitted subsistence  
 1221 sector (orange) is given access. The losses in allocation to the original sectors are proportional;  
 1222 thus, horizontal equity is maintained. Panel **C** illustrates a suite of allocation policies that seek to  
 1223 achieve “vertical equity” whereby the distribution of welfare changes after an intervention in a  
 1224 way considered more fair. This could be to compensate communities disadvantaged by  
 1225 historical allocations (column 2) or by the impacts of contemporary or future climate change  
 1226 (column 3). Panel **D** illustrates how managers could adjust allocation policies to achieve other  
 1227 fisheries objectives, such as promoting food production and sovereignty by prioritizing  
 1228 commercial fishing (column 2) or reducing bycatch of protected species by prioritizing more  
 1229 selective recreational fisheries (column 3). Although these adjustments change the distribution  
 1230 of welfare, they are not motivated by equity and fairness between sectors (though they do relate  
 1231 to broader societal concepts of fairness) and therefore do not qualify as vertical equity. We  
 1232 illustrate these concepts using sector allocations as an example, but all these concepts apply to  
 1233 any allocation between harvesting entities (states, subsectors, individuals, etc).



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 1235 **Figure 11.** A conceptual schematic illustrating the spectrum of allocation options available to  
 1236 managers as stocks shift distributions and their availability to fisheries under climate change.  
 1237 Panel **A** illustrates the shift in distribution of hypothetical stock from 1985 to 2025 relative to a  
 1238 hypothetical management boundary. Panel **B** illustrates the proportional distribution of the  
 1239 resource between the two management zones in 1985 and 2025. The allocation of quota  
 1240 between the zones roughly matches the 1985 distribution because it was established based on  
 1241 1980-1985 catch distribution. Managers must now decide whether and how to adjust the quota  
 1242 allocation given the climate-driven shift in distribution. Panel **C** illustrates the spectrum of  
 1243 options available to managers. On one end of the spectrum, managers could maintain historical  
 1244 access despite the resource shift. This protects historical access for southern zone fishermen  
 1245 but introduces inefficiencies, risks local depletion, and is unfair to northern zone fishermen. On  
 1246 the other end of the spectrum, managers could fully adjust to current resource distribution. This  
 1247 is efficient and aligned with conservation goals but does not protect historical dependence and  
 1248 is therefore unfair to southern fishermen. As a result, managers may wish to find a middle  
 1249 ground between these two extremes. Examples of allocation policies that fall in middleground  
 1250 are highlighted. Furthermore, allowing transfers between zones provides a mechanism for  
 1251 northern fishermen to gain access and for southern fishermen to be compensated for lost  
 1252 access.

## 1253 Supplemental Tables and Figures

1254 **Table S1.** Fishery Management Plans (FMPs) and Fishery Ecosystem Plans (FEPs) used to  
1255 manage U.S. federal fish and invertebrate stocks.<sup>†</sup>

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FMP/FEP	Year	# of species	# of stocks
<i>New England (10 FMPs)</i>			
Atlantic Sea Scallop	1982	1	1
Deep-Sea Red Crab	2002	1	1
Northeast Multispecies	1986	13	20
Small-Mesh Multispecies (Whiting)	2000	3	5
Northeast Skate Complex	2003	7	7
Atlantic Herring	1999	1	1
Atlantic Salmon	1988	1	1
Monkfish (with MAFMC)	1999	1	1
Spiny Dogfish (with MAFMC)	1999	1	1
Atlantic HMS (with all East Coast RFMCs)	2006		
<i>Mid-Atlantic (5 FMPs)</i>			
Atlantic Surfclam & Ocean Quahog	1977	2	2
Bluefish	1990	1	1
Mackerel, Squid, Butterfish	1978	5	5
Summer Flounder, Scup, Black Sea Bass	1988	3	3
Tilefish	2001	2	2
<i>South Atlantic (6 FMPs)</i>			
Dolphin & Wahoo	2004	4	4
Golden Crab	1996	1	1
Shrimp	1993	4	4
Snapper-Grouper	1983	55	55
Coastal Migratory Pelagics (with GFMC)	1983	3	3
GOM & SA Spiny Lobster (with GFMC)	1982	1	1
<i>Gulf of Mexico (3 FMPs)</i>			
Red Drum	1986	1	1
GOM Reef Fish	1984	31	31
GOM Shrimp	1981	4	4
<i>Caribbean (3 FMPs)</i>			
Puerto Rico	2022	65, plus cucumbers/urchins/corals	37
St. Thomas & St. John	2022	45, plus cucumbers/urchins/corals	26
St. Croix	2022	49, plus cucumbers/urchins/corals	26
<i>Pacific (4 FMPs)</i>			
Coastal Pelagic Species	2000	5	5
Pacific Groundfish	1982	86	100+
Pacific Salmon	2016	3	67
Pacific HMS	2003	11	11
<i>North Pacific (6 FMPs)</i>			
BSAI King & Tanner Crabs	1989	5	10
Arctic Fish	2009	3	3
BSAI Groundfish	1982	17, plus 3 complexes	23
GOA Groundfish	1978	19, plus 5 complexes	28
AK Salmon	1979	5	many
AK Scallop	1995	1	1
<i>Western Pacific (5 FEPs)</i>			
American Samoa Archipelago	2009		
Hawaii Archipelago	2009		
Guam (Mariana Archipelago)	2009		
Pacific Pelagic Fisheries	2009		
Pacific Remote Island Areas	2009		

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1258 <sup>†</sup> We did not evaluate the seven habitat-oriented FMPs because they do not manage marine fish or invertebrate  
1259 fisheries: (1) New England: Habitat FMP; (2) South Atlantic: Coral and Sargassum FMPs; (3) Gulf of Mexico:  
1260 Aquaculture, Coral, and Essential Fish Habitat FMPs; and (4) Pacific: Fishery Ecosystem Plan.

1261 **Table S2.** Structure of the quota allocation policy database.

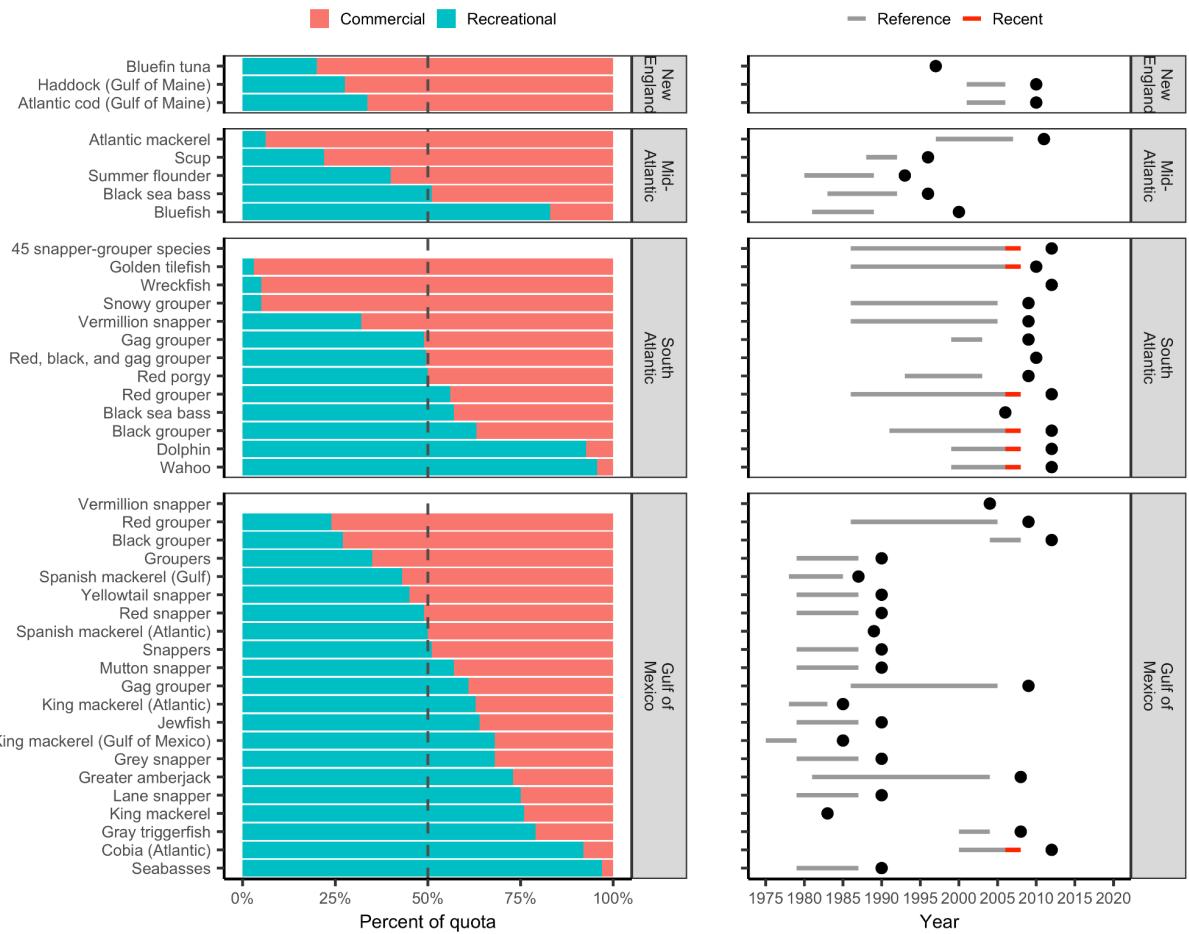
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Description	Column name	Example
Council	council	NEFMC
Management plan	fmp	Northeast Multispecies
Stock name	stock	Granger fish - Georges Bank
Species category	spp_catg	Groundfish
Common name	comm_name	Granger fish
Scientific name	sci_name	<i>Petrificus totalus</i>
Catch prohibited (yes/no)?	prohibited_yn	No
Allocation rule (yes/no)?	allocation_yn	Yes
Geographic rule (yes/no)?	spatial_yn	Yes
Country rule (yes/no)?	country_yn	Yes
List of countries	country_list	US, Canada
Number of countries	country_n	2
Country reference years	country_yrs	1985-1990, 1995-2001
State rule (yes/no)?	state_yn	Yes
List of states	state_list	ME, NH, RI
Number of states	state_n	3
State reference years	state_yrs	1985-1990
Area (yes/no)?	area_yn	Yes
List of areas	area_list	Georges Bank, Gulf of Maine
Number of areas	area_n	2
Area reference years	area_yrs	1985-1990, 1995-2001
Sector rule (yes/no)?	sector_yn	Yes
List of sectors	sector_list	Research, comm, rec, tribal
Number of sectors	sector_n	3
Basis (catch/effort)	sector_basis	Catch
Sector reference years	sector_yrs	1985-1990
Subsector rule (yes/no)?	subsector_yn	Yes
List of subsectors	subsector_list	Longline, gillnet, trap
Number of subsectors	subsector_n	3
Subsector reference years	subsector_yrs	1985-1990, 1995-2001
Seasonal rule (yes/no)?	season_yn	Yes
List of seasons	season_list	Jan - May, Jun - Dec
Number of seasons	season_n	2
Indiv/group rule (yes/no)?	indiv_yn	Yes
Basis (hist., equal, auction)	indiv_basis	Historical catch
Reference years	indiv_yrs	1985-1990
Owner	indiv_owner	Vessel
Share caps (yes/no)?	indiv_caps_yn	Yes

1263   **Table S3.** Catch share programs by regional Fishery Management Council (FMC).  
 1264

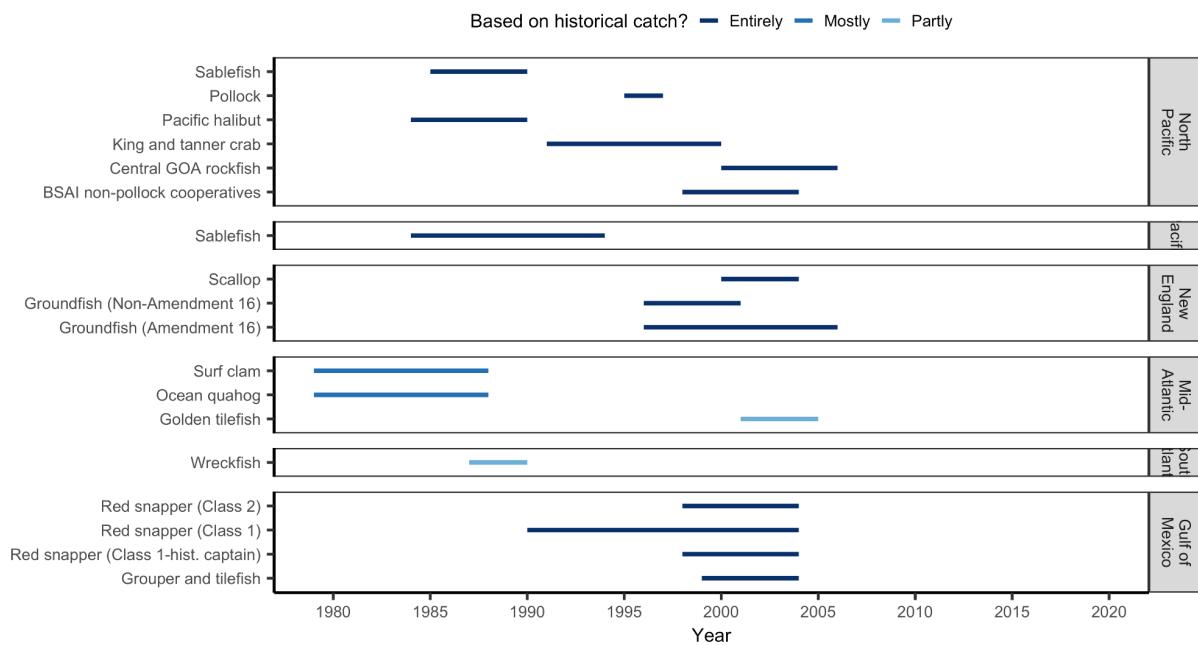
<b>Program</b>	<b>Year</b>
<i>Atlantic HMS</i>	
Individual Bluefin Tuna Quota	2015
<i>New England</i>	
Atlantic Sea Scallops IFQ	2010
New England Multispecies Sectoris	2010
<i>Mid-Atlantic</i>	
Surf Clam and Ocean Quahog	1990
Golden Tilefish	2009
<i>South Atlantic</i>	
Wreckfish	1991
<i>Gulf of Mexico</i>	
Red Snapper	2007
Grouper and Tilefish	2010
<i>Pacific</i>	
Pacific Sablefish Permit Stacking	2001
West Coast Groundfish Trawl Rationalization	2011
<i>North Pacific</i>	
Western Alaska Community Development Quota Program	1992
Individual Fishing Quota Halibut and Sablefish	1995
Bering Sea AFA Pollock Cooperative	1999
Weathervane Scallop Cooperative*	2000
Bering Sea and Aleutian Islands King and Tanner Crab	2005
Aleutian Islands Pollock	2005
Bering Sea and Aleutian Islands Groundfish (Non-Pollock) Cooperatives - Amendment 80	2008
Central Gulf of Alaska Rockfish	2011
Pacific Cod Trawl Cooperative Program	2024

1265  
 1266   <sup>†</sup> The Weathervane Scallop Cooperative is a voluntary program and is not listed on the NOAA Catch  
 1267 Share website (<https://www.fisheries.noaa.gov/national/sustainable-fisheries/catch-shares>). Our inclusion  
 1268 of this program and the recently added Pacific Cod Trawl Cooperative Program is why we arrive at 19  
 1269 rather than 17 catch share programs.



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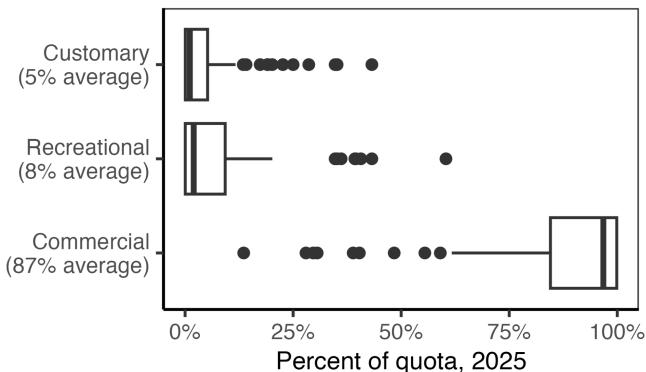
1271 **Figure S1.** Sector-based allocation policies documented by Morrison and Scott (2014). Panel A  
1272 shows the percent of quota allocated to commercial and recreational fisheries by regional  
1273 Fishery Management Council and stock. Stocks are sorted in order of increasing allocations to  
1274 recreational fisheries. The vertical dashed line indicates a 50:50 split. Panel B shows the  
1275 reference period used to derive the allocation policy (lines) and the year in which the allocation  
1276 policy went into effect (points). A few policies weigh the recent time period in addition to the  
1277 selected reference time period.



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**Figure S2.** Basis for catch share allocations documented by Morrison and Scott (2014).



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**Figure S3.** Quota allocation percentages among sectors for the 98 species managed within New Zealand's Quota Management System in 2025 (Fisheries of New Zealand, 2024a). In the boxplots, the solid line indicates the median, the box indicates the interquartile range (IQR; 25th to 75th percentiles), the whiskers indicate 1.5 times the IQR, and points indicate outliers.

## Appendix A: Allocation policies in U.S. federally managed fisheries

### Acronym definitions

- CFMC: Caribbean Fisheries Management Council
- CFQ: Community Fishing Quota
- CPS: Coastal Pelagic Species
- DAS: Days at Sea
- FMC: Fisheries Management Council
- FMP: Fisheries Management Plan
- GFMC: Gulf of Mexico Fisheries Management Council
- HMS: Highly Migratory Species
- IFQ: Individual Fishing Quota
- ITQ: Individual Transferable Quota
- LAPP: Limited Access Privilege Program (includes ITQs and IFQs and more generally any type of rights-based management technique). Synonymous with DAP: Dedicated Access Privilege
- MAFMC: Mid-Atlantic Fisheries Management Council
- MSA: Magnuson Stevens Act
- NEFMC: New England Fisheries Management Council
- NPFMC: North Pacific Fisheries Management Council
- PFMC: Pacific Fisheries Management Council
- QS: quota share
- RSA: Research Set Aside
- SAFMC: South Atlantic Fisheries Management Council
- WPFMC: Western Pacific Fisheries Management Council

## 1. New England

The NEFMC implements nine fishery management plans including two plans jointly managed with the MAFMC (**Table X**). The NEFMC leads the jointly managed Monkfish FMP. As implementation of the spiny dogfish FMP is led by the MAFMC, allocation policies for this FMP are described in the MAFMC section of this document.

**Table X.** Brief summary of the allocation policies used in NEFMC FMPs.

FMP	Allocation policy summary
Northeast multispecies	
Small-mesh multispecies	Seasonal, set asides
Atlantic herring	Spatial (area), sector, subsector, seasonal, RSAs
Monkfish ( <i>led by NEFMC with MAFMC</i> )	No allocations (except RSAs)
Skates	Subsector, seasonal, set asides
Sea scallop	Spatial (area), subsector, catch shares, set asides
Red crab	No allocations
Spiny dogfish ( <i>led by MAFMC with NEFMC</i> )	Spatial (state) (see section 2.6)
Atlantic salmon	No allocations

New England does not currently have an allocation review policy, but has considered a cross-FMP or FMP-specific trigger in response to [NOAA's 2016 Allocation Policy \(2018 Fisheries Allocation Policy Directive\)](#). In allocating catch across sectors, the NEFMC aims to:

1. Address bycatch issues
2. Simplify management
3. Give the industry greater control over their fate
4. Provide a mechanism for economics to shape the fleet rather than regulations (while working to achieve fishing and biomass targets)
5. Prevent excessive consolidation that would eliminate the day boat fishery.

## 1.1 Multispecies (Groundfish) FMP

**Species:** The Northeast Multispecies FMP, also called the Groundfish FMP, was implemented in 1985. The FMP currently manages 13 species in 20 stocks:

- Atlantic cod (*Gadus morhua*)
- Haddock (*Melanogrammus aeglefinus*)
- Atlantic pollock (*Pollachius virens*)
- Acadian redfish (*Sebastes fasciatus*)
- Winter flounder (*Pseudopleuronectes americanus*)
- Yellowtail flounder (*Limanda ferruginea*)
- Atlantic halibut (*Hippoglossus hippoglossus*)
- Atlantic Wolffish (*Anarhichas lupus*)
- White hake (*Urophycis tenuis*)
- American plaice (*Hippoglossoides platessoides*)
- Witch flounder (*Glyptocephalus cynoglossus*)
- Windowpane flounder (*Scophthalmus aquosus*)
- Ocean pout (*Zoarces americanus*)

**Prohibited species:** Possession of windowpane flounder, ocean pout, and wolffish is prohibited and possession is limited for halibut. Thus, these species are not allocated.

**International allocations:** Three stocks – Eastern Georges Bank (GB) haddock, cod, and yellowtail flounder – are managed jointly between Canada and the U.S., and allocations are recommended by the Transboundary Management Guidance Committee (TMGC), which was established in 2000. Transboundary allocations are based on historical landings and current resource distribution, as assessed by fisheries independent trawl surveys ([NOAA 2022](#)). For 2024, however, the U.S. was allocated 29% of GB cod, 31% of GB haddock, and 42% of GB yellowtail flounder, and Canada allocated the remaining 71% of GB cod, 69% of GB haddock, and 58% of GB yellowtail flounder. It is interesting to note, that in 2023 there was no agreement on the shared quota between Canada and the U.S. for haddock.

**International set asides:** While not co-managed, Canadian catch of GB winter flounder, white hake, and Atlantic halibut is estimated by the Council and removed as a set aside.

**Sector allocations:** In the U.S., only GOM haddock and GOM cod are allocated between the recreational (cod: 37.5%, haddock: 33.9%) and commercial (cod: 62.5%, haddock: 66.1%) sectors, based on catch from 2001-2006 (Amendment 16; 2010; updated with new MRIP data by Framework Adjustment 59, 2020).

**Set asides for state waters and incidental catch:** Although not considered a formal allocation by the Council, harvest in state waters and incidental catch from other fisheries is estimated and subtracted from the total ACL for some stocks (**Table X**).

**Table X.** Set asides for catch from state and other fisheries for 2024 as percent of total ACL ([Framework Adjustment 65 2024](#)).

Stock	Midwater trawl	Scallop fishery	Small-mesh	State waters	Other*
Atlantic halibut - Northwestern Atlantic Coast				20.5%	1.6%
American plaice - GOM/GB				0.5%	0.5%
Atlantic cod -GB				8.4%	16.6%
Atlantic cod - GOM				9.2%	0.7%
Haddock -GB	2%				
Haddock - GOM	1%			2.4%	0.3%
Pollock - GOM/GB				4.7%	3.7%
Ocean pout - Northwestern Atlantic Coast					41%
White Hake - GOM/GB					1%
Windowpane - GOM/GB		20.7%		0.5%	8.7%
Windowpane - SNE/ Mid-Atlantic		34.8%		3.5%	49.6%
Winter flounder -GB					1%
Winter flounder - GOM				19.8%	1.6%
Winter flounder - SNE/ Mid-Atlantic				3.1%	23.8%
Witch flounder - Northwestern Atlantic Coast				1.6%	2.6%
Yellowtail flounder - Cape Cod / GOM				3.2%	4.2%
Yellowtail flounder - SNE/ Mid-Atlantic		7.1%		0.5%	5.3%
Yellowtail flounder -GB		16%	1.9%		

\* Other sub-component = estimate of catch expected from non-groundfish fisheries or recreational if no formal allocation.

**Permit types:** To harvest regulated groundfish in federal waters, fishermen must possess one of ten federal groundfish permits. Six of these are limited access permits (category A, C, D, E, F, and HA) and the remaining four are open access permits (categories HB, I, K). Limited access permits are only issued to vessels that previously held them or to approved replacements of those permits; thus, a vessel owner wishing to obtain a limited access permit must acquire an existing permit owner. Vessel owners seeking an open access permit apply through the Greater Atlantic Region Permit Office ([NOAA NE Multispecies Management](#)).

**Management programs:** The commercial fishery for groundfish is divided between two management programs: (1) the sector program, which is only open limited access permit holders and (2) the common pool program, which is open to both limited access and open access permit holders. Before each fishing year (May 1 - Apr 30), limited access permit holders decide whether to enroll in a sector within the sector program or remain in the common pool program. Since 2010, the majority of limited access permits have annually enrolled in sectors such that ~98% of catch comes from the sector program ([NOAA NE Multispecies Management](#)).

**Sector program (catch shares):** The sector program is a catch share program in which each limited access permit holder brings their potential sector contributions (PSC) to the sector in which they enroll. PSCs are based on historic catch from 1996-2006 except for the two original sectors targeting GB cod (Hook & Fixed Gear Sectors), where it is based on 1996-2001. The

sum of the PSC of permits enrolled in the sector represents the sector's Annual Catch Entitlement (ACE). Each sector is allocated a portion of the commercial fishery sub-ACL in proportion to its ownership of ACE within the sector program. Sectors have the flexibility to distribute ACE among members as they choose, but they typically do so based on PSC. ACEs are transferable among sectors, and there is currently no cap on sector allocations.

For reference, a sector is defined as “a group of three distinct persons holding limited access vessel permits, who have voluntarily entered into a contract and agreed to certain fishing restrictions for a specified period of time, and which has been granted a quota in order to achieve objectives consistent with the applicable fishery management plan goals and objectives” ([NOAA NE Multispecies Sector Program](#)). In the 2023-2024 fishing years, there were 18 approved sectors ([NOAA NE Multispecies 2024 Sectors](#)).

**Common pool program (seasonal allocations):** The common pool fishery is primarily managed using input controls such as days-at-sea restrictions, trip limits, and gear restrictions ([NOAA NE Multispecies Common Pool Fishery](#)). The common pool fishery is managed using stock-specific seasonal allocations spread across 4-month trimesters (Trimester 1: May-Aug; Trimester 2: Sep-Dec; Trimester 3: Jan-Apr) based on historical fishing effort to ensure access throughout the season and prevent overages (**Table X**). In 2010, [Amendment 16](#) introduced the trimester allocations based on recent (but undisclosed) catch history, but also set a framework for these to be adjusted to reflect the most recent 5-years during each biennial specifications process. In 2017, [Framework 57](#), adjusted the trimester allocations for six stocks that were experiencing early closures in trimester 1 and 2 based on average landings from 2012-2016: Georges Bank cod, Gulf of Maine cod, Southern New England/Mid-Atlantic yellowtail flounder, Cape Cod/Gulf of Maine yellowtail flounder, American plaice, and witch flounder.

**Table X.** Groundfish common pool trimester total allowable catch limits (mt) from [Northeast Multispecies Common Pool Fishery](#) for 2024. \* Framework 57 stocks (2012-2016 landings).

Stock	Trimester 1	Trimester 2	Trimester 3
GB Cod*	3.1 (28%)	3.8 (34%)	4.3 (38%)
GOM Cod*	4.8 (49%)	3.2 (33%)	1.8 (18%)
GB Haddock	41.3 (27%)	50.5 (33%)	61.2 (40%)
GOM Haddock	8.2 (27%)	7.9 (26%)	14.3 (47%)
GB Yellowtail Flounder	0.6 (18%)	1 (30%)	1.7 (52%)
SNE/MA Yellowtail Flounder*	1.6 (21%)	2.1 (28%)	3.9 (51%)
CC/GOM Yellowtail Flounder*	22.5 (57%)	10.2 (26%)	6.7 (17%)
American Plaice*	105.3 (74%)	11.4 (8%)	25.6 (18%)
Witch Flounder*	22.3 (55%)	8.1 (20%)	10.2 (25%)
GB Winter Flounder	3.5 (8%)	10.6 (24%)	29.9 (68%)
GOM Winter Flounder	29.2 (37%)	29.9 (38%)	19.7 (25%)
Redfish	19.3 (25%)	23.9 (31%)	33.9 (44%)
White Hake	6.8 (38%)	5.6 (31%)	5.6 (31%)
Pollock	34.2 (28%)	42.8 (35%)	45.2 (37%)

## 1.2 Small-Mesh Multispecies (Whiting) FMP

The [Northeast Small-mesh Multispecies FMP](#), often known as the Whiting FMP, was implemented in 2000 by Amendment 12 to the Northeast multispecies FMP and governs the management of 3 species and 5 stocks of hake: two stocks of silver hake (*Merluccius bilinearis*), two stocks of red hake (*Urophycis chuss*), and one stock of offshore hake (*Merluccius albidus*). The silver and red hake stocks represent northern and southern stocks.

**Set asides:** [Amendment 19 to the Northeast Multispecies FMP](#) established set asides for discards and catch taken within state waters without federal permits. The set aside for discards is calculated as the most recent 3-year moving average of discards. 3% of the remainder is then removed to account for state-water landings.

**Seasonal allocations (southern stocks only):** If landings of a species in a year exceed 2/3rds of the total allowable landings for the species, then landings in the following year are allocated quarterly to help avoid overages. The quarterly allocations are shown below and were based on the average proportion of dealer-reported landings from 2008–2010 ([Amendment 19](#)). This only applies to the southern stocks of red hake and silver hake (whiting). These seasonal allocation have not been used by the council to date (Applegate, personal communication).

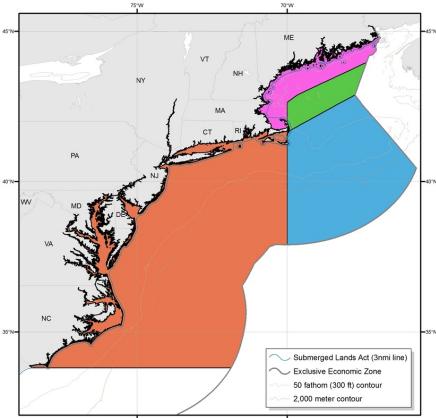
Species	Q1: May-Jul	Q2: Aug-Oct	Q3: Nov-Jan	Q4: Feb-Apr
Southern red hake	33.3%	25.3%	17.7%	23.7%
Southern silver hake (whiting)	27%	21.4%	22.8%	28.8%

## 1.3 Atlantic Herring FMP

The NEFMC Herring FMP was implemented in 1999 and governs the management of the U.S. Atlantic herring (*Clupea harengus*) stock. Herring is jointly managed across state and federal waters by the Atlantic States Marine Fisheries Commission (ASMFC). The NEFMC is charged with management in federal waters while the ASMFC leads management in state waters.

**Sector allocations:** There is no recreational allocation as recreational fishing makes up less than 1% of the catch. Up until 2005, the Commission allocated catch to be fished (Total Allowable Level of Foreign Fishing (TALFF)) or processed (total foreign processing: Joint Venture Processing (JVP) and Internal Waters Processing (IWP)), but set these allocations to zero once U.S. fishing and processing matched the available resource. Amendment 4 in 2011 fully removed the option to allocate to TALFF, JVP, and IWP from the FMP. Thus, there are no sector allocations.

**Area allocations:** Currently, commercial catch is allocated across four distinct management zones: 1A: Inshore Gulf of Maine. (28.9%), 1B: Offshore Gulf of Maine (4.3%), 2: South Coastal Area (27.8%), and 3: Georges Bank (39%).



**Figure X.** Herring management areas (red=2, blue=3, green=1B, pink=1A).

**Subsector:** Of the Area 1A sub-ACL, up to 30 metric tonnes are set-aside for the fixed gear fishery west of Cutler, Maine until November 1, at which point it is allocated to the general Area 1A sub-ACL. Up to 5% of the TAC for each area is set aside as bycatch in non-herring fisheries.

**Seasonal allocations:** To provide herring when demand for lobster bait is highest (and therefore best meet the need of the fishery), managers currently allocate 72.8% of the 1A sub-ACL to Season 1 (June 1 - September 30), and 27.2% to Season 2 (October 1 - December 31) (Framework adjustment 1 of FMP). However, based on the recommendation of Maine, New Hampshire, and Massachusetts, the ASMFC annually chooses between bi-monthly, trimester, or seasonal periods. Percents associated with each type of temporal allocation structure is based on vessel trip reports from 2000-2007. Sub-ACL for areas 1B, C, D can also be seasonally allocated to maximize profitability for industry, but this option has not been implemented.

**Research set asides:** In the past, 3% of each area's sub-ACL had been allocated as research set-aside (RSA). However, to match declines in sub-ACLs, the council has allocated 0% to RSA since 2022.

**Additional allocation measures:** As of spring 2024, the NEFMC is holding scoping meetings to develop a proposal for Amendment 10. The Council is considering additional allocation measures along with other management alternatives “to account for the role of Atlantic herring as forage in the ecosystem and minimize user conflicts” ([Framework Adjustment 2; MAPA-4 Seasonal Structure Amendment](#); [Herring FMP Summary](#); [Amendment 1](#); [Amendment 3](#); [Amendment 4](#); [Amendment 10 Scoping Doc](#); [ASMFC Atlantic Herring Summary](#)).

## 1.4 Monkfish FMP

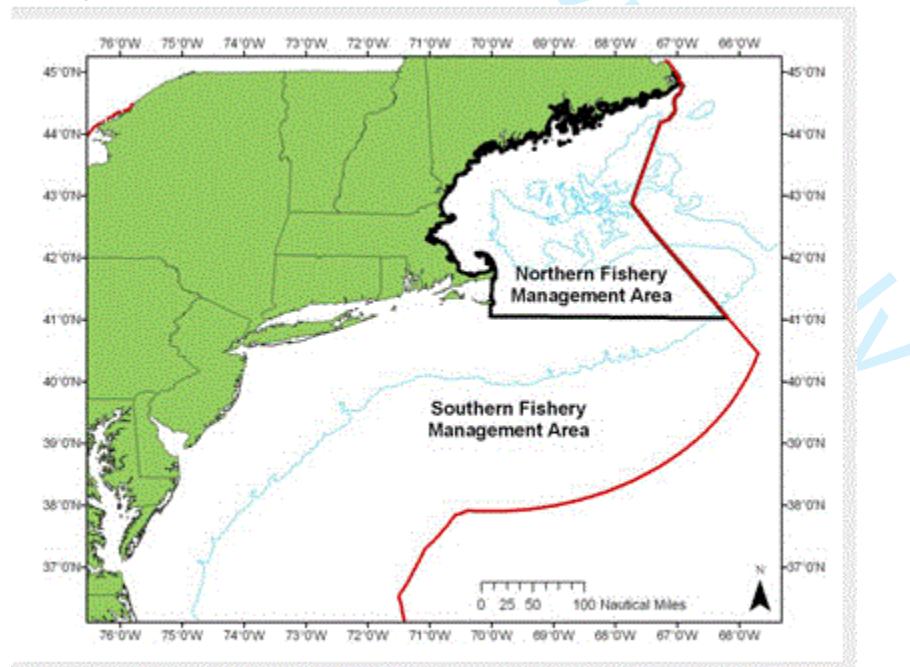
The Monkfish FMP was implemented in 1998/89 and is led by the MAFMC and jointly managed with the NEFMC. Subsequent framework adjustments and amendments have updated management of monkfish. For more historical context and allocation changes, other actions to

look at include Frameworks 2, 4, 7, 8, and 10 and Amendment 5 (Framework Adjustment 13; 50 CFR § 648.92).

**No formal allocation:** Although the monkfish fishery is managed through the “allocation” of days at sea (DAS) for vessels with limited entry permits to use in either the Southern or Northern Fishery Management Area, we judged that this does not constitute “allocation” as conceived in this paper. Instead, it represents an effort control, in tandem with trip limits, used to keep catch within the ABC. It closely resembles a catch share program in that it is a limited entry program in which participants are issued equal shares that are tradable; however, it is not formally classified as a catch share program. The following summary justified this decision.

**Management summary:** Monkfish are managed as two stocks located in a northern (NFMA) and southern management area. ABCs for each zone are derived for using an empirical-harvest control rule that scales recent catch based on an index of abundance from trawl surveys in each zone. This catch limit is achieved through annual days-at-sea (DAS) limits and trip limits. Each limited entry vessel is issued 46 days-at-sea per year and can use up to 35 in the northern area and up to 37 in the southern area. A maximum of 4 unused days-at-sea can be carried over from the previous year. Days-at-sea are transferable between vessels.

**Research set asides:** 500 DAS are set aside for the [Monkfish Research Set-Aside program](#) each year.



**Figure X.** Monkfish management areas.

## 1.5 Skate Complex FMP

The NEFMC Skate FMP was implemented in 2003 and governs the management of seven skate species barndoor skate (*Dipturus laevis*), clearnose skate (*Raja eglanteria*), little skate

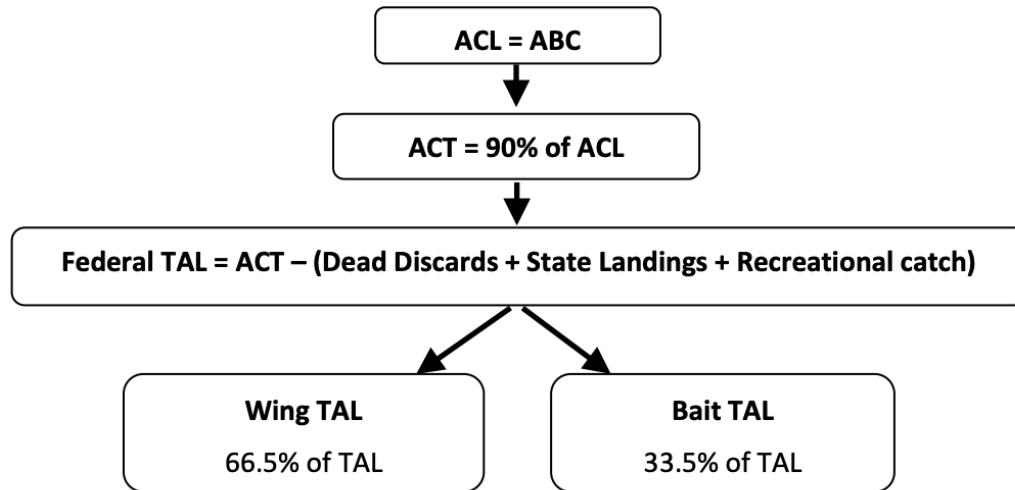
(*Leucoraja erinacea*), rosette skate (*Leucoraja garmani*), smooth skate (*Malacoraja senta*), thorny skate (*Amblyraja radiata*), and winter skate (*Leucoraja ocellata*). Winter and little skates dominate the commercial fishery, with winter skates targeted for wings and little skates for bait. However, the following rules apply to all species in the complex.

**Set asides:** The first deduction from the annual catch target is a deduction for expected recreational catch, state landings, and discards.

**Subsector allocations:** The annual skate complex federal TAL is then allocated between the skate wing fishery (66.5%) and the bait fishery (33.5%) based on proportional average landings between 1995-2006. Winter and little skates dominate the commercial fishery, with winter skates targeted for wings and little skates for bait. However, these rules apply to all species in the complex.

**Seasonal allocations:** For both the wing and bait fisheries, catch is allocated across seasons so that the management council can more closely manage harvest, and to maximize catch during season when most fishing happens. For the skate wing fishery, 57% of TAL can be harvested in season 1 (May 1 - August 31), and the remaining TAL in season 2 (September 1 - April 30). For the skate bait fishery, 30.8% can be harvested in season 1 (May 1-July 31), 37.1% can be harvested in season 2 (August 1-October 31), and the remaining TAL can be harvested in season 3 (November 1-April 30). These were set by [Amendment 3](#) based on landings from 1998-2006. ([Framework Adjustment 8](#); [50 CFR § 648.322](#); [Framework Adjustment 3](#)).

**Figure 1. Flow chart for skate specifications setting.**



**Figure X.** Flowchart illustrating allocation in the skate fishery ([Framework Adjustment 12](#)).

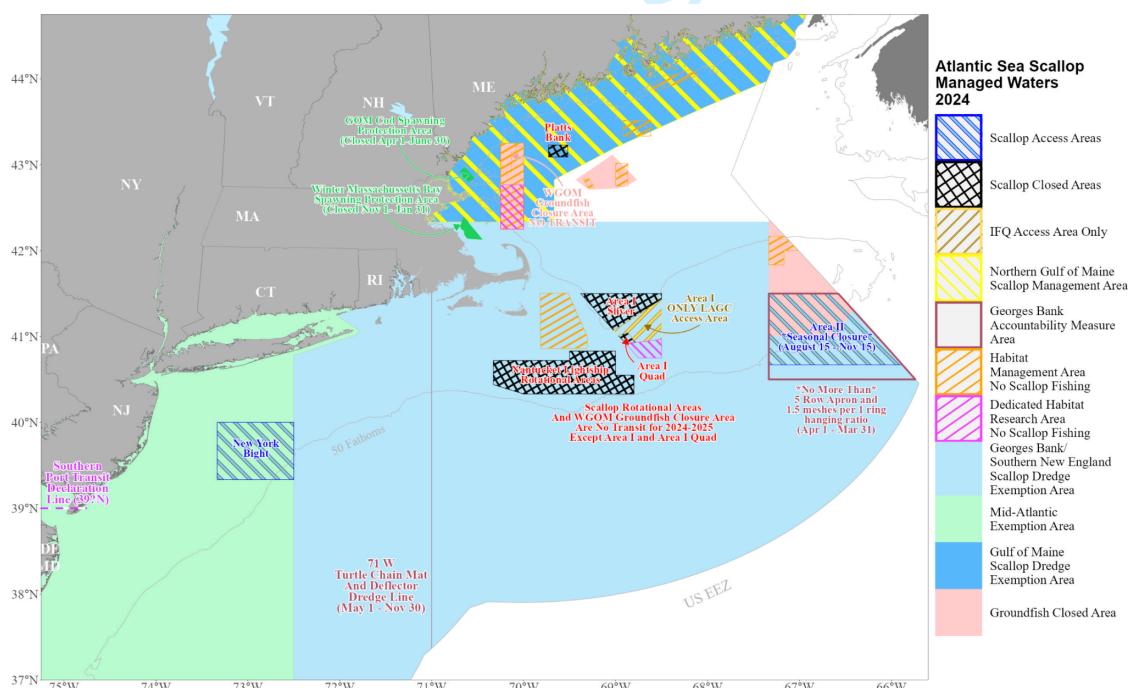
## 1.6 Atlantic Sea Scallop FMP

The NEFMC Atlantic Sea Scallop FMP was implemented in 1982 and governs the management of Atlantic sea scallop (*Placopecten magellanicus*).

**Set asides:** Before allocation among commercial subsectors, some of the ABC is first set aside for: (1) incidental catch; (2) research set-asides (RSA); (3) observer programs; (4) the Industry-Funded Scallop (IFS) Observer Program (1% of ABC); and (5) the Northern Gulf of Maine (NGOM) Permit Holders and General Category IFQ fleet.

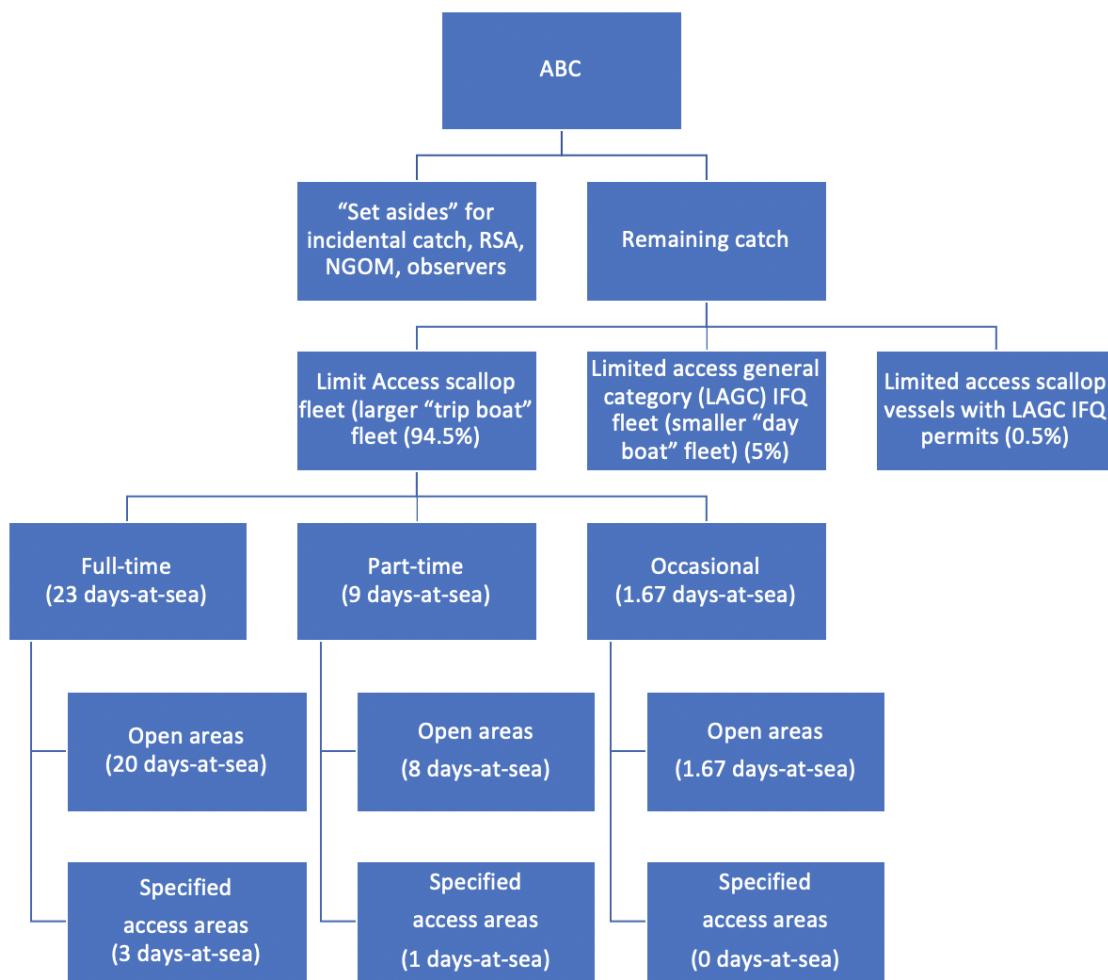
**Subsector and spatial allocations:** After these set-asides are subtracted, the remaining landings are allocated among the limited access fleet (i.e. larger ‘trip boats’) at 94.5%, the LAGC IFQ fleet (i.e. smaller ‘day boats’) at 5%, and the combo fleet (limited access vessels that also have LAGC IFQ permits) at 0.5% ([Amendment 11](#)). The rationale for these allocations was that 5% reflects a percentage similar to the long-term average, but a little higher to recognize more recent growth and participation in the general category fishery. Furthermore, in 2004, the fishing year the control date was implemented, the general category fishery was landing about 5% of total scallop landings. The Council believes it is a level of catch that would ideally provide enough landings to be spread among various general category vessels that participate in this fishery at a variety of levels without substantial impacts on the existing limited access fishery.

Allocation for limited access fleet is set by days-at-sea in open areas and trips (set poundage) to rotational access areas ([Figure 1](#)). As of 2024, full-time permit holders are allocated 20 DAS in open areas and 3 12,000 pound trips in specified access areas. Part-time permit holders are allocated 8 DAS in open areas and 1 trip in a specified access area. Occasional permit holders are allocated 1.67 DAS in open areas; however, there are currently no active occasional permit holders in the fishery (Jonathon Peros, personal communication). Unharvested pounds for one access area can be exchanged for poundage in another access area (one-for-one access area trip exchange program).



**Figure 1.** Map of Atlantic scallop management areas.

**Catch share allocations:** IFQs were initially distributed to fishery participants who had harvested significant landings between 2000-2004. Initial IFQ allocations were set according to the number of years active between 2000-2004, and the highest annual landings in this period. Quota can be temporarily or permanently transferred among members of the LAGC IFQ fleet. Amendment 21 permitted leasing of quota from combo vessels (limited access vessels with IFQ) to IFQ-only vessels (2022). Members of the LAGC IFQ fleet are also allocated a number of trips into the scallop access areas (856 in 2024) ([50 CFR § 648.59](#); [Amendment 21](#); [50 CFR § 648.62](#); [MCFA Scallop Info](#); [Amendment 11](#); [NOAA Scallop Profile](#); [Framework Adjustment 38](#); [Framework Adjustment 38 press release](#); [Atlantic Sea Scallop Permit Details](#)).



**Figure 2.** Flowchart illustrating catch allocations in the scallop fishery.

## 2. Mid-Atlantic

The MAFMC implements seven fishery management plans including two plans jointly managed with the NEFMC (**Table X**). The MAFMC leads the jointly managed Spiny Dogfish FMP.

**Table X.** FMPs implemented by the MAFMC.

FMP	Species	Brief allocation summary
Summer Flounder, Scup, Black Sea Bass	Summer flounder	Sector and state allocations
Summer Flounder, Scup, Black Sea Bass	Scup	Sector, state, seasonal allocations
Summer Flounder, Scup, Black Sea Bass	Black sea bass	Sector and state allocations
Mackerel, Squid, Butterfish	Atlantic mackerel	International, sector, subsector
Mackerel, Squid, Butterfish	Chub mackerel	None
Mackerel, Squid, Butterfish	Longfin squid	Sector and seasonal
Mackerel, Squid, Butterfish	Shortfin squid	None
Mackerel, Squid, Butterfish	Butterfish	None
Surfclams, Ocean Quahogs	Surfclams	Individual transferable quotas
Surfclams, Ocean Quahogs	Ocean quahogs	Individual transferable quotas
Bluefish	Bluefish	Sector and state allocations
Golden and Blueline Tilefish	Golden tilefish	Subsector allocations and IFQs
Golden and Blueline Tilefish	Blueline tilefish	Sector allocations
Spiny Dogfish ( <i>led by MAFMC with NEFMC</i> )	Spiny Dogfish	State allocations
Monkfish ( <i>led by the NEFMC with MAFMC</i> )	Monkfish	

When setting and/or revising allocations, the MAFMC uses tools, such as triggered allocation revisions, phased allocation changes, and *de minimis* allocations proportions, to minimize the impact of significant allocation shifts across years and ensure long-term stability within fisheries:

- **Triggers** are set to change an allocation percentage when a previously specified threshold is surpassed, often pounds of quota.
- **Phase-in/out approaches** are used to spread out the change in allocation over a pre-specified amount of time, which is useful when large allocation shifts occur. Phasing in

or out new allocation policies spread the burden associated with the allocation change over many years to avoid significant negative impacts to fishing communities.

- ***De minimis* allocations** are often used in joint-management endeavors with the Atlantic States Marine Fisheries Commission (ASMFC). They ensure that all states retain at least some portion of the coastwide allocation each year. *De minimis* allocations are removed from catch limits before the remainder is allocated according to protocol.

**Research set asides (RSA):** The MAFMC previously “set-aside” a percentage of landings to support research and data collection activities. This was approved in 2001 as part of [Framework Adjustment 1](#) for four FMPs: (1) Mackerel, Squid, and Butterfish, (2) Summer Flounder, Scup, and Black Sea Bass, (3) Bluefish, and (4) Tilefish. The Amendment allowed the MAFMC to set aside up to 3% of a species' allowable landings for research. RSA quota allocations were used from 2001-2014, but in 2014, the Council voted to suspend the program due to funding and administrative challenges and no RSA allocations have been made since.

## 2.1 Summer Flounder, Scup, and Black Sea Bass FMP

	Original Allocations	Revised Allocations
Summer Flounder*	<b>60%</b> Commercial; <b>40%</b> Recreational Landings-based	<b>55%</b> Commercial; <b>45%</b> Recreational Catch-based
Scup	<b>78%</b> Commercial; <b>22%</b> Recreational Catch-based	<b>65%</b> Commercial; <b>35%</b> Recreational Catch-based
Black Sea Bass*	<b>49%</b> Commercial; <b>51%</b> Recreational Landings-based	<b>45%</b> Commercial; <b>55%</b> Recreational Catch-based

\* The current and revised allocations for summer flounder and black sea bass are not directly comparable due to the transition from landings-based to catch-based allocations (see Additional Information on p. 3 for details).

**Table X.** Original and revised (Amendment 22, 2022) sector allocations for summer flounder, scup, and black sea bass.

### 2.1.1 Summer Flounder

Summer flounder (*Paralichthys dentatus*) is managed through the [Summer Flounder, Scup, and Black Sea Bass FMP](#) (1988 and 1996) and subsequent frameworks and amendments.

**Sector allocations:** Allocations were originally set at 60% commercial and 40% recreational in the mid-1990s using landings-based data from 1980-1989. These allocations were revised through [Amendment 22](#) (2022) based on updated catch data from a slightly updated time period (1981-1989) used for the original allocations. Now, the commercial sector is allocated 55% and the recreational sector is allocated 45% of the acceptable biological catch. The timeframes used to set the new allocations was maintained (the exclusion of 1980 was only because it was not included in the updated MRIP data) because it represented a period of relatively unrestricted fishing effort and, therefore, could serve as a proxy for each sector's level of effort and interest in the fishery prior to implementation of management controls.

**State (spatial) allocations:** Summer flounder also has commercial state allocations that vary with overall stock abundance and resulting commercial quotas and that are affected by a trigger

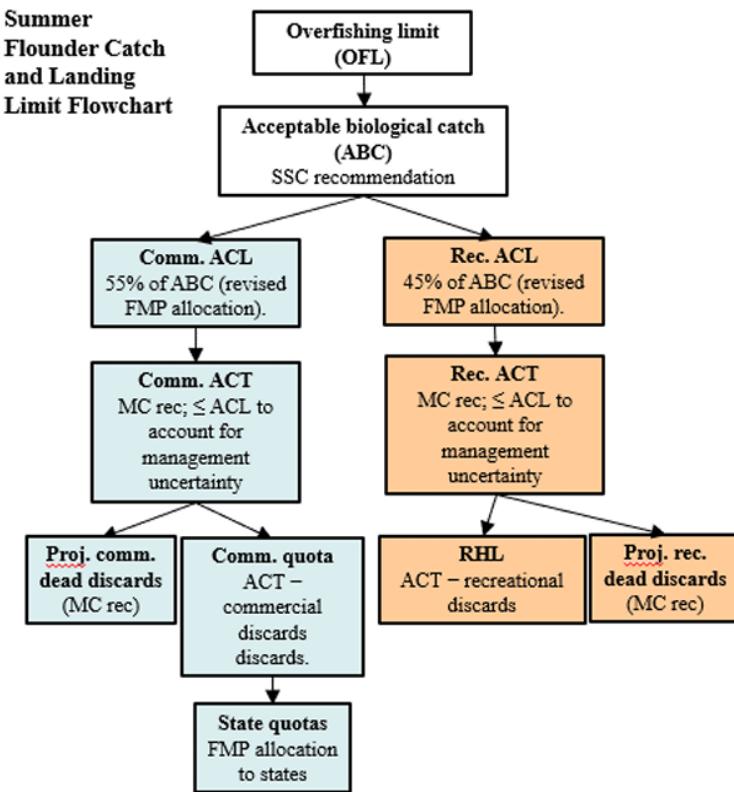
point. For all years when the annual commercial quota is at or below a specified annual commercial quota trigger level (9.55 million pounds), the state allocations remain status quo (**Table X**). In years when the annual coastwide quota exceeds the specified trigger, the trigger amount is distributed according to the status quo allocations, and the additional quota beyond that trigger is distributed in equal shares (with the exception of Maine, New Hampshire, and Delaware, which split 1% of the additional quota above 9.55 million pounds). The 9.55 million pound trigger was derived as the average of the values for the 5-year period from 2014-2018 (2014-2018 million lbs) and the 10-year period from 2009-2018 (10.71 million lbs). The original state allocations were based on 1980-1989 landings (Amendment 2) and were slightly modified by Amendment 4 to account for previously unrecorded landings in Connecticut.

**Table X.** Allocation of summer flounder commercial quota to states based on a quota threshold.

**Table 4:** Allocation of summer flounder commercial quota to the states.

State	<b>Total state commercial quota allocation = baseline quota allocation + additional quota allocation</b>	
	Allocation of baseline quota $\leq$ 9.55 mil lb	Allocation of <u>additional</u> quota beyond 9.55 mil lb
<b>ME</b>	0.04756%	0.333%
<b>NH</b>	0.00046%	0.333%
<b>MA</b>	6.82046%	12.375%
<b>RI</b>	15.68298%	12.375%
<b>CT</b>	2.25708%	12.375%
<b>NY</b>	7.64699%	12.375%
<b>NJ</b>	16.72499%	12.375%
<b>DE</b>	0.01779%	0.333%
<b>MD</b>	2.03910%	12.375%
<b>VA</b>	21.31676%	12.375%
<b>NC</b>	27.44584%	12.375%
<b>Total</b>	100%	100%





**Figure X.** Flowchart illustrating catch allocation in the summer flounder fishery.

### 2.1.2 Scup

Scup (*Stenotomus chrysops*) is managed through the [Summer Flounder, Scup, and Black Sea Bass FMP](#) (1988 and 1996) and subsequent frameworks and amendments.

**Sector allocations:** Allocations were originally set at 78% commercial and 22% recreational in the mid-1990s using catch-based data from 1988-1992. These allocations were revised through [Amendment 22](#) (2022) based on updated catch data from the same years (1988-1992) used for the original allocations. Now, the commercial sector is allocated 65% and the recreational sector is allocated 35% of the overall acceptable biological catch (ABC). The timeframes used to set the new allocations were not updated because they represented periods of relatively unrestricted fishing effort and, therefore, could serve as a proxy for each sector's level of effort and interest in the fishery prior to implementation of management controls.

**Seasonal allocations:** Commercial quota is allocated across three quota periods (i.e., Winter I, Summer, and Winter II) for states from Maine to North Carolina. These quota periods were initially established through a 1996 regulatory amendment based on commercial landings from 1983-1992 ([1996 Amendment](#)) and the periods were updated in 2018 through Framework 11 though the percentages were retained ([Framework 11](#)). The seasonal allocations were intended to spread out the catch to ensure access for small boats later in the season. Once the quota for a given period is reached, the commercial fishery is closed for the remainder of that period. If

the full winter I quota is not harvested, unused quota is added to the winter II period. Any quota overages during the winter I and II periods are subtracted from the quota allocated to those periods in the following year. Quota overages during the summer period are subtracted from the following year's quota only in the states where the overages occurred.

**Table X.** Dates, allocations, and possession limits for the commercial scup quota periods. Winter period possession limits apply in both state and federal waters.

**Table 4:** Dates, allocations, and possession limits for the commercial scup quota periods. Winter period possession limits apply in both state and federal waters.

Quota Period	Dates	Commercial quota allocated (%)	Possession limit
Winter I	January 1 – April 30	45.11%	50,000 pounds, until 80% of winter I allocation is reached, then reduced to 1,000 pounds.
Summer	May 1 – September 30 <sup>a</sup>	38.95%	State-specific
Winter II	October 1 – December 31 <sup>a</sup>	15.94%	12,000 pounds. If winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during winter I.

<sup>a</sup> Prior to 2018, the summer period was May 1 - October 31 and the winter II period was November 1 - December 31, with the same allocations as shown above.

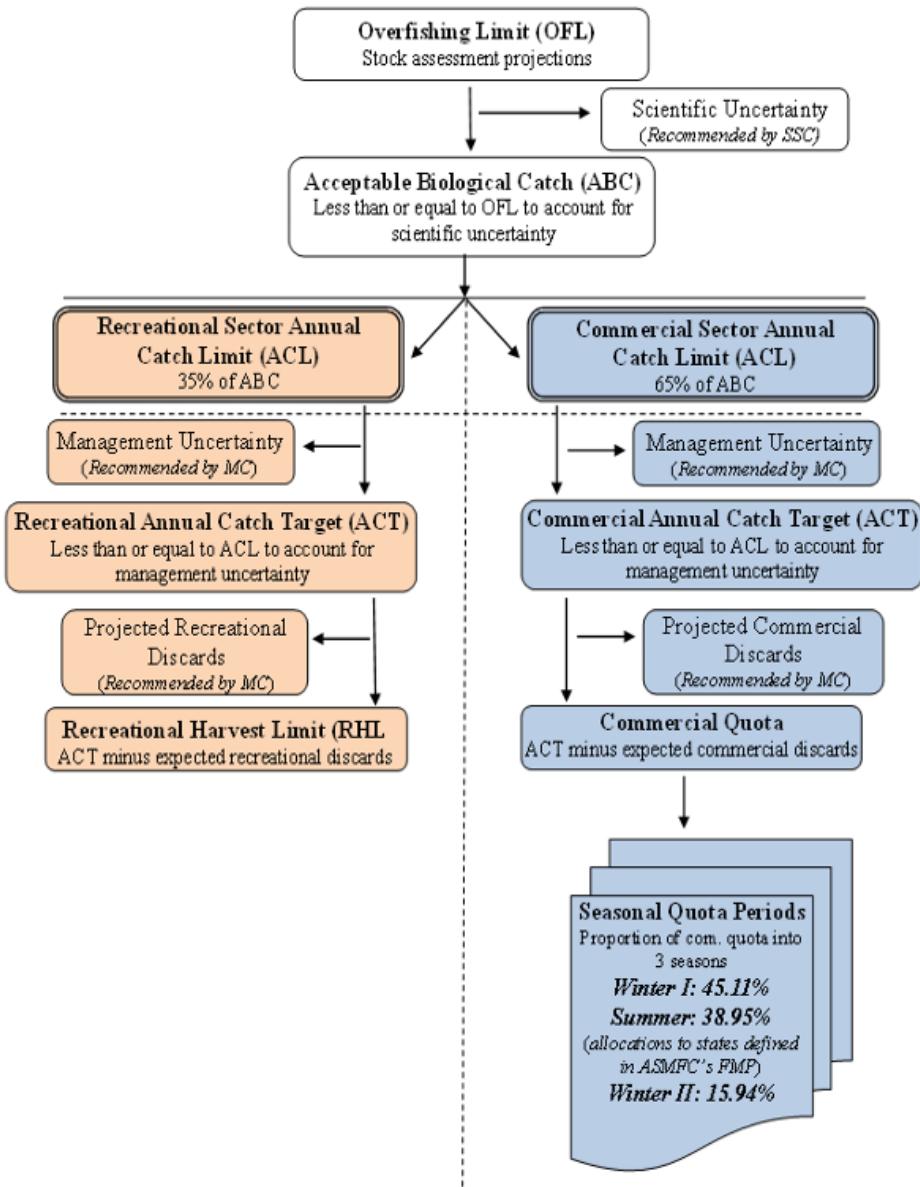
**State allocations:** The summer commercial quota is further allocated among states based on the percentages in the table below.

**Table 1. 2023 Scup preliminary Commercial Summer Period Landings and 2024 Commercial Summer Period State Quotas (pounds).**

State	Share	2023 ASMFC Summer Period Quota	2023 Transfers	Final 2023 Summer Period Quota	2023 Preliminary Landings <sup>2</sup>	Initial 2024 Summer Period Quota <sup>3</sup>
ME	0.00121	6,603		6,603	0	9,967
MA	0.21587	1,177,996	-351,000	826,996	547,462	1,778,071
RI	0.56195	3,066,478	-99,900	2,966,578	2,194,798	4,628,552
CT	0.03154	172,110	350,000	522,110	511,314	259,783
NY	0.15825	863,535	100,000	963,535	988,643	1,303,423
NJ	0.02917	159,160		159,160	173,646	240,236
MD	0.00012	649	1,000	1,649	1,561	980
VA	0.00165	9,005		9,005	7,894	13,592
NC	0.00025	1,359	-100	1,259	0	2,051
Total	100%	5,456,895		5,456,895	4,425,319	8,236,655

**Table X.** State-by-state quotas for the commercial scup fishery during the summer quota period (May-Sep) ([ASMFC 2023](#)).

**Figure 3:** Current catch and landing limit flowchart for scup, updated to reflect commercial/recreational allocation revisions that became effective in 2023.



**Figure X.** Flowchart illustrating catch allocations in the scup fishery.

### 2.1.3 Black Sea bass

Black sea bass (*Centropristes striata*) is managed through the Summer Flounder, Scup, and Black Sea Bass FMP (1988 and 1996) and subsequent frameworks and amendments.

**Sector allocations:** Allocations were originally set at 49% commercial and 51% recreational in the mid-1990s using landings-based data from 1983-1992. These allocations were revised through Amendment 22 (2022) based on updated landings data from the same years (1983-1992) used for the original allocations. Now, the commercial sector is allocated 45% and the

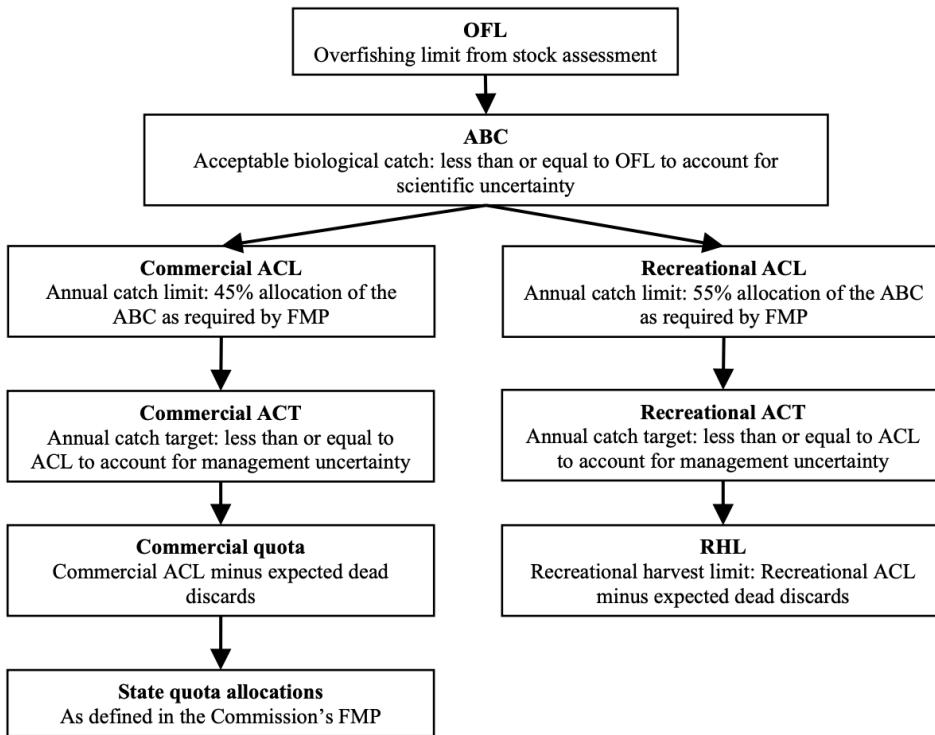
recreational sector is allocated 55% of the acceptable biological catch (ABC). The timeframes used to set the new allocations were not updated because they represented periods of relatively unrestricted fishing effort and, therefore, could serve as a proxy for each sector's level of effort and interest in the fishery prior to implementation of management controls.

**State allocations:** The commercial black sea bass fishery also has a separate set of allocations for the states. These were first implemented in 2003 through Amendment 13 and were "loosely based on historical landings from 1980-2001". They were revised in 2021 through the ASMFC's Addendum 33 ([ASMFC 2021](#)) to increase New York and Connecticut's allocation given the increase in black sea bass abundance in their waters since the original allocation. Annually, 75% of the coastwide quota is distributed to states using the baseline allocations. The remaining 25% of the coastwide quota will first be allocated regionally based on the most recent regional biomass proportions from the stock assessment. Then, regional quotas are distributed to the states within each region in proportion to their baseline allocations, with the exception of Maine and New Hampshire. Maine and New Hampshire each receive 1% of the northern region quota. The regional biomass proportions used to allocate 25% of the coastwide quota are dependent on information from the most recent stock assessment. Therefore, they are updated by future stock assessments, which may result in changes to the state allocations. These state specific allocations are implemented by the ASMFC, but as of 2023, the MAFMC has refused to integrate them into the FMP because of the additional administrative burden. These allocations were proposed in draft Amendment 23, but ultimately excluded from the Final Rule.

**Table X.** Changes in baseline state allocations from historical allocations under Addendum 33.

**Table 2.** Changes in baseline state allocations from historical allocations under Addendum XXXIII.

State	Historical Allocation	Change in Allocation	New Baseline Allocation
ME	0.5%	-0.25%	0.25%
NH	0.5%	-0.25%	0.25%
MA	13.0%	-0.38%	12.62%
RI	11.0%	-0.32%	10.68%
CT	1.0%	2.00%	3.00%
NY	7.0%	1.00%	8.00%
NJ	20.0%	-0.58%	19.42%
DE	5.0%	0.00%	5.00%
MD	11.0%	-0.32%	10.68%
VA	20.0%	-0.58%	19.41%
NC	11.0%	-0.32%	10.68%



**Figure 4:** Black sea bass catch and landings limits, reflecting the revised commercial/ recreational allocations which became effective in 2023.

**Figure X.** Flowchart illustrating catch allocations in the black sea bass fishery ([MAFMC 2024](#)).

## 2.2 Mackerel, Squid, and Butterfish FMP

### 2.2.1 Atlantic mackerel

Atlantic mackerel (*Scomber scombrus*) is managed through the [Atlantic Mackerel FMP](#) (1978), [the Merged FMP](#) (1983), and subsequent frameworks and amendments.

**Original FMP:** In 1978, total harvest was initially partitioned for domestic commercial fishers (3,500 mt), the domestic recreational sector (4,500 mt), and foreign fishing interests (1,200 mt). For the U.S. portion, the sector split was approximately 64% recreational and 36% commercial. Foreign quotas were allocated among 10 nations with a small portion reserved.

**Amendment 11 revisions:** [Amendment 11](#) developed a new limited access system for allocating commercial catch among the commercial tiers:

1. Tier 1: At least 400,000 pounds landed in any one year between 1997-2005.
2. Tier 2: At least 100,000 pounds landed in any one year between 3/1/1994-2005.
3. Tier 3: At least 1,000 pounds landed in any one year between 3/1/1994-2005.

Tier 3 vessels are constrained to a maximum of 7% of the commercial quota with the remainder allocated to the Tier 1-2 vessels. Tier 1 has no trip limit when the fishery is open, Tier 2 has a 135,000 pound trip limit, and Tier 3 has a 100,000 pound trip limit.

The recreational fishery is allocated 7.3% of the catch, which was the percentage of the ABC that corresponded to the proportion of total U.S. landings that were accounted for by the recreational fishery from 1997-2007 from MRFSS database times 1.5.

**Framework 13 revisions:** [Framework 13](#) (2019) revised the 7.3% recreational allocation due to a lack of direct control over the fishery. The revised structure replaced a percentage allocation with a set-aside for expected recreational catch (reducing the commercial quota accordingly).

**International allocations:** The stockwide ABC includes Canadian waters. Expected Canadian landings are deducted from the stockwide ABC to derive a U.S. ABC.

#### 2.2.2 Chub mackerel

In 2020, [Amendment 21](#) added chub mackerel (*Scomber japonicus*) to the MSB FMP. There is currently no separation of catch limits into commercial and recreational components.

#### 2.2.3 Longfin squid

Longfin inshore squid (*Doryteuthis pealeii*) are managed through the Squid FMP (1978), the Merged FMP (1983), and subsequent frameworks and amendments.

**Sector allocations:** Although sector allocations were used in the original FMP, they were removed by Amendment 5 in 1996. Total harvest was initially allocated to domestic commercial fishers, the recreational sector, and to foreign fishing interests. However the total allowable level of foreign fishing was set equal to zero in Amendment 5 (1996), and the recreational catch is believed to be negligible relative to commercial catch.

**Seasonal allocations:** The quota has been allocated into seasons to ensure sustainable harvest rates. The quota is divided into three 4-month trimesters: (1) T1, Jan-Apr gets 43% of the quota; T2, May-Aug gets 17% of the quota; and T3, Sep-Dec gets 40% of the quota. These allocations are based on landings from 1994-1998 (Didden, personal communication) and were intended to ensure that different portions of the fleet (inshore vs. offshore) had access at different points of the year (Didden, personal communication). It is also likely to spread out catch so that any cohort of this sub-annual species is not subject to maximum fishing pressure from the whole quota (Didden, personal communication).

Unused quota can roll over into later trimesters within a year depending on the amount of longfin landed. Underages from T1 that are greater than 25% are reallocated to trimesters 2 and 3 in even splits. However, the T2 quota may only be increased 50% above its base and the remaining portion of the underage is reallocated to T3. Any underages for T1 that are less than 25% of the T1 quota are applied only to T3 of the same year. Any overages for T1 and T2 are subtracted from T3 of the same year as needed.

#### 2.2.4 Shortfin squid

Northern shortfin squid (*Ilex illecebrosus*) are managed through the [Squid FMP](#) (1978), the [Merged FMP](#) (1983), and subsequent frameworks and amendments.

**Sector allocations:** Although sector allocations were used in the original FMP, they were removed by Amendment 5 in 1996. Total harvest was initially allocated to domestic commercial fishers, the recreational sector, and to foreign fishing interests, however the total allowable level of foreign fishing was set equal to zero in Amendment 5 (1996), and the recreational catch is believed to be negligible relative to commercial catch.

#### 2.2.4 Butterfish

Butterfish (*Pepulus triacanthus*) are managed through the Butterfish FMP (1978), the Merged FMP (1983), and subsequent frameworks and amendments.

**Sector allocations:** Although sector allocations were used in the original FMP, they were removed by Amendment 5 in 1996. Total harvest was initially allocated to domestic commercial fishers, the recreational sector, and to foreign fishing interests, however the total allowable level of foreign fishing was set equal to zero in Amendment 5 (1996), and the recreational catch is believed to be negligible relative to commercial catch.

### 2.3 Atlantic Surfclam and Ocean Quahog FMP

Atlantic surfclams (*Spisula solidissima*) and ocean quahogs (*Arctica islandica*) are managed through the Atlantic Surfclam and [Ocean Quahog FMP](#) (1977) and subsequent frameworks and amendments ([amendments](#)).

**Original FMP (seasonal):** Within the original FMP, Atlantic surfclam quota was originally allocated across quarterly periods while ocean quahog was allocated using a single yearly quota until revised in [Amendment 1](#) and [Amendment 2](#) to reflect updated quotas.

**Amendment 8 (ITQ):** Then, [Amendment 8](#) (1988) replaced the regulated fishing time system in the surfclam and ocean quahog fisheries with an individual transferable quota (ITQ) system that was implemented in 1990. Allocations of ITQ quota share for both species were made available to owners of all permitted vessels that harvested surfclams and/or ocean quahogs in the Atlantic EEZ from January 1, 1979 through December 31, 1988. The MAFMC based 80% of the allocation on the vessel's average annual historical catch over this time period (1979-1988), with the worst two years dropped and the best four years counted twice. The remaining 20% of the allocation was based on the vessel's capacity (length x width x depth). ITQ quota share is issued in the form of cage tags that must be attached to the cages used to transport the catch. ITQ quota share may be transferred in amounts not less than 160 bushels (i.e., 5 cages) to any person eligible to own a U.S. fishing vessel. The transfer is not effective until the new owner receives an ITQ allocation permit from NMFS. While implementation of the ITQ program ended the moratorium of new entrants to the fishery, the high cost of entry has led to low numbers of new participants. In 2022, the MAFMC implemented the excessive shares amendment

([Amendment 20](#)), which created two quota share caps: (1) one on quota share ownership (surfclam: 35%, quahog: 40%) and (2) a higher annual allocation cap (annual cage tags) that an individual or entity can possess (surfclam: 65%, quahog: 70%). The Council is required to review the ITQ program every 10 years, or sooner if necessary ([Amendment 20](#)). The first review for this fishery was conducted in 2019 ([Northern Economics 2019](#)).

## 2.4 Bluefish FMP

Atlantic Bluefish (*Pomatomus saltatrix*) is managed through the [Bluefish FMP](#) (1990) and subsequent frameworks and amendments.

**Original FMP:** Sector-based allocations were originally established for the commercial (20%) and recreational fisheries (80%), recognizing the importance of bluefish as a key marine sport fish along the Atlantic coast. Further decisions to implement controls on the bluefish fishery were based on three-year moving averages and trends that focused on the current year's landings compared to the previous year.

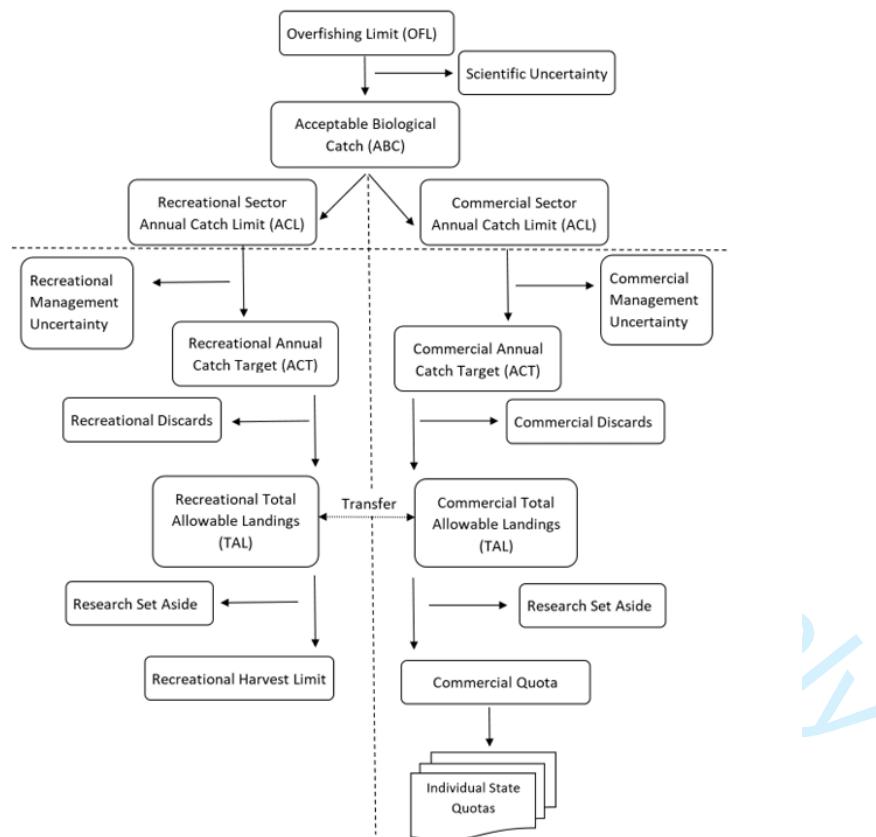
**Amendment 1:** In 2000, [Amendment 1](#) revised the commercial (17%) and recreational allocations (83%) using a time series from 1981-1989 and required that a commercial quota and recreational harvest limit be based on projected stock size estimates as derived from the latest stock assessment. The same time series was also used to implement commercial allocations to the states, which offer opportunities for northern or southern states to all access the fishery throughout the year, or whenever the highly migratory species is present in state-specific coastal waters. Also under Amendment 1, transfers of quota were allowed from the recreational to commercial sector and were capped at 10.5 million pounds as the commercial quota, and were authorized in the commercial sector between states to increase the flexibility of the system in responding to yearly variations in fishing practices or landings patterns.

**Amendment 7:** In 2021, [Amendment 7](#) reallocated the commercial (14%) and recreational (86%) sectors using updated catch and landings data through 2018 (three periods inform similar allocations: 1981-2018, 2009-2018, 2014-2018), revised the commercial allocations to the states with landings data from 2009-2018 over a 7-year phase-in period and a *de minimis* allocation to all states of 0.1% (**Table X**), and updated the transfer provisions to allow transfers of quota to occur to or from either sector (i.e., not only recreational to commercial).

**Table X.** Allocation of the 2024 commercial bluefish quota among states. Percentages are fixed but the pounds vary based on the catch limit.

State	Percent Share	Quota (pounds)
Maine	0.43	10,388
New Hampshire	0.33	7,975
Massachusetts	8.17	198,025
Rhode Island	8.01	194,025
Connecticut	1.19	28,821
New York	14.4	348,947

New Jersey	14.4	348,898
Delaware	1.29	31,139
Maryland	2.54	61,471
Virginia	9.3	225,380
North Carolina	32.05	776,452
South Carolina	0.06	1,561
Georgia	0.05	1,194
Florida	7.8	188,899



**Figure X.** Flowchart illustrating catch allocations in the bluefish fishery.

## 2.5 Tilefish FMP

### 2.5.1 Golden tilefish

Golden tilefish (*Lopholatilus chamaeleonticeps*) is managed through the [Tilefish FMP \(2001\)](#) and subsequent frameworks and amendments.

**Incidental catch:** 5% of catch limit is set aside for incidental catch and the remaining 95% is used for the directed commercial fishery, which is divided into subsectors described below.

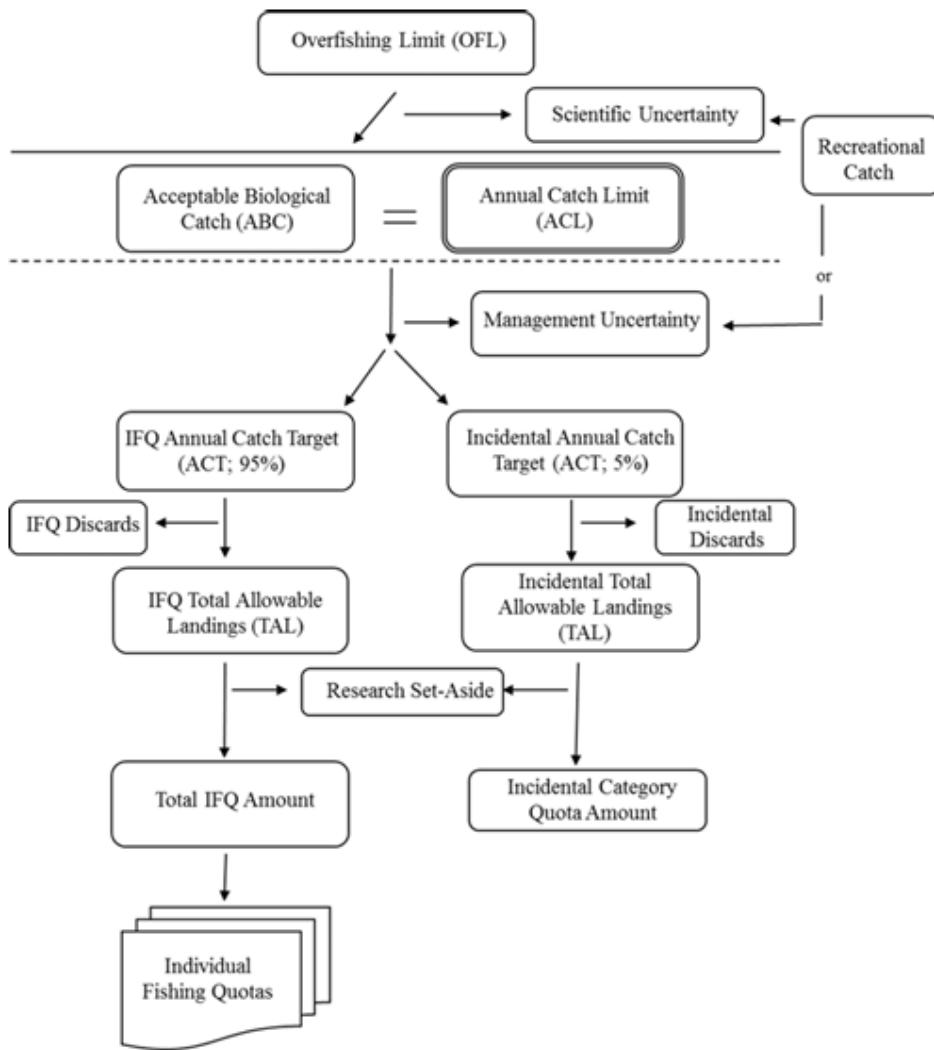
**Subsector allocations:** In 2001, the Council adopted an allocation structure with a two-tier full-time category, where a vessel would have had to land at least 250,000 pounds per year for three years between 1993 and 1998 to be in tier 1. The vessels in this full-time tier 1 category received 66% of the annual quota. To be in the full-time tier 2 category, a vessel would have had to land at least 30,000 pounds per year for 3 years between 1993 and 1998 and this tier 2 category would receive 15% of the annual quota allocation. To be in the part-time category, a vessel would have had to land 10,000 pounds of tilefish in one year between 1988 and 1993 and 10,000 pounds in one year between 1994 and 1998, or have landed 28,000 pounds of tilefish in one year between 1984 and 1993. This part-time category received 19% of the annual quota allocation.

**Table 1.** Subsector definitions and allocations in the golden tilefish fishery.

Tier	Qualification criteria	Percent of quota
Tier 1	>250,000 lbs in 3 years from 1993-1998	66%
Tier 2	>30,000 lbs in 3 years from 1993-1998	15%
Part-time	>10,000 lbs in 1 year from 1988-1993 and 1 year from 1994-1998 OR >28,000 lbs in 1 year from 1984-1993	19%

**IFQ allocations:** In 2008, the MAFMC established an IFQ system implemented in 2009 ([Amendment 1](#)) for any combination of tier 1, tier 2, and part-time participants, which would receive a specific percentage of their group quotas (after adjustments for the incidental category have been made). IFQ shares would be issued to participants in denominations equaling the shareholders share of the quota initially allocated to their respective categories. For IFQ share allocation purposes, average landings for the 2001-2005 period were used to allocate IFQ shares to full-time tier 1 and 2 vessels. For part-time vessels, an equal allocation for vessels that landed tilefish during the 2001-2005 period was used to allocate IFQ shares to that permit category.

Prior to the beginning of each fishing season (or at times commercial quota adjustments are required), the percentage of the quota allocated to IFQ permit holders would be specified in both whole (live) and gutted (landed) weight. Under this allocation structure, shareholders are permitted to permanently transfer or lease their IFQ and are subject to a share accumulation limit of 49% of the TAL. Lastly, the IFQ program is subject to a review process at least every seven years.



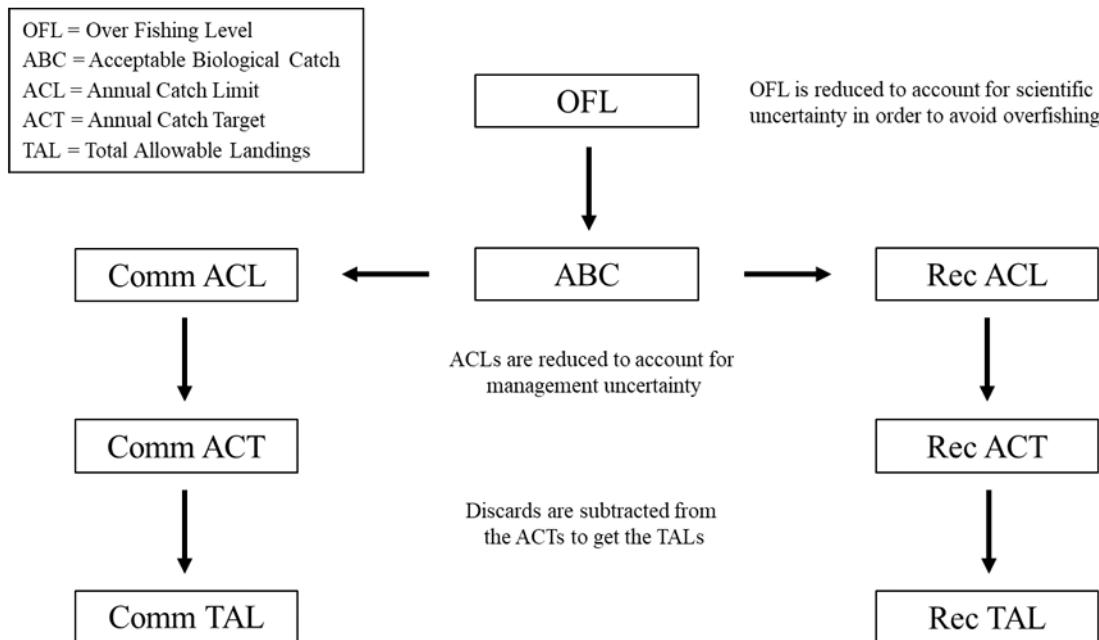
**Figure X.** Flowchart illustrating catch allocations in the golden tilefish fishery.

## 2.5.2 Blueline tilefish

Blueline tilefish (*Caulolatilus microps*) is managed through [Amendment 6](#) to the [Tilefish FMP](#) (2017) and subsequent frameworks and amendments.

**Management history:** In 2014, blueline tilefish catch significantly increased in the Mid-Atlantic without any restrictions in Federal waters, and the long-lived and sedentary nature of blueline tilefish was expected to make them susceptible to overfishing. Therefore, following a Council request to address the issue, in 2015, NMFS implemented emergency regulations north of North Carolina, limiting commercial vessels to 300 pounds (whole weight) of blueline tilefish per trip and recreational fishermen to 7 blueline tilefish per person per trip, as well as requiring commercial and for-hire permitting and reporting. These emergency measures were extended via an interim rule through December 14, 2016.

**Sector allocations:** In 2017, the Council developed and approved [Amendment 6](#), which included sector-based allocations that were set using median catch percentages from 2009-2013 (2014 was excluded given that it was anomalously high and triggered the emergency action), resulting in catch percentages of 73% recreational and 27% commercial. These allocation percentages have remained status quo through 2024.



**Figure X.** Flowchart illustrating catch allocations in the blueline tilefish fishery.

## 2.6 Spiny Dogfish FMP

Spiny dogfish (*Squalus acanthias*) is co-managed by the MAFMC and NEFMC in federal waters through the [Spiny Dogfish FMP](#) (2000) and subsequent frameworks and amendments, and in state waters by the [Atlantic States Marine Fisheries Commission](#) (ASMFC).

**Seasonal allocations (temporary):** Seasonal allocations of the commercial quota were used to control fishing mortality when the stock was under the rebuilding plan. While under the rebuilding plan, the commercial quota was distributed between quarters based on the percentage of commercial landings for each quarterly period during the years 1990-1997.

As with many co-managed species, regulations can often become convoluted. In 2014, [Amendment 3](#) eliminated the allocation of commercial quota due to problems that exist in the absence of a joint Council and Commission FMP for spiny dogfish. For example, there was often confusion and inadvertent possession violations when waters under the different jurisdictions were open/closed at different times. This was largely due to a mismatch in the way the annual quota was allocated geographically by the ASMFC and seasonally by the Councils. Ultimately, removing the allocation was perceived as the least disruptive approach to fishery

operations that were subject to management measures established under both the federal and interstate FMPs.

**State allocations:** Currently, allocations still exist, but only under state management. These allocations were implemented by [Addendum III \(2011\)](#) using a two stage approach. The division between the northern and southern regions is based on commercial landings from 1990-1997 and the division between southern states is based on a combination of historical (1988-2002) and recent (2003-2009) landings. Maine through Connecticut receive 58% of the quota and are limited by a maximum possession limit of 6,000 pounds per day. The southern state shares are allocated as follows: New York (2.7%); New Jersey (7.6%); Delaware (0.9%); Maryland (5.9%); Virginia (10.8%); and North Carolina (14.0%). Any overages from the previous fishing seasons are paid back by the region or state in the following season. Transfers of quota between states are permitted.

## 2.7 Monkfish FMP

See *Section 1.4* for a summary of the allocation policies used for monkfish, which is co-managed with the New England FMC, who acts as the lead for this FMP.

For Review Only

### 3. South Atlantic

The SAFMC implements eight FMPs including two plans jointly managed with the GFMC (**Table X**). The SAFMC leads the jointly managed Coastal Migratory Pelagic FMP.

Of these eight FMPs, only the Coastal Migratory Pelagic FMP, Dolphin Wahoo FMP, and Snapper Grouper FMP include allocation rules. Allocations were first implemented in the South Atlantic in 1985. In line with MSA National Standard 4, the Council aims to make allocations “fair and equitable to fishery participants in both the recreational and commercial sectors” so that “no particular individual, corporation, or other entity would acquire excessive share.” The Council formed an allocations committee in 2007, culminating in the Comprehensive ACL Amendment in 2012 that set a standard allocation process, and created sector allocations for multiple species that were not previously allocated. In 2019, the Council approved an allocation review trigger policy to formalize allocation review triggers and the allocation process for all fisheries with sector allocations. Most recently, the Council developed [Allocation Decision Trees: A Blueprint for Applying Biological, Social, and Economic Considerations in Allocation Decisions](#) to guide and standardize the allocation process in the region ([SAFMC Sector Allocations; ACL Amendment; ACL Amendment Summary; Allocation in SA presentation; GAO 2020 Report](#)).

The Council has consistently used both historical (1986-2008) and recent (2006-2008) landings to set allocations across sectors. A similar formula is used across many FMPs (see sections 3.2-3.3). Additionally, the Allocations Committee has recently expressed interest in expanding allocation decision making to include qualitative sources such as oral histories ([SAFMC 2019; SAFMC SSC 2021](#)).

**Table X.** Brief summary of the allocation policies used in SAFMC FMPs.

FMP	Allocation policy summary
Coastal Migratory Pelagic (led by SAFMC with GFMC)	Sector, region, gear, and season allocations
Coral	No allocations
Dolphin Wahoo	Sector allocations
Golden Crab	No allocations
Sargassum	No allocations
Shrimp	No allocations
Snapper Grouper	Sector allocations and catch shares
Spiny Lobster (led by GFMC with SAFMC)*	No allocations

### 3.1 Coastal Migratory Pelagics FMP

The original [Coastal Migratory Pelagics FMP](#), jointly managed by the GFMC and SAFMC, was implemented in 1982. The FMP manages Gulf of Mexico and South Atlantic king mackerel and Spanish mackerel and Gulf of Mexico cobia. All three species are currently allocated between the recreational and commercial sectors. The FMP also employs regional, gear-based, seasonal, and catch share allocation strategies ([FMP history](#)).

#### 3.1.1 Cobia

**Sector allocations:** The Atlantic migratory group of cobia (*Rachycentron canadum*) was first allocated between recreational (92%) and commercial sectors (8%) in 2012 by Amendment 18 based on both 2000-2008 and 2006-2008 landings. In 2017, the Atlantic States Marine Fisheries Commission (ASMFC) approved an interstate FMP for the Atlantic migratory group, initiating cooperative management of the stock by ASMFC, GFMC, and SAFMC. In 2019, Amendment 31 removed the Atlantic group from the FMP and transitioned management from the FMCs to the ASMFC “*to allow for more equitable distribution of harvest and facilitate better coordination of management of Atlantic cobia in state and federal waters*” (Amendment 31). Currently, only Gulf Group cobia within the Florida East Coast Zone (FLEC) are allocated by the Councils. This portion of the Gulf Group cobia stock is allocated between commercial (8%) and recreational (92%) sectors using the same strategy as Amendment 18 ([Amendment 32](#)).

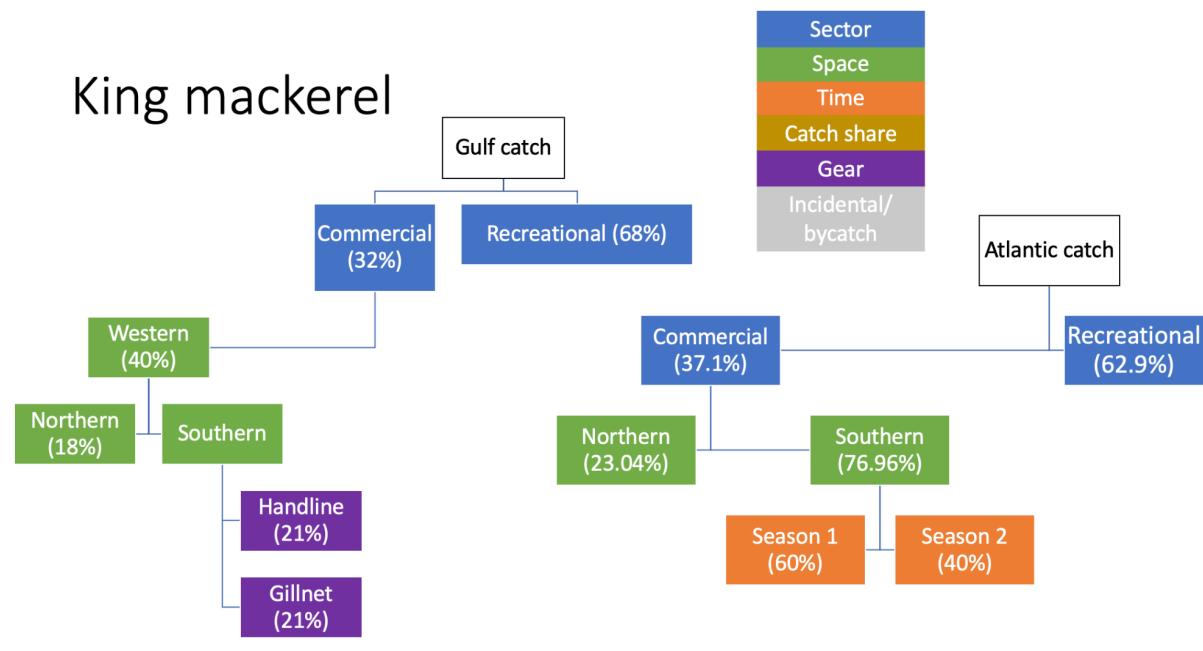
#### 3.1.2 King mackerel

King mackerel (*Scomberomorus cavalla*) is currently allocated by sector, region, season, and gear. The original FMP considered king mackerel to be one stock across the Gulf and South Atlantic, and only allocated to sectors. There have been multiple changes in allocation policy aiming to reduce overfishing through the duration of the FMP as summarized in **Table X**. King mackerel is now managed as two migratory groups – a South Atlantic and a Gulf of Mexico migratory group – with different approaches to allocation used for each stock. As of 2005, a limited access permit is required to commercially target king mackerel.

**South Atlantic group (sector/region/season allocations):** Since 1985 (Amendment 1), the South Atlantic group has been allocated between the recreational and commercial sectors (62.9% recreational, 37.1% commercial). The allocation is based on the years between 1979 and 1985 for which concurrent recreational and commercial catch data were available ([Amendment 34](#)). The commercial allocation is then allocated by region with the Northern Zone (NY, CT, RI to the NC/SC border) receiving 23.04%, and the Southern Zone (NC/SC border to Miami-Dade/Monroe County line, FL) receiving 76.96% based on landings from 2002/2003 to 2011/2012. In the Southern Zone, the commercial quota is also allocated by season (Season 1: March 1-September 30 = 60%; Season 2: October 1 - end of Feb = 40%). These percentages were determined through expert judgment of fishery dynamics ([Amendment 26](#)).

**Gulf of Mexico group (sector/region/gear allocations):** Amendment 1 also allocated the Gulf group by sector (68% recreational, 32% commercial) based on the largest number of years between 1979-1985 with both recreational and commercial catch data. The commercial

allocation is then allocated by region and gear with the Western Zone: 40%, Northern Zone: 18%, Southern Zone Handline: 21%, and Southern Zone Gillnet: 21%. [Amendment 34](#) reviewed and retained this allocation policy stating that “*king mackerel has been functioning well with the current sector allocations, however regional allocations may need to be addressed in the future with changes in landing distributions due to climate change*”.



**Figure X.** Flow chart illustrating the allocation of king mackerel catch for both the Atlantic and Gulf of Mexico migratory groups.

**Table X.** Significant changes to allocation policy for king mackerel by the SAFMC.

FMP Amendment	Implemented allocation policies
Original FMP (1982)	<ul style="list-style-type: none"> <li>Single stock across Gulf and Atlantic states</li> <li>Recreational 76% and commercial 24%</li> <li>Hook and line 43% and net gear 57%</li> </ul>
Amendment 1 (1985)	<ul style="list-style-type: none"> <li>Recognizes two migratory groups: Gulf and Atlantic, boundary varies by season</li> <li>Establishes method of allocation for Gulf group (primarily managed by GFMC) <ul style="list-style-type: none"> <li>Largest number of years beginning in 1979 for which concurrent recreational and commercial catch data are available will be used to calculate the average percent distribution of the catch between recreational and commercial fishermen</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ 2% of recreational catch transferred to commercial allocation if bag limit does not change</li> <li>○ Set at 68% recreational 32% commercial</li> <li>○ 6% of commercial quota up to 0.4 M for purse seine quota</li> <li>○ 69% eastern zone (FL) and 31% western zone (AL, MS, LA, TX)</li> <li>● Establishes method of allocation for Atlantic group (primarily managed by SAFMC)           <ul style="list-style-type: none"> <li>○ Largest number of years beginning in 1979 for which concurrent recreational and commercial catch data are available will be used to calculate the average percent distribution of the catch between recreational and commercial fishermen</li> <li>○ Set at 62.9% recreational 37.1% commercial</li> </ul> </li> </ul>
Amendment 2 (1987)	<ul style="list-style-type: none"> <li>● TAC divided based on catch ratios from 1975-1979</li> <li>● Eliminates purse seine allocations because they are not traditionally used in fishery</li> <li>● Eliminates 2% transfer in Gulf group allocations</li> </ul>
Amendment 7 (1994)	<ul style="list-style-type: none"> <li>● Gulf king mackerel           <ul style="list-style-type: none"> <li>○ Sub-divided Eastern Zone Gulf king mackerel commercial quota in the Eastern Zone (FL) at the Dade/Monroe, FL, county line               <ul style="list-style-type: none"> <li>■ 50%: Dade through Volusia County (North area)</li> <li>■ 50%: Monroe county through FL/AL border (South/West Area)                   <ul style="list-style-type: none"> <li>● Equally divided between hook and line and net gear users</li> </ul> </li> </ul> </li> <li>■ Passed in response to multiple factors (policy and environment) leading to commercial quota being filled in south Florida before schools migrated north</li> </ul> </li> </ul>
Amendment 8 (1996)	<ul style="list-style-type: none"> <li>● Established a moratorium on permits           <ul style="list-style-type: none"> <li>○ A permit may only be issued if its owner was an owner of a vessel that had a commercial king and Spanish mackerel permit prior to the control date of October 16, 1995</li> <li>○ To qualify, the owner or operator must show that during 1 of the 3 calendar years preceding the application at least 25% of their earned income or atleast \$10,000 was derived from commercial sale of catch or charter or headboat fishing</li> <li>○ Owners can transfer permit to another vessel with a qualifying owner or operator or to a new owner of vessel through written agreement</li> <li>○ No new commercial king mackerel permits are to</li> </ul> </li> </ul>

	be issued
Amendment 9 (1998)	<ul style="list-style-type: none"> <li>● Gulf king mackerel <ul style="list-style-type: none"> <li>○ Reallocated Eastern Zone commercial allocation from 50:50 to 46.15% north and 53.85% south/west to better represent recent historical catches</li> <li>○ Subdivided commercial hook and line allocation into subzones by areas to help insure historical participation in fishery, and prevent one area from taking full TAC before fish are available in the other area <ul style="list-style-type: none"> <li>■ Subzone 1: Dade/Monroe to Collier/Lee County Line</li> <li>■ Subzone 2: Collier/Lee County line to AL/FL state line</li> </ul> </li> <li>○ Established regional allocations of commercial hook and line for king mackerel in south/west area of eastern zone based on historical catches from new subzones, motivated by shifts in landings caused by increased participation and availability of fish in Florida Panhandle <ul style="list-style-type: none"> <li>■ 7.5% of Eastern Zone allocation from <b>Subzone 2</b></li> <li>■ Remainder <ul style="list-style-type: none"> <li>● Florida east coast: 50%</li> <li>● Florida west coast: 50% <ul style="list-style-type: none"> <li>○ Net fishery: 50%</li> <li>○ Hook and line fishery 50% (<b>Subzone 1</b>)</li> </ul> </li> </ul> </li> </ul> </li> <li>● Established moratorium on the issuance of commercial king mackerel gillnet endorsements</li> </ul> </li> </ul>
Amendment 12 (2000)	<ul style="list-style-type: none"> <li>● Extended commercial king mackerel permit moratorium (Amendment 8)</li> </ul>
Amendment 14 (2002)	<ul style="list-style-type: none"> <li>● Gulf king mackerel <ul style="list-style-type: none"> <li>○ Established 3-year moratorium on issuance of charter vessel and headboat permits</li> </ul> </li> </ul>
Amendment 15 (2005)	<ul style="list-style-type: none"> <li>● Established an indefinite limited access program. Commercial LAP replaced existing commercial king mackerel permits</li> <li>● Separate Gulf gill-net permit replaced current gill-net endorsement in the Gulf</li> <li>● LAP similarly renewable and transferable as described by moratoriums (Amendments 8,9)</li> </ul>
Amendment 17 (2006)	<ul style="list-style-type: none"> <li>● Extended charter/headboat vessel permit moratorium in Gulf (Amendment 14)</li> </ul>
Amendment 20B (2015)	<ul style="list-style-type: none"> <li>● Atlantic king mackerel</li> </ul>

	<ul style="list-style-type: none"> <li>○ Establish quotas for N (NC-NY; 33.3%) and S (SC, GA, FL; 66.7%) Zones           <ul style="list-style-type: none"> <li>■ Quota based on proportion of landings in that zone from 2002/2003-2011/2012</li> </ul> </li> <li>○ Allow for transfer of quota between regions (NC and FL designated as coordinating states for transfer requests)           <ul style="list-style-type: none"> <li>■ Similar to quota transfer between states for Mid-Atlantic summer flounder, and would provide a way for unused quota to be moved and utilized without negatively impacting the stock</li> </ul> </li> </ul>
Amendment 26 (2017)	<ul style="list-style-type: none"> <li>● Adjusted management boundary for Gulf and Atlantic king mackerel to a single year round boundary at Miami-Dade/Monroe county line (GFMC responsible for management measures in mixing zone)</li> <li>● Atlantic king mackerel           <ul style="list-style-type: none"> <li>○ Established seasonal allocations in Southern Zone to ensure Atlantic Southern Zone quota is available in later months of fishing year, even if harvest is higher in earlier months               <ul style="list-style-type: none"> <li>■ Season 1: March 1-September 30 = 60%</li> <li>■ Season 2: October 1 - end of Feb = 40%</li> <li>■ Remaining quota from season 1 transfers to season 2</li> </ul> </li> </ul> </li> <li>● Gulf king mackerel           <ul style="list-style-type: none"> <li>○ Reallocate ACL across newly drawn regions because Florida East Coast Subzone is integrated into Atlantic Southern Zone; will ideally lead to longer commercial fishing season in all three zones, but especially in N zone               <ul style="list-style-type: none"> <li>■ Western zone (TX, LA, MS, AL): 40%</li> <li>■ Northern zone (Collier/Lee County line to AL/FL state line): 18% (addressed historic under-allocation; participants have previously complained that Northern Zone quota is landed before charter fleet concludes tourist season and/or fish migrate east and south along western FL coastline to make fishing profitable)</li> <li>■ Southern zone (Collier/Lee County line to Monroe/Dade County line)                   <ul style="list-style-type: none"> <li>● Handline: 21%</li> <li>● Gillnet: 21%</li> </ul> </li> </ul> </li> </ul> </li> </ul>
Amendment 34 (2023)	<ul style="list-style-type: none"> <li>● Atlantic king mackerel           <ul style="list-style-type: none"> <li>○ Intentionally retained current recreational and commercial sector allocations at 62.9% and 37.1% respectively (originally based on catches in the 70-</li> </ul> </li> </ul>

	<p>80s)</p> <ul style="list-style-type: none"><li>○ “King mackerel has been functioning well with the current sector allocations, however regional allocations may need to be addressed in the future with changes in landing distributions due to climate change”</li></ul>
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### 3.1.2 Spanish mackerel

Sector allocations were first implemented for [Spanish mackerel](#) (*Scomberomorus maculatus*) by Amendment 2 in 1987, based on average ratio of catch from 1979-1985. At this time, the Council recognized two migratory groups of Spanish mackerel: (1) the Gulf group and (2) the Atlantic group.

**Gulf group (sector allocations):** The Gulf group was initially and still is allocated at 57% commercial and 43% recreational. This was based on catch from 1979-1985.

**Atlantic group (sector allocations):** The Atlantic Group was initially split at 76% commercial and 24% recreational based on catch from 1979-1985. Amendment 4 (1989) reallocated the Atlantic Group at 50/50 commercial/recreational to increase access by the recreational sector in response to overfishing by the commercial sector. The Atlantic Group sector allocations were most recently revised in 1999 with a regulatory amendment ([64 FR 45457](#)) because the recreational sector had consistently failed to catch its allocation and commercial sector was near meeting or exceeding their allocation. Currently, the Atlantic Group is allocated 55/45 commercial/recreational.

**Atlantic group (spatial allocations):** Atlantic Spanish mackerel is also regionally allocated between the Northern (NY/CT/RI - NC) and Southern Zones (SC - Miami/Dade, FL). These allocations were established in March 2015 based on the average proportion of landings in each zone from the 2002/2003 fishing season through the 2011/2012 fishing season.

## 3.2 Dolphin and Wahoo FMP

The Council implemented the [Dolphin Wahoo FMP](#) in 2004. The FMP highlights the historical importance of both species for recreational fisheries, and aims to prevent the development of new commercial fisheries.

### 3.2.1 Dolphinfish

Dolphinfish (*Coryphaena hippurus*) in U.S. federal waters along the Atlantic coast are managed through the Dolphin Wahoo FMP. The original FMP included a commercial landing soft-cap (non-binding) at greater than 1.5 million lbs or 13%. Sector allocations were later set by the Comprehensive ACL Amendment (2012) formula that takes into account historical and recent catch trends ((50% \* average of long term catch range (lbs)) + (50% \* average of recent catch trend (lbs))). Since 2022, the stock ACL has been allocated between the recreational (93%) and

commercial sectors (7%) in order to avoid a decrease in the quota available to either sector ([Amendment 10](#)). These allocations are no longer based on a formula or given set of years, but rather were chosen to maintain pounds of dolphinfish available to each sector.

### 3.2.2 Wahoo

Since 2004, wahoo (*Acanthocybium solandri*) in U.S. federal waters along the Atlantic coast have been managed through the Dolphin Wahoo Fishery Management Plan. Amendment 2 set commercial and recreational allocations at 4.3% and 95.7%, respectively (2012; see 3.2.1 for formula). As of 2022, 2.45% of the stock is allocated to the commercial sector to roughly match the previously existing commercial ACL (70,542 lbs), and the remaining portion (97.55%) is allocated to the recreational sector ([Amendment 10](#); [Amendments 8, 9, and 34](#)). Thus, this is an implicit sector allocation, as it is not based on an explicit target percentage. It is also not based on a reference time period.

## 3.3 Snapper-Grouper Fishery

The Snapper Grouper Fishery Management Plan, established in 1983, manages 55 species in the U.S. South Atlantic ([Snapper Grouper website](#)). Multiple species are managed as a part of a complex, including the deepwater complex, the grunts complex, the jacks complex, the porgy complex, the shallow-water grouper complex, and the snappers complex.

Allocations between commercial and recreational sectors for most species are based on the basic formula from the Comprehensive ACL Amendment that balances historical and recent landings ((50% \* average of long term catch range (lbs)) + (50% \* average of recent catch trend (lbs))). Typically, historical landings = 1986-2008 and recent landings = 2006-2008, although this varies for some species based on data availability (e.g. black grouper started in 1991) and these exceptions are highlighted below ([Table 1](#)).

This formula was applied to catch estimates available at the time of the Comprehensive ACL Amendment, which (depending on the species) included recreational catch as estimated by the Marine Recreational Information Program (MRIP) using effort estimates from the Coastal Household Telephone Survey (CHTS) or the Marine Recreational Fisheries Statistics Survey (MRFSS). Both of these estimation methodologies have been discontinued and replaced by the MRIP using effort estimates from the mail-based Fishing Effort Survey, beginning in 2018. Although the recreational catch estimation method has changed, the Council is still working through updating sector allocation percentages to include the current recreational data. Therefore, most allocation percentages continue to be based on catch data that includes MRIP CHTS or MRFSS estimates.

For the complexes, the percentages shown in [Table 1](#) were the results of applying the Comprehensive ACL Amendment formula and dividing sector landings by total landings for each individual species. Sector annual catch limits (ACL) for each complex were developed by summing the sector-specific landings results for all species included in the complex. Different species within a complex had different magnitudes of landings during the time period used in

the formula, and complexes are managed collectively under sector annual catch limits (i.e. landing a complex species fish counts against the sector ACL for the entire complex, not a species-specific ACL). Therefore, the species-specific allocation percentages shown in **Table 1** may not reflect the effective allocation percentages of sector ACLs for the entire complex.

Some stocks are allocated by jurisdiction in coordination with the Gulf of Mexico Reef Fish FMP (i.e. black grouper, yellowtail snapper, mutton snapper), and these are highlighted in the sections below. South Atlantic/Gulf of Mexico jurisdictional allocations split at the Monroe (Florida Keys) County boundary ([Amendment 51; Draft Snapper-Grouper SAFE](#)).

**Table 1.** Sector allocations managed by the South Atlantic Snapper-Grouper FMP.

Species	Comm. Allocation	Rec. Allocation	Basis years (if not default)	First Allocated	Next Allocation Review	Most Recent Allocation Review
Atlantic spadefish	18.53%	81.47%		2012	2031	2024
Bar jack	21.25%	78.75%		2012	2022	
Black grouper	36.88%	63.12%	1991-2008	2012	2026	
Black sea bass	43.00%	57.00%	1999-2003	2007	2023	
Blueline tilefish	50.07%	49.93%		2012	2020	
Gag	51.00%	49.00%	2015-2019	2009	2030	Oct 2023 (Am 53)
Golden tilefish	96.7% (25% H&L, 75% longline)	3.3%		2011	2030	Dec 2023 (Am 52)
Gray triggerfish	43.56%	56.44%		2012	2023	
Greater amberjack	35%	65%		2012	2030	Oct 2023 (Am 49)
Hogfish GA-NC	69.13%	30.87%		2012	2024	Aug 2017 (Am 37)
Hogfish FLK/EFL	9.63%	90.37%		2012	2024	Aug 2017 (Am 37)
Mutton snapper	17.02%	82.98%		2012	2023	
Red grouper	44.00%	56.00%		2012	2023	
Red porgy	51.43%	48.57%		2009	2030	Jan 2023 (Am 50)
Red snapper	28.07%	71.93%		2012	2024	Reg 35 (under dev.)
Scamp	65.34%	34.66%		2012	2022	Am 55 (under dev.)
Snowy grouper	87.55%	12.45%	1986-2005	2009	2030	Nov 2023 (Am 51)
Speckled hind	65.59%	34.41%		2012		
Warsaw grouper	17.79%	82.21%		2012		
Vermilion snapper	68.00%	32.00%		2009	2021	
Wreckfish	95.00%	5.00%	Fisher input	2012	2019	Am 48 (under dev.)
Yellowtail snapper	52.56%	47.44%		2012	2021	Amendment 44/55
Goliath grouper	n/a	n/a				
Nassau grouper	n/a	n/a				
<b>Deepwater Complex</b>						
Yellowedge grouper	90.77%	9.23%		2012	2024	
Silk snapper	73.95%	26.05%		2012	2024	
Misty grouper	83.42%	16.58%		2012	2024	
Sand tilefish	22.17%	77.83%		2012	2024	
Queen snapper	92.50%	7.50%		2012	2024	
Blackfin snapper	29.91%	70.09%		2012	2024	
<b>Jacks Complex</b>						
Almaco jack	48.70%	51.30%		2031	2024	
Banded rudderfish	26.01%	73.99%		2031	2024	
Lesser amberjack	46.07%	53.93%		2031	2024	
<b>Snappers Complex</b>						
Gray snapper	24.23%	75.77%		2012	2025	
Lane snapper	14.75%	85.25%		2012	2025	

Cubera snapper	19.57%	80.43%	2012	2025	
<b>Grunts Complex</b>					
White grunt	31.59%	68.41%	2012	2024	
Sailor's choice	0.00%	100.00%		2024	
Tomtate	0.00%	100.00%		2024	
Margate	18.88%	81.12%	2012	2024	
<b>Shallow-Water Groupers Complex</b>					
Red hind	73.60%	26.40%	2012	2026	
Rock hind	60.90%	39.10%	2012	2026	
Yellowfin grouper	52.70%	47.30%	2012	2026	
Coney	24.45%	75.55%	2012	2026	
Graysby	15.74%	84.26%	2012	2026	
<b>Porgy Complex</b>					
Jolthead porgy	4.15%	95.85%	2012	2027	
Knobbed porgy	51.18%	48.82%	2012	2027	
Saucereye porgy	0.01%	99.99%	2012	2027	
Scup	0.00%	100.00%		2027	
Whitebone porgy	1.05%	98.95%	2012	2027	
<b>Scamp and yellowmouth group complex</b>					
Scamp	64.90%	35.10%	2024	2031	2024
Yellowmouth grouper	64.90%	35.10%	2024	2031	2024

### 3.3.1 Black grouper

The comprehensive ACL amendment established a jurisdictional allocation for black grouper (*Macolor niger*), allocating 53% to the Gulf of Mexico and 47% to the South Atlantic using the general Comprehensive ACL Amendment formula (see section 3.3). The comprehensive ACL amendment allocated black grouper catch within the South Atlantic between the recreational (63.12%) and commercial (36.88%) sector based on historic and recent catch, but the historic time series began in 1991 instead of 1986 (2012).

### 3.3.2 Black sea bass

In an effort to curb overfishing, black sea bass (*Centropristes striata*) were allocated between the commercial and recreational sectors in 2006–409,000 lbs to the recreational sector (57% of the TAC) and 309,000 lbs to the commercial sector (43%) (Amendment 13c). These allocation proportions still hold true, and are based on historical catch from 1999-2003 within the recreational sector.

### 3.3.3 Goliath and Nassau grouper

The harvest of the goliath grouper (*Epinephelus itajara*) has been prohibited since 1990 and therefore ACL = 0. However, the Comprehensive ACL Amendment retains federal management for the stocks if needed. Additionally, the Amendment establishes co-management for goliath grouper between the Gulf of Mexico and the South Atlantic (2012).

### 3.3.4 Gag grouper

Gag grouper (*Mycteroperca microlepis*) was first allocated between recreational and commercial sectors in 2009 using landings from 1999-2003 (Amendment 16). With Amendment 53 (2023), the sector allocations will transition to 50%-50% in 2027 to reflect total average commercial and recreational landings from 2015-2019.

### 3.3.5 Golden tilefish

Golden tilefish (*Lopholatilus chamaeleonticeps*) are allocated to the commercial (96.7%) and recreational (3.3%) sectors. They are further broken down by commercial gear type, with 25% going to the hook-and-line component and 75% to the longline component. The gear allocation (implemented in 2013 with [Amendment 18B](#)) restored access to hook-and-line fishermen to proportions observed before 2006 ([Amendment 52; 50 CFR 622](#)). Section 5.4 outlines the Council's rationale for the 75 (longline)-25 (hook & line) split. In short, the Council saw that commercial landings at the time were about a 90-10 split, but fishermen from the Carolinas, which mostly (if not all) use hook & line and fish later in the year than fishermen from Florida, were not getting an opportunity to harvest because the quota was all harvested within the first few months of the year by the FL longliners. As a result, the Council diverted from a strict landings percentage basis for allocations to a more *ad hoc* strategy that would better enable a reasonable amount of quota to be available for the Carolina hook and line fishermen.

### 3.3.6 Mutton snapper

The comprehensive ACL amendment established a jurisdictional allocation for mutton snapper (*Lutjanus analis*) between the Gulf of Mexico and the South Atlantic (2012), with a current split of 18%/82%, respectively. Jurisdictional allocations integrate historic (1990-2008) and recent (2006-2008) landings data from the two jurisdictions, weighing recent years higher as typical of Comprehensive ACL Amendment. The South Atlantic allocation is split 17.02% commercial and 82.98% recreational, again based on historic (1986-2008) and recent (2006-2008) landings data. There is no sector allocation for the Gulf of Mexico allocation ([Appendix Q; Amendment 41](#)).

### 3.3.7 Speckled hind

The speckled hind (*Epinephelus drummondhayi*) catch was first allocated in 2012 with the comprehensive ACL amendment following the general formula. However, as of 2019, harvest is not allowed for speckled hind.

### 3.3.8 Warsaw grouper

The Warsaw grouper (*Hyporthodus nigritus*) catch was first allocated in 2012 with the comprehensive ACL amendment. However, as of 2019, harvest is not allowed for warsaw grouper.

### 3.3.9 Yellowtail snapper

The comprehensive ACL amendment established a jurisdictional allocation for yellowtail snapper between the Gulf of Mexico and the South Atlantic (2012), with a current split of 25%/75%, respectively. Jurisdictional allocations integrate historic (1993-2008) and recent (2006-2008) landings data from the two jurisdictions, following the general Comprehensive ACL Amendment formula. The South Atlantic allocation is split 52.56% commercial 47.44% recreational, again based on historic (1986-2008) and recent (2006-2008) landings data ([Amendment 44; YTS Discussion Paper](#)).

### 3.3.10 Wreckfish

Wreckfish (*Polyprion americanus*) is allocated by sector and by catch share through the U.S.'s oldest finfish ITQ program.

**Sector allocations:** The stock was first allocated by sector in 2012 with the Comprehensive ACL Amendment, establishing an allocation between the recreational (5%) and commercial sector (95%) “based on public input and guidance from the advisory panel” (2012). However, there have been zero records of recreational wreckfish landings since 2012.

**Catch shares:** The commercial sector is managed through the [South Atlantic ITQ program](#) established in 1992 in response to a “*rapid escalation of effort of vessels*” (Amendment 5) ([Program Review; 50 CFR § 622.172](#)). Shares are based on historical landings from 1987-1990 ([webpage](#)). Activity in the fishery declined following the formation of the ITQ program. In response to this decline in activity, the council reduced the number of shareholders by defining any shares held by a shareholder who had not reported landings between April 16, 2006 and January 14, 2011 as inactive. These shares were then distributed amongst active shareholders using landings from the same period (Amendment 20A; 2012). This amendment also established a sharecap of 49%, and established an appeals process for redistribution of inactive shares. However, there is no annual allocation cap. Shares are transferable, and ITQ coupons can be spread over multiple vessels owned by a shareholder. SAFMC has approved [Amendment 48](#), which aims to modernize the SA wreckfish ITQ program, and is developing the final amendment for submission to NOAA Fisheries for implementation. This Amendment recommends reallocating 3% of the ACL from recreational to commercial, and a transition to an electronic reporting system for ITQ management.

### 3.3.11 Scamp-Yellowmouth complex

[Amendment 55](#) established a scamp-yellowmouth grouper complex that will be implemented midway through 2025. The allocations between commercial and recreational sectors will change over 5 years based on **Table 2** below.

**Table 2.** Changes to sector allocations from 2025-2029 for scamp-yellowmouth complex.

**Table 2.5.1.** Commercial ACLs and allocation percentages based on the preferred total ACL (Action 4). Commercial ACLs are expressed in pounds whole weight.

	Alternative 1 (No Action)	Preferred Alternative 2 Split Reduction (2018-2022)	Alternative 3 Split Reduction (2013-2022)
Total ACL (Year) (ACL=ABC)	Commercial	<b>Commercial %, (lbs ww)</b>	Commercial %, (lbs ww)
67,450 (2025)	NO ALLOCATIONS	<b>64.90% (43,772)</b>	63.40% (42,763)
72,200 (2026)	NO ALLOCATIONS	<b>63.92% (46,147)</b>	62.51% (45,132)
75,050 (2027)	NO ALLOCATIONS	<b>63.39% (47,572)</b>	62.04% (46,561)
77,900 (2028)	NO ALLOCATIONS	<b>62.90% (48,997)</b>	61.60% (47,986)
79,800 (2029)	NO ALLOCATIONS	<b>62.59% (49,947)</b>	61.32% (48,933)

**Table 2.5.2.** Recreational ACLs and allocation percentages based on the preferred total ACL (Action 4). Recreational ACLs are expressed in pounds whole weight.

	Alternative 1 (No Action)	Preferred Alternative 2 Split Reduction (2018-2022)	Alternative 3 Split Reduction (2013-2022)
Total ACL (Year) (ACL=ABC)	Recreational	<b>Recreational %, (lbs ww)</b>	Recreational %, (lbs ww)
67,450 (2025)	NO ALLOCATIONS	<b>35.10% (23,678)</b>	36.60% (24,687)
72,200 (2026)	NO ALLOCATIONS	<b>36.08% (26,053)</b>	37.49% (27,068)
75,050 (2027)	NO ALLOCATIONS	<b>36.61% (27,478)</b>	37.96% (28,489)
77,900 (2028)	NO ALLOCATIONS	<b>37.10% (28,903)</b>	38.40% (29,914)
79,800 (2029)	NO ALLOCATIONS	<b>37.41% (29,853)</b>	38.68% (30,867)

Or Review Only

## 4. Gulf of Mexico

The GFMC implements nine fishery management plans including two plans jointly managed with the SAFMC (**Table X**). The GFMC leads the jointly managed Spiny Lobster FMP. Of these FMPs, only the Coastal Migratory Pelagic FMP (lead by SAFMC) and the Reef Fish FMP include allocation policies. As implementation of the Coastal Migratory Pelagic FMP is led by the SAFMC, allocation policies for this FMP are described in the SAFMC section of this document.

**Table X.** Brief summary of the allocation policies used in GFMC FMPs.

FMP	Allocation policy summary
Coastal Migratory Pelagic ( <i>led by SAFMC with GFMC</i> )	Sector-based allocations (see Section 3.1)
Red drum	No allocations
Reef fish	Sector-based allocations and catch shares
Shrimp	No allocations
Spiny lobster ( <i>led by GFMC with SAFMC</i> )*	No allocations
Stone Crab	No allocations

\* Although spiny lobster (*Panulirus argus*) does not use allocations, in 2011, the Council considered allocations between commercial and recreational sectors ([Amendment 10](#)). The Council explained that allocations were not necessary at the time because the ACL was unlikely to be exceeded, and therefore, allocations would only increase administrative burden.

The Gulf of Mexico Fisheries Management Council makes allocation decisions based on the following principles and objectives ([GFMC SOPPs](#)):

1. Principles for Allocation
  - a. Conservation and management measures shall not discriminate between residents of different states.
  - b. allocation shall:
    - i. be fair and equitable to fishermen and fishing sectors;
      1. fairness should be considered for indirect changes in allocation
      2. any harvest restrictions or recovery benefits be allocated fairly and equitably among sectors
    - ii. promote conservation
      1. connected to the achievement of OY
      2. furtherance of a legitimate FMP objective,
      3. promotes a rational, more easily managed use
    - iii. ensure that no particular individual, corporation, or other entity may acquire an excessive share.
  - c. shall consider efficient utilization of fishery resources but:
    - i. should not just redistribute gains and burdens without an increase in efficiency

- ii. prohibit measures that have economic allocation as its sole purpose.
  - d. shall take into account: the importance of fishery resources to fishing communities by utilizing economic and social data in order to:
    - i. provide for the sustained participation of fishing communities
    - ii. minimize adverse economic impacts on fishing communities.
  - e. Any fishery management plan, plan amendment, or regulation submitted by the Gulf Council for the red snapper fishery shall contain conservation and management measures that:
    - i. establish separate quotas for recreational fishing (including charter fishing) and commercial fishing.
    - ii. prohibit a sector (i.e., recreational or commercial) from retaining red snapper for the remainder of the season, when it reaches its quota.
    - iii. ensure that the recreational and commercial quotas reflect allocation among sectors and do not reflect harvests in excess of allocations.
2. Guidelines for Allocation
- a. All allocations and reallocations must be consistent with the Gulf of Mexico Fishery Management Council's principles for allocation.
  - b. An approved Council motion constitutes the only appropriate means for requesting the initiation of allocation or reallocation of a fishery resource. The motion should clearly specify the basis for, purpose and objectives of the request for (re)allocation.
  - c. The Council should conduct a comprehensive review of allocations within the individual FMPs at intervals of no less than five years.
  - d. Following an approved Council motion to initiate an allocation or reallocation, the Council will suggest methods to be used for determining the new allocation. Methods suggested must be consistent with the purpose and objectives included in the motion requesting the initiation of allocation or reallocation.
  - e. Changes in allocation of a fishery resource may, to the extent practicable, account for projected future socio-economic and demographic trends that are expected to impact the fishery.
  - f. Indirect changes in allocation, i.e., shifts in allocation resulting from management measures, should be avoided or minimized to the extent possible.

Any changes in allocation are often justified by “providing the greatest overall benefit to the Nation with respect to both food production and recreational opportunities” ([Amendment 53: Red Grouper Allocations and Catch Levels](#)).

The GFMC has scheduled allocation reviews at the following regular intervals:

## Expected start dates of initial allocation reviews

Allocations	Time Intervals	First review (expected start)
Recreational <b>red snapper</b> ACL allocation between the private angling and federal for-hire components	4 years	April 2023
<b>Red snapper</b> allocations between the Gulf states	5 years	April 2024
Gray triggerfish and <b>greater amberjack</b> allocations between the recreational and commercial sectors	6 years	April 2025
Gulf of Mexico group <b>king mackerel</b> allocations between the recreational and commercial sectors, zones, and gear types	6 years	April 2025
Recreational and commercial allocations of <b>red snapper, gag, red grouper</b> and, <b>SWG, DWG, and tilefish IFQ aggregates</b>	7 years	April 2026
Black grouper, mutton snapper, <b>yellowtail snapper</b> allocations between the Gulf and South Atlantic Councils	7 years	April 2026

Only

## 4.1 Reef fish FMP

### 4.1.1 IFQ program details

Two Individual Fishing Quota (IFQ) programs are implemented for species managed within the Reef Fish FMP: (1) the Red Snapper IFQ (RS-IFQ) and (2) the Grouper-Tilefish IFQ (GT-IFQ). Share caps are listed in **Table X** below.

**Table X.** Share caps in the Red Snapper (RS-IFQ) and Grouper-Tilefish Individual Fishing Quota (GT-IFQ) programs.

IFQ program	Species	Share cap (%)
RS-IFQ	Red snapper (RS)	6%
GT-IFQ	Deep water grouper (DWG)	14.7%
GT-IFQ	Gag grouper (GG)	2.3%
GT-IFQ	Red grouper (RG)	4.3%
GT-IFQ	Shallow water grouper (SWG)	7.3%
GT-IFQ	Tilefish (TF)	12.2%

### 4.1.2 Red snapper

Red snapper (*Lutjanus campechanus*) is managed through the Gulf of Mexico Reef Fish FMP (1984) and subsequent amendments. Quota is first allocated between recreational (49%) and commercial sectors (51%) based on landings data from 1979-1987. The commercial sector is subsequently allocated and managed through the reef fish IFQ program using catch shares (Amendment 26; 2007). The initial IFQ participants received shares according to historical landings (~1990s-2004), up to a cap of ~8%. These shares are transferable to any US citizen or permanent resident. A share cap of 6.0203% is now used ([§ 622.21](#)). The recreational allocation (49%) is then split into for-hire (42.3%) and private recreational sub-sectors (57.7%; Amendment 40: 2015). This recent allocation aims to decrease the likelihood of the larger recreational sector going over quota, and supporting red snapper stock rebuilding. As of 2020, the private sub-sector is then allocated among the 5 gulf states: LA (19.12%), MS (3.55%), AL (26.298%), FL (44.822%), and TX (6.21%) (Amendment 50A-F: 2020) based on 2018-2019 stet red snapper management exempted fishing permits. State-based allocations pass accountability from GFMC to the Gulf states, and permit more local and regional management measures.

### 4.1.3 Red grouper

Red grouper (*Epinephelus morio*) is managed through the Gulf of Mexico Reef Fish FMP (1984) and subsequent amendments. Quota is first allocated between recreational (40.7%) and commercial (59.3%) sectors based on landings data from 1986-2005 (Amendment 53; 2022).

This is a change from the previous allocation of 76% commercial and 24% commercial (Amendment 30B; 2009), triggered by improved recreational catch and effort data due to a transition from the Marine Recreational Fisheries Statistics Survey (MRFSS) to the Marine Recreational Information Program (MRIP) Access Point Angler Intercept Survey (APAIS) and Fishing Effort Survey (FES). The commercial sector is subsequently allocated and managed through the [Grouper-Tilefish IFQ program](#) (Amendment 29; 2010). Shares can be held by individuals, groups of individuals, or businesses. With the goal of reducing bycatch, the IFQ program has a multi-use provision that allows some of the red grouper quota to be harvested under gag allocation (and vice-versa). Initial shares were based on logbook landings from 1999-2004. For the first five years of the program, shares could only be sold to and allocation only transferred to entities with valid commercial Gulf reef fish permit, and active GT-IFQ online account. Each IFQ participant can only acquire shares up to the species specific share cap (4.3% for red grouper). Allocations are frequently transferred throughout the season, often due to permit status, and it has become more common—likely due to strengthening of the IFQ network across the Gulf. In June 2023, a Final Amendment was proposed that includes setting the multi-use allocation equal to zero to reduce the catch-quota flexibility of shareholders. However, this has not yet been implemented.

#### 4.1.4 Gag grouper

Gag grouper (*Mycteroperca microlepis*) are managed under the GFMC Reef Fish FMP (1984). The Annual Catch Limit (ACL) was previously allocated between the recreational (61%) and commercial sectors (39%) based on 1986-2005 landings. However, improved data for the recreational sector for the same time period led the GFMC to increase the recreational allocation by 4% such that the allocation is now 35% commercial and 65% recreational (final amendment 56 in June 2023). This amendment also sets red grouper multi-use allocation equal to zero, which is expected to reduce the catch-quota flexibility of shareholders. Commercial allocation managed by the Grouper-Tilefish IFQ program (Amendment 29; 2010). Shares can be held by individuals, groups of individuals, or businesses. See red grouper for details on this IFQ program.

#### 4.1.5 Deep water grouper complex

Yellowedge grouper (*Hyporthodus flavolimbatus*), warsaw grouper (*Hyporthodus nigritus*), snowy grouper (*Hyporthodus niveatus*), and speckled hind (*Epinephelus drummondhayi*) are managed under the GFMC Reef Fish FMP (1984). Since 2012, ‘implicit’ allocations have existed between recreational and commercial sectors by way of the council setting a total and commercial annual catch limit (ACL). Since 2016, the commercial ACL has been set at 1.024 lbs (gutted weight), 95.7% of the total stock ACL (1.070 million lbs). The commercial sector is managed as a component of the Deep Water Grouper Complex through the Grouper-Tilefish IFQ program (Amendment 29; 2010). See red grouper for details on this IFQ program.

#### 4.4.6 Shallow water grouper aggregate complex

The shallow water grouper aggregate complex includes black grouper (*Mycteroperca bonaci*), scamp (*Mycteroperca phenax*), yellowfin grouper (*Mycteroperca venenosa*), and yellowmouth

grouper (*Mycteroperca interstitalis*). This complex is managed under the GFMC Reef Fish FMP (1984). The commercial sector receives 73.9% of the combined SWG quota and the recreational sector receives the remaining 26.1% based on landing during 2001-2004.

#### 4.1.7 Tilefish

The Tilefish complex includes blueline tilefish (*Caulolatilus microps*), golden tilefish (*Lopholatilus chamaeleonticeps*), and goldface tilefish (*Caulolatilus chrysops*) and is managed under GFMC Reef Fish FMP (1984). Historically, tilefish have not had high recreational participation, and therefore there is currently no recreational/commercial allocation. Commercially, the tilefish complex is managed under the Grouper-Tilefish IFQ program (Amendment 29; 2010; see red grouper for more details on IFQ). Although tilefish complex shares are capped at 12.2%, allocations tend to consolidate throughout the year, often above the share cap ([GT-IFQ Program 5-year Review](#)).

#### 4.1.8 Greater amberjack

Greater amberjack (*Seriola dumerili*) is managed through the Gulf of Mexico Reef Fish FMP (1984) and subsequent amendments. The stock is first allocated between recreational (80%) and commercial sectors (20%), reflecting the larger historic engagement by the recreational sector between 1993-2019 ([Amendment 54 2023](#)). Sector allocations were first established in 2008 at 73% recreational and 27% commercial based on 1981-2004 landings in an attempt to end overfishing and rebuild the stock (Amendment 30A). The transition to the more accurate federal recreational survey MRIP-FES led to the recent increase in recreational allocation.

#### 4.1.9 Gray triggerfish

Gray triggerfish (*Balistes capriscus*) is managed through the GFMC Reef Fish FMP. The stock ACL is allocated between the commercial (21%) and recreational (79%) sectors based on the total allowable catches set between 2008-2013 ([50 CFR Part 622, FB21-043](#)).

#### 4.1.11 King mackerel

The king mackerel Gulf group is allocated between the commercial (32%) and recreational (68%) sectors based on average landings data from 1975-1979.

#### 4.1.12 Co-managed snapper-groupers

The following species are co-managed with the SAFMC under the Snapper Grouper Fishery of the South Atlantic Region FMP and the Reef Fish Resources of the Gulf of Mexico FMP: yellowtail snapper (*Ocyurus chrysurus*), black grouper (*Mycteroperca bonaci*), mutton snapper (*Lutjanus analis*), and goliath grouper (*Epinephelus itajara*). Neither yellowtail or mutton snapper are allocated in the Gulf of Mexico. See [Section 3.3.9](#) for spatial yellowtail snapper allocations between the South Atlantic and Gulf of Mexico. Goliath grouper are protected, and therefore are not currently allocated. Jurisdictional allocation policies for these species are described in the SAFMC section of this document. Blackgrouper allocations are managed within the SWG complex.

## 5. Caribbean

The Caribbean Fisheries Management Council (CFMC) oversees fisheries management around three Caribbean islands – Puerto Rico, St. Croix, and St. John/St. Thomas – and for six species categories – spiny lobster, queen conch, reef fish, coral, rays, and pelagic fish.

Historically, the CFMC implemented species-centric fisheries management plans that spatially allocated catch to island groups based on historical landings. However, in response to stakeholder requests, the CFMC transitioned management to three island-based fisheries management plans (**Table X**). The implementation of these plans in October 2022 also added rays and pelagic fish stocks and stock complexes to the list of CFMC-managed fisheries.

There are currently no allocations between sectors in St. Croix or St. John/St. Thomas, or within the Puerto Rico spiny lobster fishery because of a lack of recreational landings data (**Table X**). However, there are implicit allocations between recreational and commercial reef and pelagic fisheries in Puerto Rico. Sector-based ACLs are calculated annually based on sustainable yield limits “from a period of stable and sustainable landings”, which is a form of implicit allocation policy because it maintains access between the sectors in proportion to a reference period.

**Table X.** Brief summary of FMP-level allocation policies. In 2022, these three island-based FMPs replaced the four species-centric FMPs (the Reef Fish, Spiny Lobster, Corals and Reef Associated Plants and Invertebrates, and Queen Conch FMPs).

FMP	Summary	Details
Puerto Rico (reef fish)	Implicit sector allocations	See <b>Table X</b>
Puerto Rico (pelagic fish)	Implicit sector allocations	See <b>Table X</b>
Puerto Rico (spiny lobster)	No sector allocations	No recreational landings data
St. Croix	No sector allocations	No recreational landings data
St. John/St. Thomas	No sector allocations	No recreational landings data

**Table X.** Nominal 2023 Annual Catch Limits (ACLs) by sector for Puerto Rico reef fish stocks ([Federal Register 2022](#)) and the implicit percent allocation implied by these catch limits.

Stock/stock complex	Commercial (lbs)	Recreational (lbs)	Commercial (%)	Recreational (lbs)
Snapper 1 Complex	424,009	111,943	79%	21%
Snapper 2 Complex	257,236	24,974	91%	9%
Lane snapper	244,376	21,603	92%	8%
Snapper 4 Complex	116,434	76,625	60%	40%
Yellowtail snapper	315,806	23,988	93%	7%
Cubera snapper	119	6,448	2%	98%
Grouper 3 Complex	23,890	19,634	55%	45%
Grouper 4 Complex	2,492	5,867	30%	70%
Grouper 5 Complex	15,327	4,225	78%	22%
Grouper 6 Complex	121,729	34,493	78%	22%
White grunt	177,923	2,461	99%	1%
Parrotfishes Complex	147,774	17,052	90%	10%
Angelfishes Complex	137	2,985	4%	96%
Surgeonfishes Complex	147	860	15%	85%
Triggerfishes Complex	83,099	7,453	92%	8%
Hogfish	70,140	8,263	89%	11%
Wrasses 2 Complex	20,126	5,372	79%	21%
Crevalle jack	46	41,894	0%	100%
African pompano	1,052	5,719	16%	84%
Rainbow runner	913	8,091	10%	90%

**Table X.** Nominal 2023 Annual Catch Limits (ACLs) by sector for Puerto Rico pelagic fish stocks ([Federal Register 2022](#)) and the implicit percent allocation implied by these catch limits.

Stock/stock complex	Comm. (lbs)	Rec. (lbs)	Comm. (%)	Rec. (%)
Dolphinfish Complex	232,173	1,513,873	13.3%	86.7%
Wahoo	25,911	210,737	10.9%	89.1%
Tunas Complex	82,779	34,485	70.6%	29.4%
Mackerels Complex	232,422	129,180	64.3%	35.7%
Tripletail	270	39,005	0.7%	99.3%
Great barracuda	495	167,693	0.3%	99.7%

## 6. Pacific

The PFMC implements three fishery management plans, all of which include allocations (**Table X**).

**Table X.** Brief summary of the allocation policies used in PFMC FMPs.

FMP	Allocation policy summary
Groundfish	Sector, subsector, catch shares
Coastal Pelagic Species	Spatial (country), seasonal (sardine only)
Salmon	Sector, spatial (area)

### 6.1 Groundfish

The PFMC Groundfish FMP states that the Council will consider the following factors when considering the allocation of stocks managed under the FMP:

1. Present participation in and dependence on the fishery, including alternative fisheries.
2. Historical fishing practices in and historical dependence on the fishery.
3. The economics of the fishery.
4. Any consensus harvest sharing agreement or negotiated settlement between the affected participants in the fishery.
5. Potential biological yield of any species or species complex affected by the allocation.
6. Consistency with the Magnuson-Stevens Act national standards.
7. Consistency with the goals and objectives of the FMP.

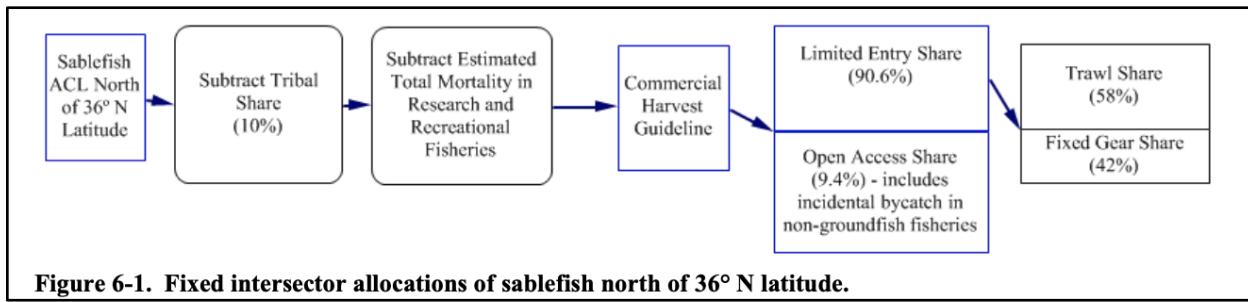
#### 6.1.1 Sablefish North of 36°N latitude

The catch of sablefish north of 36°N latitude is allocated using a mixture of sector- and subsector-based allocation rules. First, 10% of the Annual Catch Limit (ACL) is allocated to tribes. Then, after removing catch estimated for research and recreational fisheries (often referred to as “set asides”), the remaining catch is allocated among the limited-entry (LE; 90.6%) and open-access (OA; 9.4%) fisheries. The catch allocated to the LE fishery is further subdivided among trawl (58%) and fixed gear (42%) fisheries. In general, the catch allocated to the fixed gear fishery is then allocated between the primary fishery (85%) and the daily-trip-limit fishery (15%) (**Figure 1**). These allocations have evolved over time through complex considerations and negotiations but were originally based on average landings from 1981-1985 ([Agenda Item F.4](#)).

This means that the commercial catch is divided into the following 4 subsectors:

1. LE-trawl (52.6%): 58% of 90.6%
2. LE-fixed gear-primary (32.3%): 85% of 42% of 90.6%

3. LE-fixed gear-daily trip limit (5.7%): 15% of 42% of 90.6%
4. OA (9.4%)

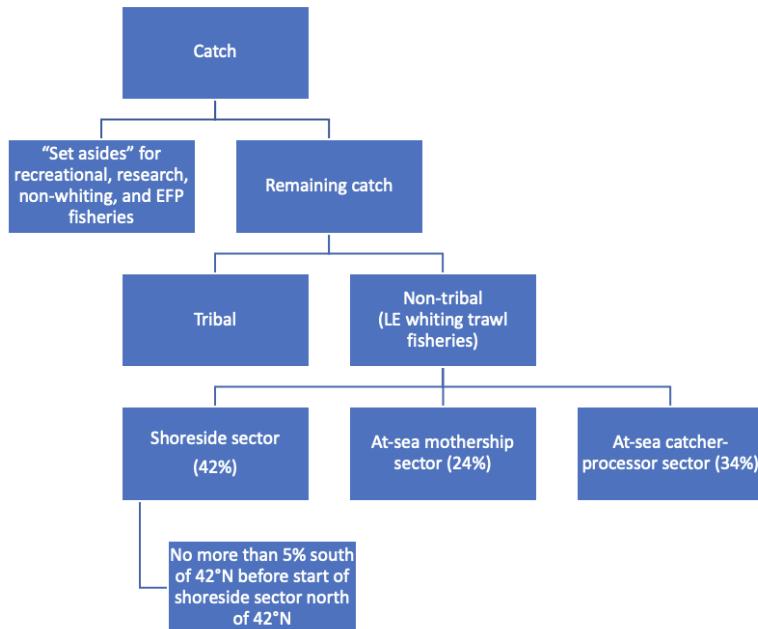


**Figure 6-1. Fixed intersector allocations of sablefish north of 36° N latitude.**

**Figure 1.** Flow chart illustrating the allocation of catch in the sablefish fishery north of 36° N latitude. From the Groundfish FMP.

#### 6.1.2 Pacific whiting

The catch of Pacific whiting (*Merluccius productus*) is allocated using a mixture of sector and subsector allocation rules. First, projected catches of whiting in recreational, research, and non-whiting fisheries are “set aside” during the annual specification process (i.e., estimated based on current management measures and historical patterns). In some years, catch may also be set aside for vessels fishing with Exempted Fishing Permits (EFPs). A portion of the remaining catch is then set aside for tribal whiting fisheries and the remainder goes to non-tribal commercial fisheries. The non-tribal catch is divided among three limited-entry whiting trawl fisheries: (1) shoreside sector, 42%; (2) at-sea mothership sector, 24%; and (3) at-sea catcher-processor sector, 34% (Figure 2). These percentages are based on landings from 1994-1996 ([50 CFR Part 660](#)). No more than 5% of the allocation to the shoreside sector may be retained south of 42°N prior to the start of the shoreside sector north of 42°N. We do not count this as a spatial/temporal allocation because it is more of a fair start rule.



**Figure 2.** Flow chart illustrating the allocation of catch in the Pacific whiting fishery.

#### 6.1.3 Amendment 21 and 29 stocks

The catch of Amendment 21 and 29 stocks is allocated using a mixture of sector and subsector allocation rules. First, set asides for research, tribal, non-groundfish, and exempted fishing permits are removed from the Annual Catch Limits (ACLs) or Optimum Yields (OYs). The remainder is then allocated between the Limited-Entry (LE) trawl fishery and non-trawl fishery using the species-specific allocations listed in **Table 1** below. Most of these percentages are based on average 2003-2005 total catches by sector ([PFMC 2010](#)). The non-trawl fishery encompassed three fisheries: the limited-entry fixed gear fishery, the open access fishery, and the recreational fishery. Allocations among these three non-trawl fisheries are decided, if needed, in the biennial harvest specifications and management measures process.

**Table 1.** The allocation of catch between limited-entry (LE) trawl and non-trawl sectors. Most percentages are based on average 2003-2005 total catches by sector. The “other flatfish” complex contains: butter sole, curlfin sole, flathead sole, Pacific sanddab, Petrale sole, rex sole, rock sole, and sand sole. The “slope rockfish” complex contains: bank, blackgill redbanded, rougheye, sharpchin, shortraker, yellowmouth, and blackspotted rockfish.

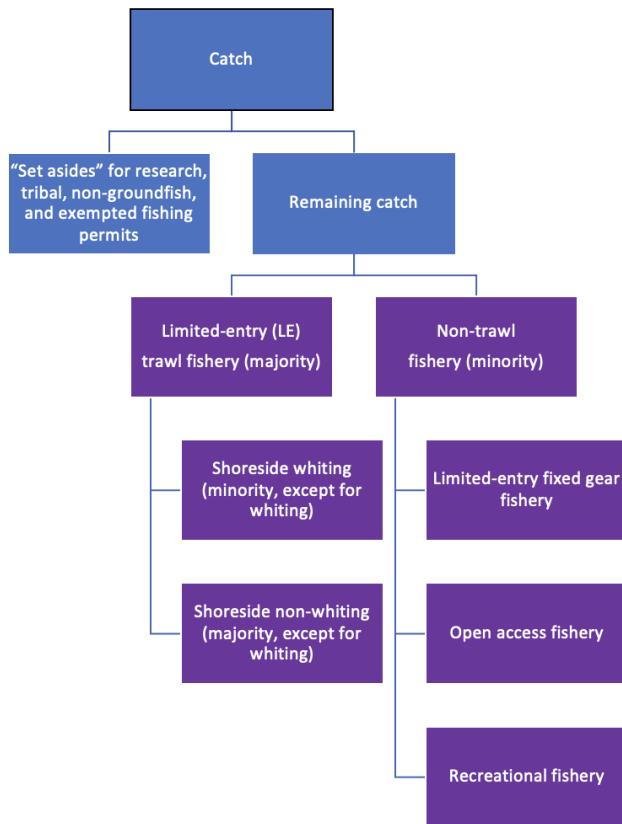
Stock	LE trawl	Non-trawl sectors	Basis
<i>Stocks</i>			
Arrowtooth flounder	95%	5%	2003-2005 catches
Chilipepper rockfish (South of 40°10'N)	75%	25%	Higher non-trawl allocation to promote greater non-trawl access
Darkblotched rockfish	95%	5%	2003-2004 catches
Dover sole	95%	5%	2003-2005 catches
English sole	95%	5%	2003-2005 catches
Lingcod (North of 40°10'N)	45%	55%	2003-2005 catches
Longspine thornyhead (North of 34°27'N)	95%	5%	2003-2005 catches
Pacific cod	95%	5%	2003-2005 catches
Pacific ocean perch	95%	5%	2003-2005 catches
Sablefish (South of 36°N)	42%	58%	2003-2005 catches
Shortspine thornyhead (North of 34°27'N)	95%	5%	Adjusted after discovery of misattributed catches
Shortspine thornyhead (South of 34°27'N)	50 mt	Remaining yield	Adjusted after discovery of misattributed catches
Splitnose rockfish (South of 40°10'N)	95%	5%	2003-2005 catches
Starry flounder	50%	50%	50:50 perceived as fair given uncertain catch history and high nearshore catch
Yellowtail rockfish (North of 40°10'N)	88%	12%	2003-2005 catches
<i>Stock Complexes</i>			
Other Flatfish	90%	10%	Higher non-trawl allocation to preserve non-trawl opportunities for certain species
Slope rockfish (North of 40°10'N)	81%	19%	2003-2005 catches

The LE trawl sector catch is further subdivided between the shoreside non-whiting and whiting trawl sectors based on **Table 2** below. These percentages are based on 1995-2005 catch percentages.

**Table 2.** Initial allocation of Amendment 21 species between LE trawl sectors delivering groundfish to shoreside processing plants (i.e., shoreside whiting and shoreside non-whiting). Percentages are based on average catch from 1995-2005.

Stock	Non-whiting	Whiting
Lingcod	99.7%	0.3%
Pacific cod	99.9%	0.1%
Pacific whiting	0.1%	99.9%
Sablefish (North of 36°N)	98.2%	1.8%
Sablefish (South of 36°N)	100.0%	0.0%
Chilipepper rockfish (South of 40°10'N)	100.0%	0.0%
Splitnose rockfish (South of 40°10'N)	100.0%	0.0%
Shortspine thornyhead (North of 34°27'N)	99.9%	0.1%
Shortspine thornyhead (South of 34°27'N)	100.0%	0.0%
Longspine thornyhead (North of 34°27'N)	100.0%	0.0%
Minor slope rockfish (North of 40°10'N)	98.6%	1.4%
Dover sole	100.0%	0.0%
English sole	99.9%	0.1%
Petrale sole	100.0%	0.0%
Arrowtooth flounder	100.0%	0.0%
Starry flounder	100.0%	0.0%
Other flatfish	99.9%	0.1%

The following figure illustrates a flow chart of allocation for Amendment 21 and 29 stocks.



**Figure 3.** Flow chart illustrating the allocation of catch for Amendment 21 and 29 stocks.

#### 6.1.4 Catch share program

In 2011, PCGFMP established a catch share program through a framework outlined in Amendments 20 and 21. In the case of whiting, 80% of quota share (QS) went to permit owners, 20% went to processors, and none was left for adaptive management. In the case of non-whiting species, 90% went to permits, none went to processors, and 10% went to adaptive management. Initial share permits were allocated based on historical catch (1994-2003) and processing (1998-2004) in the trawl fishery. Quota for overfished species is determined using 2003-2006 logbook data to calculate the amount of overfished species an entity would need to take its target species. The program includes an Individual Fishing Quota (IFQ) Program for shorebased vessels (targeting whiting and other species), and cooperative programs for at-sea mothership and catcher/processor fleets (primarily targeting whiting). Shares can be controlled by individual fishermen or cooperatives. Shares can be transferred annually (lease) or permanently (sell). Most stocks have vessel use limits (limit on quota registered to a vessel in a year) and/or QS control limits (limit on QS a single entity can control) vary by stock and sometimes area ([Table 3](#)) ([IFQ species and area designations](#); [Data Collection for the Trawl Rationalization Program](#); [Trawl Rationalization Program](#); [Description of Trawl Rationalization \(Catch Shares\) Program](#)).

**Table 3.** Control and vessel limit options for shoreside IFQ sector from [Pacific Groundfish FMP Appendix E](#).

**Table E-2.** Control and vessel limit options.

Species Category	Vessel Limit (Applies to all QP in a Vessel Account, Used and Unused)	Vessel Unused QP Limit	QS Control Lim
Nonwhiting Groundfish Species	3.2%		2.7%
Lingcod – N. of 40°10' N. lat	5.3%		2.5%
Lingcod - S. of 40°10' N. lat	13.3%		2.5%
Pacific Cod	20.0%		12.0%
Pacific whiting (shoreside)	15.0%		10.0%
Sablefish			
N. of 36° (Monterey north)	4.5%		3.0%
S. of 36° (Conception area)	15.0%		10.0%
PACIFIC OCEAN PERCH	6.0%	4.0%	4.0%
Widow Rockfish *	8.5%	5.1%	5.1%
Canary Rockfish	10.0%	4.4%	4.4%
Blackgill Rockfish N. of 40°10'N. Lat	9.0%		6.0%
Chilipepper Rockfish S. of 40°10' N. lat	15.0%		10.0%
BOCACIO S. of 40°10' N. lat	15.4%	13.2%	13.2%
Splitnose Rockfish	15.0%		10.0%
Yellowtail Rockfish	7.5%		5.0%
Shortspine Thomyhead			
N. of 34°27'	9.0%		6.0%
S. of 34°27'	9.0%		6.0%
Longspine Thomyhead			
N. of 34°27'	9.0%		6.0%
COWCOD S. of 40°10' N. lat	17.7%	17.7%	17.7%
DARKBLOTHCHED	6.8%	4.5%	4.5%
YELLOWEYE	11.4%	5.7%	5.7%
Minor Rockfish North			
Shelf Species	7.5%		5.0%
Slope Species	7.5%		5.0%
Minor Rockfish South			
Shelf Species	13.5%		9.0%
Slope Species*	9.0%		6.0%
Dover sole	3.9%		2.6%
English Sole	7.5%		5.0%
Petrale Sole	4.5%		3.0%
Arrowtooth Flounder	20.0%		10.0%
Starry Flounder	20.0%		10.0%
Other Flatfish	15.0%		10.0%
Pacific Halibut	14.4%	5.4%	5.4%

W Only

## 7.3 Coastal Pelagic Species

The PFMC Coastal Pelagic Species FMP states that the Council will consider the following factors when considering the allocation of stocks managed under the FMP:

1. Present participation in and dependence on the fishery, including alternative fisheries;
2. Historical fishing practices in, and historical dependence on, the fishery;
3. Economics of the fishery;
4. Agreements or negotiated settlements between the affected participants in the fishery;
5. Potential biological impacts on any species affected by the allocation;
6. Consistency with the MSA national standards; and
7. Consistency with the goals and objectives of this FMP.

### 7.2.1 International allocations

Many of the stocks managed under the FMP have distributions that extend into other EEZs (Mexico or Canada). Fixed percentages based on the average distribution of the stock are used to allocate the Overfishing Limit (OFL) between the U.S. and Mexico/Canada:

- **Pacific sardine:** 87% U.S., 13% Mexico
- **Pacific chub mackerel:** 70% U.S., 30% Mexico
- **Northern anchovy (central stock):** 82% U.S., 18% Mexico
- **Northern anchovy (northern stock):** unknown between U.S. and Canada
- **Jack mackerel:** 65% U.S., 35% Mexico

These percentages were determined for Amendment 8, which turned the Northern Anchovy Plan into the CPS FMP ([Amendment 8 FEIS; March 2000 Briefing Book](#)). They were based on two sources of data: CalCOFI larval data (1951-1985) and fish spotter estimates (1964-1992). Estimates for Pacific sardine were based on the fish spotter data and estimates for Chb mackerel, Jack mackerel, and Northern anchovy were based on average of CalCOFI estimates for the winter through spring and fish spotter estimates for summer through winter. [A 2015 workshop](#) revisited these assumptions of Pacific sardine and retained the 87% value among five alternatives.

### 7.2.2 Pacific sardine

The non-tribal share of the Pacific sardine Harvest Guideline (HG) is allocated seasonally:

- **Jan 1 - Jun 30 (6 months):** 35%
- **Jul 1 - Sep 14 (2.5 months):** 40%, plus portion not harvested from initial allocation
- **Sep 14 - Dec 31 (3.5 months):** 25%, plus portion not harvested from earlier allocations

This is intended to ensure that all regional fishing sectors have at least some access to the directed harvest each year.

This policy went into effect on July 31, 2006 as part of [Amendment 11](#) to the Coastal Pelagic Species FMP and overrode the policy described below.

**Tribal set aside:** Although tribes ave not requested a set aside for many years, a tribal set aside may be within 120 days of the start of a fishing season. If a request is made, the set aside is removed from the ACL. The magnitude of the set aside is interpreted as up to 50% of harvestable surplus of fish that pass through the tribes' usual and accustomed (U&A) fishing grounds.

#### *History of revisions to the original spatial-temporal allocation strategy*

The original FMP, which was adopted in 1998 and was implemented on January 1, 2000, used the following spatial/temporal allocation rule:

- **Jan 1 - Sep 30 (9 months):** 33% to northern subarea, 66% to southern subarea
- **Oct 1 - Dec 31 (12 months):** Remaining quota pooled and split 50-50

The boundary between the subareas was 35°40' N, near Point Piedras Blancas, California.

The rule was adopted from existing state law, which aimed to balance harvest between Southern California- and Monterey-based fishing fleets.

This original rule was revisited when Pacific sardine biomass began to expand north and a fishery began to develop in Oregon and Washington. Oregon, Washington, and northern California shared the northern portion of the allocation, leading Oregon- and Washington-based fleets to express concern that they were not afforded sufficient fishing opportunities.

In April 2003, the Council recommended an interim framework for the allocation of Pacific sardine to partially address these concerns, while it developed a more comprehensive, longer-term allocation framework. The interim allocation framework:

1. Changed the definition of the subareas by moving the geographic boundary between the two areas from 35°40' N to 39°N (Point Arena, California);
2. Moved the date when remaining unharvested Pacific sardine is reallocated to the subareas from October 1 to September 1;
3. Changed the percentage of the unharvested Pacific sardine that is reallocated to the northern subarea and southern subarea from 50 percent to both subareas to 20 percent to the northern subarea and 80 percent to the southern subarea; and
4. Reallocated all the unharvested Pacific sardine that remains on December 1 coastwide.

These adjustments were motivated by the difference in the timing of harvest between the different fleets:

1. The southern California-based fleet starts harvesting Pacific sardine January 1, and the harvest increases steadily throughout the year;

2. The Monterey-based fleet starts in August (tied to market squid availability) and harvest increases through January or February of the following year;
3. The Oregon and Washington-based fleets have a more abbreviated season, which starts in June and ends in October.

Because these sectors operate on very different schedules, annual allocations help to ensure that each sector receives a reasonable fishing opportunity.

In June 2005, the Council examined seven alternative long-term allocation schemes, and at that time, adopted the regulations set forth in Amendment 11. The Council also recommended a review of the allocation formula in 2008, due to the fact that the Pacific sardine resource, as well as the fisheries and markets that rely on it, are often dynamic and difficult to predict.

## 6.3 Salmon

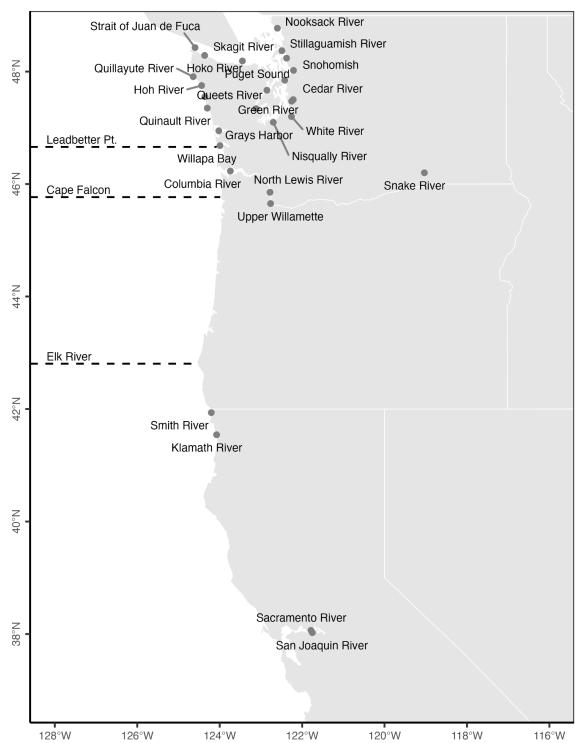
The PFMC Salmon FMP has the following key objective related to catch allocations:

*"3. Maintain ocean salmon fishing seasons supporting the continuance of established recreational and commercial fisheries while meeting salmon harvest allocation objectives among ocean and inside recreational and commercial fisheries that are fair and equitable, and in which fishing interests shall equitably share the obligations of fulfilling any treaty or other legal requirements for harvest opportunities."*

There are several fora to adaptively update the allocation process on an annual basis. The North of Cape Falcon Forum, a state and tribal sponsored forum, convenes pertinent parties during the Council's preseason process to determine allocation and conservation recommendations for fisheries north of Cape Falcon. The individual states also convene fishery industry meetings to coordinate their input to the Council.

### 6.3.1 Stocks

The Salmon FMP names 67 stocks of Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), and pink salmon (*Oncorhynchus gorbuscha*). A large portion of these stocks are listed as "Endangered" or "Threatened" under the Endangered Species Act (ESA) and are managed based on the ESA consultation standards and guidance provided annually from the National Marine Fisheries Service. Similarly, a large number of stocks originating north of Cape Falcon, Oregon occur in both U.S. and Canadian waters and are managed based on the tenets of the Pacific Salmon Treaty (PST). **Table X** lists the salmon stocks included in the FMP and indicates which are managed through the ESA, PST, or PFMC.



**Figure X.** The location of river mouths associated with salmon stocks named in the Pacific Salmon FMP. The lines indicate Elk River, Oregon, Cape Falcon, Oregon, and Leadbetter Point, Washington, which represent important landmarks in the management of Pacific salmon.

**Table X.** Salmon stocks listed in the Pacific Salmon FMP. The management column indicates whether the stock is primarily managed through the Endangered Species Act (ESA) or by the Pacific Salmon Treaty (PST) rather than through the Council process. The table also indicates whether the stock occurs north or south of Cape Falcon, Oregon.

#	Stock	Management	N/S of Cape Falcon	#	Stock	Management	N/S of Cape Falcon
	<b>Chinook salmon</b>						
	<i>Southern stocks (not in a complex)</i>						
1	Central Valley Spring	ESA (threatened)	South	33	Columbia Upper River Summer	PST (target)	North
2	Sacramento River Winter	ESA (endangered)	South	34	Columbia Upper River Spring	ESA (endangered)	North
3	California Coastal	ESA (threatened)	South	35	E. Strait of Juan de Fuca Summer/Fall	ESA (threatened)	North
4	Sacramento River Fall***	PFMC (target)	South	36	Skokomish Summer/Fall	ESA (threatened)	North
5	Sacramento River Late Fall	PFMC (target)	South	37	Nooksack Spring early	ESA (threatened)	North
6	San Joaquin River Fall	PFMC (target)	South	38	Skagit Summer/Fall	ESA (threatened)	North
7	Klamath River Fall***	PFMC (target)	South	39	Skagit Spring	ESA (threatened)	North
8	Klamath River Spring	PFMC (non-target)	South	40	Stillaguamish Summer/Fall	ESA (threatened)	North
9	Smith River	PFMC (non-target)	South	41	Snohomish Summer/Fall	ESA (threatened)	North
10	Southern Oregon Coast	PFMC (target)	South	42	Cedar River Summer/Fall	ESA (threatened)	North
	<i>Far-North-Migrating Coastal</i>			43	White River Spring	ESA (threatened)	North
11	Central and Northern Oregon Coast	PST (non-target)	North	44	Green River Summer/Fall	ESA (threatened)	North
12	Willapa Bay Fall (natural)	PST (non-target)	North	45	Nisqually River Summer/Fall	ESA (threatened)	North
13	Willapa Bay Fall (hatchery)	PST (non-target)	North				
14	Grays Harbor Fall***	PST (non-target)	North				
15	Grays Harbor Spring	PST (non-target)	North				
16	Quinault Fall	PST (non-target)	North				
17	Queets Fall***	PST (non-target)	North				
18	Queets Spring/Summer	PST (non-target)	North				
19	Hoh Fall***	PST (non-target)	North				
20	Hoh Spring/Summer	PST (non-target)	North				
21	Quillayute Fall***	PST (non-target)	North				
22	Quillayute Spring/Summer	PST (non-target)	North				
23	Hoko Summer/Fall	PST (non-target)	North				
	<i>Northern stocks (not in a complex)</i>						
24	North Lewis River Fall	ESA (endangered)	North	61	Strait of Juan de Fuca	PFMC (target)	North
25	Columbia Lower River Hatchery Fall	PFMC (target)	North	62	Hood Canal	PFMC (target)	North
26	Columbia Lower River Hatchery Spring	PFMC (non-target)	North	63	Skagit	PFMC (target)	North
27	Upper Willamette Spring	ESA (threatened)	North	64	Stillaguamish	PFMC (target)	North
28	Columbia Mid-River Bright Hatchery Fall	PFMC (non-target)	North	65	Snohomish	PFMC (target)	North
29	Columbia Spring Creek Hatchery Fall	PFMC (target)	North	66	South Puget Sound Hatchery	PFMC (target)	North
30	Snake River Fall	ESA (threatened)	North				
31	Snake River Spring/Summer	ESA (threatened)	North				
32	Columbia Upper River Bright Fall	PST (target)	North				
	<b>Pink salmon</b>			67	Puget Sound	PFMC (target)	North

### 6.3.2 Tribal allocations

**California:** In California, the Yurok and Hoopa Valley Indian tribes of the Klamath River Basin have a federally protected right to the fishery resource of their reservations sufficient to support a moderate standard of living or 50 percent of the total available harvest of Klamath-Trinity basin salmon, whichever is less.

**Oregon:** The U.S. v. Oregon Parties – the State of Oregon, the State of Washington, the State of Idaho, the United States (including the NMFS and the U.S. Fish and Wildlife Service, and the U.S. Bureau of Indian Affairs), the Shoshone-Bannock Tribes, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Confederated Tribes and Bands of the Yakama Nation – agree that the Columbia River treaty tribes' are entitled to 50 percent of the harvestable runs destined to reach the tribes' usual and accustomed fishing grounds.

**Washington:** In Washington, Treaty Indian tribes have a legal entitlement to the opportunity to take up to 50 percent of the harvestable surplus of stocks which pass through their usual and

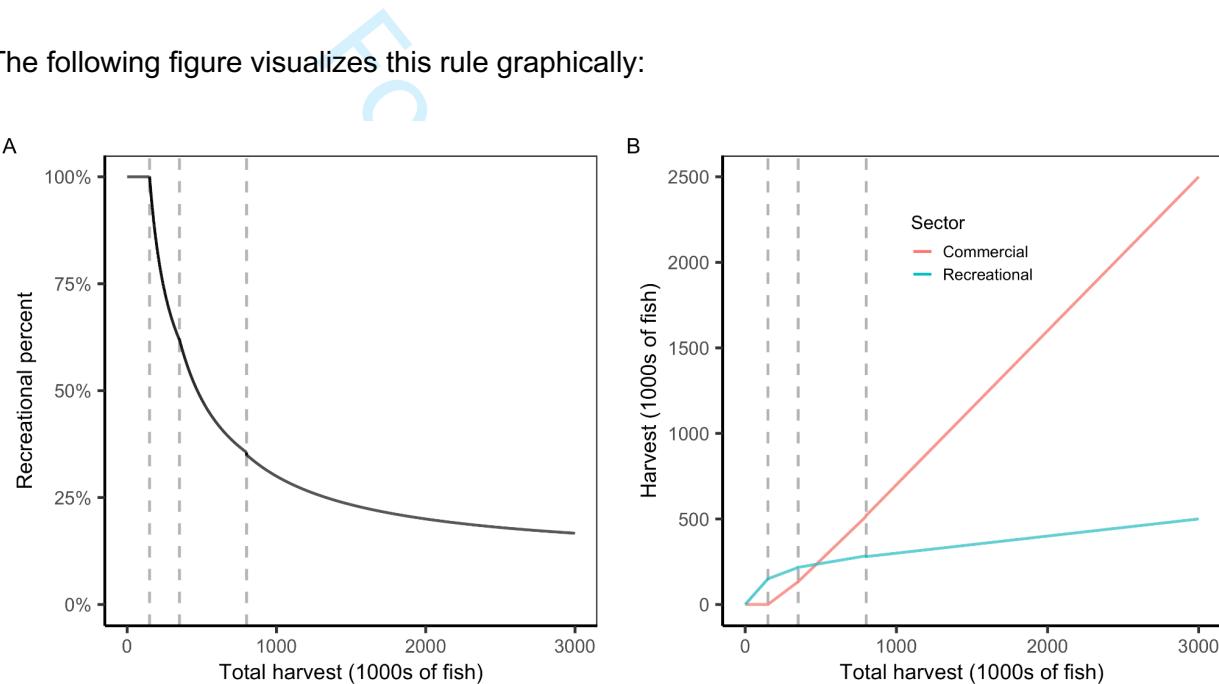
accustomed fishing areas. This is calculated and allocated in the Fishery Regulation Assessment Model (FRAM).

### 6.3.3 Coho salmon (south of Cape Falcon)

**Sector allocation:** Coho fisheries are prohibited off the California coast. The allocation of south of Cape Falcon Coho salmon between recreational and commercial troll fisheries is based on the total allowable ocean harvest as follows:

- **0-150,000:** Recreational harvest = all harvest
- **150,000-350,000:** Recreational harvest = 150,000 plus 33% of surplus above 150,000
- **350,000-800,000:** Recreational harvest = 217,000 plus 14% of surplus above 350,000
- **>800,000:** Recreational harvest = 280,000 plus 10% of surplus above 800,000

The following figure visualizes this rule graphically:



**Figure X.** The (A) percent of ocean harvest allocated to the recreational fishery and (B) the amount of ocean harvest allocated to the recreational and commercial trawl fisheries based on the total estimated ocean harvest for the season. The vertical dashed lines indicate breakpoints in the allocation rule, which occur at 150,000, 350,000, and 800,000 fish.

This rule was developed to provide a stable recreational season while allowing economic benefits to the commercial fishery to increase with increasing stock levels. Furthermore, there are procedures to reallocate unused recreational catch to the commercial fishery. The reallocation procedure is to occur no later than August 15 to allow the commercial fishery time to utilize the recreational surplus, but should occur late in the summer period between Memorial Day and Labor Day that captures the majority of the recreational season.

The allocation rule is also designed to ensure that there are sufficient coho allocated to the commercial fishery at low stock levels to maintain the viability of the Chinook troll fishery. The

recreational allocation will be reduced to ensure allowance for incidental catch ("hooking mortality") in the Chinook troll fishery.

**Spatial allocation:** Quotas may be further subdivided spatially to meet management objectives of the FMP. They will be determined annually based on the following considerations:

1. abundance of contributing stocks
2. allocation considerations of concern to the Council
3. relative abundance in the fishery between Chinook and coho
4. escapement goals
5. maximizing harvest potential

When the recreational catch allocation is <167,000, the quota will be divided among two subareas:

- Central Oregon (Cape Falcon to Humbug Mountain): 70%
- South of Humbug Mountain: 30%

#### 6.3.4 Coho salmon (north of Cape Falcon)

The initial allocation of Coho salmon between sectors (recreational and commercial troll fisheries) is based on the size of the harvestable abundance:

**Table X.** Allocation of Coho salmon between the commercial troll and recreational sectors based on forecast harvest levels.

Harvest	Commercial (%)	Recreational (%)
0-300,000 fish	25	75
>300,000 fish	60	40

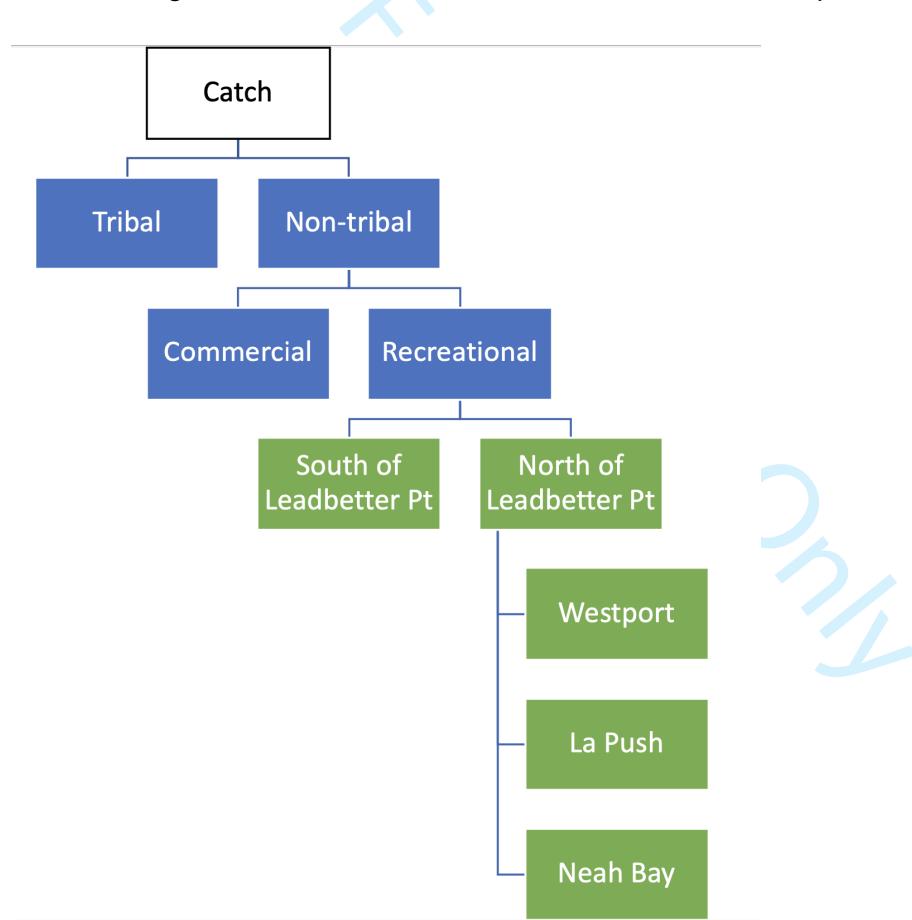
These allocation percentages may be modified annually to meet specific objectives for the commercial and recreational fisheries. There are complex conditions for these deviations.

The recreational portion of the quota will then be distributed geographically such that it is split 50-50 between areas north and south of Leadbetter Point, Washington. The allocation distribution north of Leadbetter is further subdivided but the nature of this subdivision depends on whether there is a fishery in Area 4B in Neah Bay.

**Table X.** Allocation of recreational Coho salmon quota between areas when there is and is not a Area 4B fishery.

Region	Port Area	Without Area 4B	With Area 4B
S. of Leadbetter	Columbia River (Cape Falcon to Leadbetter Pt)	50%	50%
N. of Leadbetter	Westport (Leadbetter Pt to Queets River)	37%	Plus 17.3% of Area 4B add-on
N. of Leadbetter	La Push (Queets River to Cape Flattery)	2.6%	Plus 1.2% of Area 4B add on
N. of Leadbetter	Neah Bay	10.4%	Minus 18.5% of Area B add on

The following flow chart illustrates the allocation of north of Cape Falcon Coho salmon.



**Figure X.** Flow chart illustrating the allocation algorithm for Coho salmon north of Cape Falcon.

### 6.3.5 Chinook salmon (north of Cape Falcon)

The initial allocation of Chinook salmon between sectors (recreational and commercial troll fisheries) is based on the size of the harvest level:

<b>Harvest</b>	<b>Troll (%)</b>	<b>Recreational (%)</b>
0-100,000 fish	50	50
100,000-150,000 fish	60	40
>150,000 fish	70	30

These allocation percentages may be modified annual to meet specific objectives for the commercial and recreational fisheries. There are complex conditions for these deviations.

For Review Only

## 7. North Pacific

The NPFMC implements six fishery management plans (**Table X**). Of these FMPs, all but the Fish Resources of the Arctic include allocation rules. The NPFMC works closely with ADF&G, and has completely transferred management of the Salmon FMP to the State. Catch shares, especially and limited access privilege programs (LAPP), are common in NPFMC FMPs.

In 2017, the NPFMC instituted the following policy on allocation review triggers: “The Council identified three non-LAPP allocations (the Halibut Catch Sharing Plan and the GOA and BSAI Cod Allocations), and LAPPs as subject to the allocation policy directive. The CDQ allocation is not subject to this review. The Council adopts the LAPP review process for meeting the allocation review policy with the necessary modifications to the LAPP review recommended by staff. The Council adopts the 10-year timeframe as the primary trigger criteria for review for non-LAPP allocations, and the existing Council public input process as the secondary trigger criteria for review. The Council will specify its approach to allocation review at final action for any future allocation decisions.”

**Table X.** Brief summary of the allocation policies used in NPFMC FMPs.

FMP	Allocation policy summary
Gulf of Alaska (GOA) Groundfish	Subsector, catch share
Bering Sea/Aleutian Islands (BSAI) Groundfish	Subsector, gear, catch share, season, area
BSAI King and Tanner Crabs	Subsector, gear
Salmon	Country, sector, gear
Scallop	No federal or state allocations; opt-in industry allocations through cooperative
Fish Resources of the Arctic Management Area	No allocations

Since 1992, many North Pacific fisheries have allocated a portion of the TAC to the Community Development Quota (CDQ) Program. The CDQ Program provides the opportunity for eligible Alaska villages to participate and invest in Bering Sea (BS) and Aleutian Island (AI) fisheries to support social and economic activity in the region. There are currently six nonprofit CDQ groups representing 65 coastal communities in western Alaska. CDQs are self managed, and must report to ADF&G before the season begins the vessels that will be participating in the fishery, and how the quota will be allocated among the vessels. These CDQ organizations manage and administer allocations, investments, and economic development projects funded by CDQ:

1. AI Pribilof Island Community Development Corporation
2. Bristol Bay Economic Development Corporation
3. Central BS Fishermen's Association
4. Coastal Villages Region Fund

5. Norton Sound Economic Development Corporation
6. Yukon Delta Fisheries Development Association

CDQ allocations vary by stock. Not all CDQ groups participate in all CDQ eligible fisheries. Substantial amendments to MSA in 2006 led to multiple changes to the CDQ program, including 1) continuation of allocations with no sunset date, 2) a guaranteed increase in multi-species groundfish allocations to 10.7% once/if quotas or sector allocations are implemented, 3) a CDQ allocation of 10.7% for any new directed fisheries, 4) implementation of a 10-year review cycle for allocation among CDQ groups during which the State will decide if the group's allocation should be adjusted. Allocation among CDQ groups has traditionally been based on a set of criteria (see below), and is currently reviewed and managed by the State, and then reviewed by the NPFMC and the US Secretary of Commerce. The current CDQ group allocation criteria are:

1. Number of participating communities, population, and economic condition.
2. A Community Development Program that contains programs, projects, and milestones which show a well-though out plan for investments, service programs, infrastructure, and regional or community economic development.
3. Past performance of the CDQ group in complying with program requirements and in carrying out its current plan for investments, service programs, infrastructure, and regional or community economic development.
4. Past performance of CDQ group governance, including: board training and participation; financial management; and community outreach.
5. A reasonable likelihood exists that a for-profit CDQ project will earn a financial return to the CDQ group.
6. Training, employment, and education benefits are being provided to residents of the eligible communities.
7. In areas of fisheries harvesting and processing, past performance of the CDQ group, and proposed fishing plans in promoting conservation based fisheries by taking action what will minimize bycatch, provide for full retention and increased utilization of the fishery resource, and minimize impacts to the essential fish habitats.
8. Proximity to the resource.
9. The extent to which the CDP will develop a sustainable fisheries-based economy.
10. For species identified as "incidental catch species" or "prohibited species," CDQ allocations may be related to the recommended target species allocations.

## Resources

- [1 Council Motion on Community Development Quota \(CDQ\) Program](#)
- [The Western Alaska Community Development Quota Program](#)
- <https://seagrant.uaf.edu/events/fish-com/powerpoints/davis.pdf>
- [Program And Allocation Reviews | North Pacific Fishery Management Council](#)
- [Anderson and Holliday. \(2007\) The Design and Use of Limited Access Privilege Programs.](#)

## 7.1 BSAI Groundfish

The BSAI Groundfish FMP was implemented in 1982 and governs the management of 23 stocks. Species managed by this FMP include Alaska plaice *Pleuronectes quadrituberculatus*, arrowtooth flounder *Atheresthes stomias*, Atka mackerel *Pleurogrammus monopterygius*, Greenland halibut *Reinhardtius hippoglossoides*, Kamchatka flounder *Atheresthes evermanni*, northern rockfish *Sebastes polypinnis*, Pacific cod *Gadus macrocephalus*, Pacific ocean perch *Sebastes alutus*, walleye pollock *Gadus chalcogrammus*, yellowfin sole *Limanda aspera*, sablefish *Anoplopoma fimbria*, and shortraker rockfish *Sebastes borealis*, in addition to complexes of flathead sole, rock sole, skate, blackspotted and rougheye rockfish, octopus, other flatfish, other rockfish, and shark. We exclude halibut from the summary as it is an internationally managed stock.

**Need to figure out sideboard limits**

**Need to figure out Section 679.20(b)(1)(i) requires that NMFS reserve 15 percent of the TAC for each target species (except for pollock, fixed gear allocation of sablefish, and Amendment 80 species) in a non-specified reserve.**

**Table X.** Allocation policies of BSAI groundfish stocks.

Stock	Allocation policies
Alaska plaice	No allocations
Arrowtooth flounder	Subsector (CDQ)
Atka mackerel	Spatial, subsector (CDQ, ICA, Amendment 80), catch share (associated subsector allocations)
Blackspotted and Rougheye Rockfish Complex	Spatial
Flathead Sole Complex	Subsector (CDQ, ICA, Amendment 80), catch share (associated subsector allocations)
Greenland halibut	Subsector (CDQ), spatial
Kamchatka flounder	No allocations
Northern rockfish	No allocations
Octopus Complex	No allocations
Other Flatfish Complex	No allocations
Other Rockfish Complex	Spatial
Pacific cod - AI	Catch share (associated subsector allocations), seasonal
Pacific cod - BS	Catch share (associated subsector allocations), seasonal
Pacific ocean perch	Spatial, subsector (CDQ, ICA, Amendment 80), catch share (associated

	subsector allocations)
Rock Sole Complex	Subsector (CDQ, ICA, Amendment 80), catch share (associated subsector allocations)
Sablefish - BS / AI /GOA (jointly managed with GOA, single stock)	Spatial, subsector (incidental, gear, CDQ), catch share
Shark Complex	No allocations
Shortraker rockfish	No allocations
Skate Complex	No allocations
Walleye pollock - AI	Spatial, subsector (CDQ, ICA)
Walleye pollock - Bogoslof	No harvest, ICA only
Walleye pollock - Eastern BS	Subsectors, seasons, catch share
Yellowfin sole	Subsector (CDQ, ICA, Amendment 80), catch share (associated subsector allocations)

#### Key components of BSAI Groundfish FMP

All six **CDQ** groups (See section 7) participate in the BSAI groundfish fishery. The majority of stocks managed by the FMP are allocated to the CDQ Program (Table X).

Table X. 2017 allocation percentages of groundfish TAC for CDQ. From [The Western Alaska Community Development Quota Program](#). (Amendment 80)

**Table 3. 2017 Groundfish Species CDQ and allocation percentages**

<b>Groundfish Species</b>	<b>2017 TAC (mt)</b>	<b>Program allocations</b>	<b>CDQ Reserve (mt)</b>	<b>APICDA</b>	<b>BBEDC</b>	<b>CBSFA</b>	<b>CVRF</b>	<b>NSEDC</b>	<b>YDFDA</b>
BS Pollock	1,345,000	10.0%	134,500	14%	21%	5%	24%	22%	14%
AI Pollock	19,000	10.0%	1,900	14%	21%	5%	24%	22%	14%
BS FG Sablefish	637	20.0%	127	15%	20%	16%	0%	18%	31%
AI FG Sablefish	1,301	20.0%	260	14%	19%	3%	27%	23%	14%
BS Sablefish	637	7.5%	48	21%	22%	9%	13%	13%	22%
AI Sablefish	434	7.5%	33	26%	20%	8%	13%	12%	21%
BS Pacific cod	223,704	10.7%	23,936	15%	21%	9%	18%	18%	19%
AI Pacific cod	15,695	10.7%	1,679	15%	21%	9%	18%	18%	19%
WAI Atka Mackerel	12,500	10.7%	1,338	30%	15%	8%	15%	14%	18%
CAI Atka Mackerel	18,000	10.7%	1,926	30%	15%	8%	15%	14%	18%
EAI/BS Atka Mackerel	34,500	10.7%	3,692	30%	15%	8%	15%	14%	18%
Yellowfin Sole	154,000	10.7%	16,478	28%	24%	8%	6%	7%	27%
Yellowfin Sole ABC reserves	106,800	10.7%	11,428	28%	24%	8%	6%	7%	27%
Rock Sole	47,100	10.7%	5,040	24%	23%	8%	11%	11%	23%
Rock Sole ABC reserves	108,000	10.7%	11,556	24%	23%	8%	11%	11%	23%
BS Greenland Turbot	4,375	10.7%	468	16%	20%	8%	17%	19%	20%
Arrowtooth Flounder	14,000	10.7%	1,498	22%	22%	9%	13%	12%	22%
Flathead Sole	14,500	10.7%	1,552	20%	21%	9%	15%	15%	20%
Flathead Sole ABC reserves	53,778	10.7%	5,754	20%	21%	9%	15%	15%	20%
WAI Pacific Ocean Perch	9,000	10.7%	963	30%	15%	8%	15%	14%	18%
CAI Pacific Ocean Perch	7,000	10.7%	749	30%	15%	8%	15%	14%	18%
EAI Pacific Ocean Perch	7,900	10.7%	845	30%	15%	8%	15%	14%	18%
<b>Totals (in mt)</b>	<b>2,197,861</b>		<b>225,770</b>	<b>39,577</b>	<b>47,984</b>	<b>14,261</b>	<b>43,792</b>	<b>41,223</b>	<b>38,931</b>

The American Fisheries Act (AFA) (1998) restricts foreign participation in the US fisheries industry by reducing the portion of individual vessels that can be owned by non-citizens to 25% (including through lending). Additionally, the AFA established subsector allocations for BSAI pollock, allowed the formation of cooperatives, limited participation by AFA vessels in non-pollock fisheries, and imposed additional catch weighing and monitoring regulations for AFA vessels.

The Mothership Fleet Cooperative (established by the AFA) allows members to transfer shares among themselves. Motherships refer to vessels that receive and process groundfish from other vessels. They participate in sideboarded BSAI Pacific cod fishery, and in the Trawl Limited Access Sector of the yellowfin sole fishery.

### Mothership Fleet Cooperative Shares

Membership in the MFC consists of all 19 eligible catcher vessels. Each vessel has a cooperative share representing its percentage share of the directed pollock quota allocation by the AFA to the mothership sector. Vessel names, owners, and their cooperative shares are listed in Table 1 below.

**Table 1. Mothership Fleet Cooperative Share Percentages**

Co-op Member	Vessel(s)	Cooperative Share
Alakanuk Beauty LLC	American Beauty	6.000%
Emmonak Leader LLC	Ocean Leader	6.459%
GAS Western Dawn LLC	Western Dawn	4.150%
Fury Group, Inc.	Nordic Fury Pacific Fury	6.177% 5.889%
Vanguard Fisheries LLC	Vanguard	5.350%
Great West Seafoods, L.P.	Margaret Lyn	5.643%
Katahdin, Inc.	Misty Dawn	3.569%
Kydaka Corporation	California Horizon	3.786%
MarGun Enterprises, LLC	Mar-Gun	6.251%
Mark I, Inc.	Mark I	6.251%
Meddar Corporation	Aleutian Challenger	4.926%
Ocean Thunder, Inc.	Papado II	2.953%
Oceanic Fisheries, LLC	Oceanic	7.038%
Kotlik Challenger LLC	Pacific Challenger	9.671%
Phoenix Processor Limited Partnership	Morning Star	3.601%
Traveler Fisheries LLC	Traveler	4.272%
Vesteraalen L.L.C.	Vesteraalen	6.201%
Wa'atch, Inc.	Alyeska	1.813%
<b>TOTAL</b>		<b>100%</b>

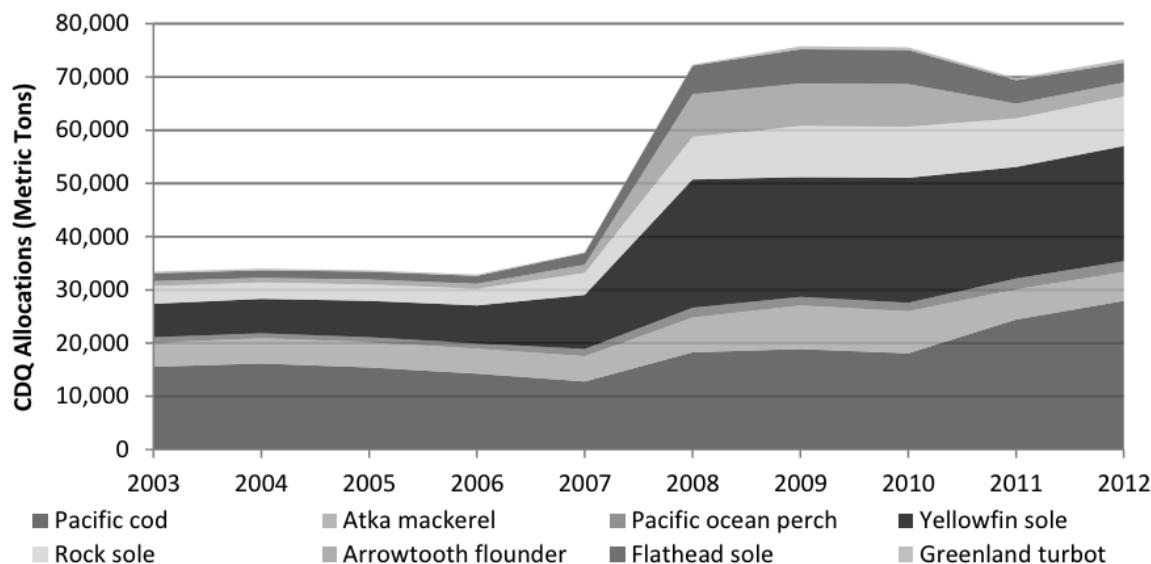
**Amendment 80 (non-AFA)**, implemented in 2008, formed cooperatives in the non-AFA trawl catcher/processor (CP) sector (not eligible under AFA to target pollock) through a Limited Access Privilege Program (LAPP). It also defined all non-Amendment 80 trawl fishery participants (AFA CP, AFA CV, non-AFA CVs) as the BSAI Trawl Limited Access Sector ([TLAS](#)). Qualifying non-AFA vessels receive cooperative quota for Atka mackerel (section 7.1.2), Aleutian Islands Pacific ocean perch (section 7.1.5), flathead sole, Pacific cod (section 7.1.1), rock sole, and yellowfin sole (section 7.1.6). Amendment 80 species are allocated between the Amendment 80 sector (non-AFA CP; catch share program), AFA vessels (AFA CP and CV), and non-AFA CV (**Table X; Figure X in section 7.1.6**). For all species except for yellowfin sole, allocation between Amendment 80 trawlers and BSAI trawl limited access

vessels is set by Table X (Table 33 to part 679). For yellowfin sole, allocation between these two sectors varies by ITAC (Section 7.1.6). Initial QS for Amendment 80 vessels for Amendment 80 species is based on the highest five years of landings of a given species in a given management area between 1998 and 2004 (and by management area for non-mackerel vessels targeting Atka mackerel). Small allocation adjustments compensated for three vessels that qualified for the program but had no landings during the reference period and were therefore each allocated 0.5% of the total yellowfin sole legal landings, 0.5% of the total rock sole legal landings, and 0.1% of the flathead sole legal landings. Amendment 80 institutes quota holdings caps (30% per individual/entity), quota use caps (30% per individual/entity), and vessel use caps (20% per vessel). Management of halibut and crab prohibited species catch limits were also impacted by Amendment 80. Amendment 80 also raised the CDQ allocation of groundfish not already near or above 10% (sablefish and pollock) to 10.7% (Figure X). The additional 0.7% of the allocation goes to the Western Alaska Community Development Association (WACDA). Amendment 80 allocates 100% of rock sole and flathead sole to Amendment 80 sectors. To protect fishing access in the Gulf of Alaska (GOA), the Program also included sideboard limit protections for GOA groundfish. Details of other species allocations described in subsections below.

**Table X. [Table 33 to Part 679](#)**— Annual Apportion of Amendment 80 Species ITAC Between the Amendment 80 and BSAI Trawl Limited Access Sectors (Except Yellowfin Sole).

Fishery	Management area	Year	Percentage of ITAC allocated to the Amendment 80 sector	Percentage of ITAC allocated to the BSAI trawl limited access sector
Atka mackerel	543	All years	100	0
	542	2008	98	2
		2009	96	4
		2010	94	6
		2011	93	8
		2012 and all future years	90	10
	541/EBS	2008	98	2
		2009	96	4
		2010	94	6
		2011	92	8
		2012 and all future years	90	10
Al Pacific ocean perch	543	All years	98	2
	542	2008	95	5
		2009 and all future years	90	10
	541	2008	95	5
		2009 and all future years	90	10
Pacific cod	BSAI	All years	13.4	N/A
Rock sole	BSAI	All years	100	0
Flathead sole	BSAI	All years	100	0

**Figure ES-7. CDQ Allocations of Groundfish other than Pollock and Sablefish**



Note: The legend (from left-to-right and top-to-bottom) corresponds with areas moving up from the bottom.

Source: Developed by Northern Economics based on information at NMFS-AKR webpage, (NMFS, 2014a).

Figure X. CDQ Allocations of groundfish other than pollock and sablefish between 2003 and 2012, highlighting the impact of Amendment 80 on CDQ allocations. From [Northern Economics. \(2014\) Five-Year Review of the Effects of Amendment 80.](#)

## References

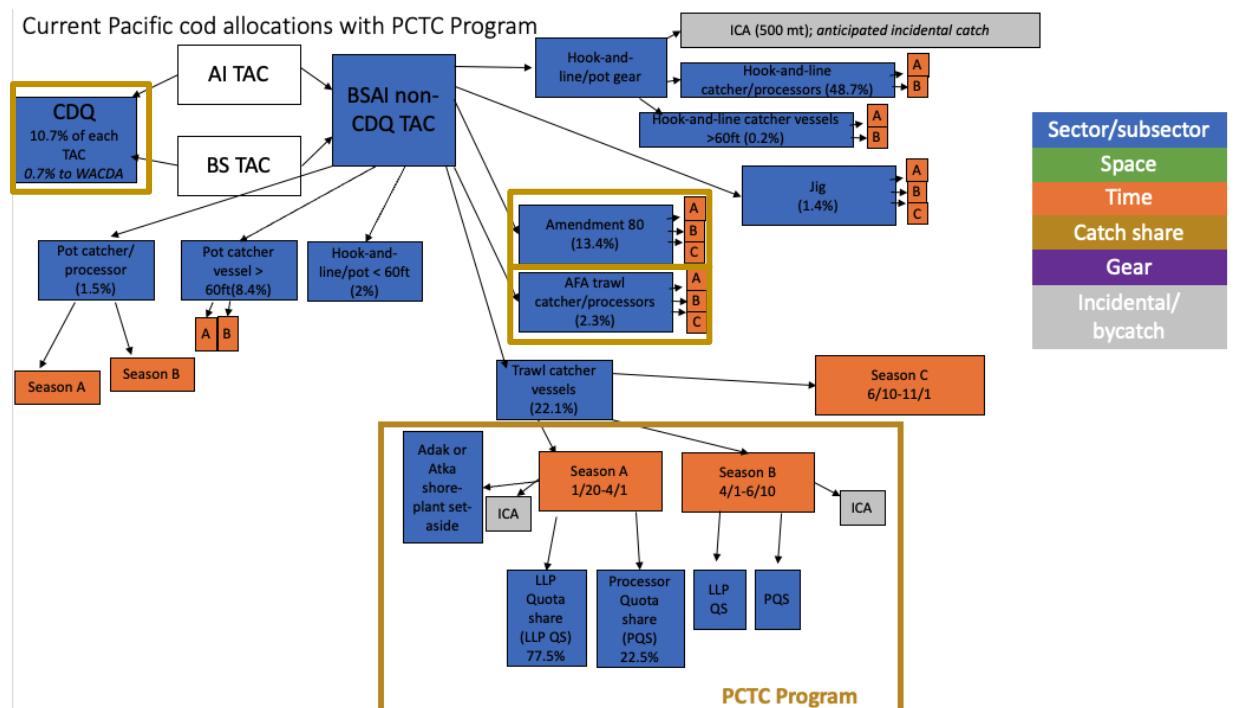
- [Northern Economics. \(2014\) Five-Year Review of the Effects of Amendment 80.](#)
- [Alaska Regional NOAA Office. \(2022\) American Fisheries Act Pollock Fisheries Management in Alaska](#)
- [Final 2022 Mothership Fleet Cooperative Report](#)
- [Bering Sea/Aleutian Islands Groundfish Fishery Management Plan](#)
- [2024–2025 Alaska Groundfish Harvest Specifications | NOAA Fisheries](#)
- [Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Yellowfin Sole Management in the Groundfish Fisheries of the Bering Sea and Aleutian Islands](#)
- [eCFR :: 50 CFR 679.2 -- Definitions.](#)
- [50 CFR § 679.90 - Allocation, use, and transfer of Amendment 80 QS permits.](#)
- [Bering Sea Flatfish Harvest Specifications Flexibility](#)
- [Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands; Proposed 2024 and 2025 Harvest Specifications for Groundfish](#)
- [50 CFR Part 679 - PART 679—FISHERIES OF THE EXCLUSIVE ECONOMIC ZONE OFF ALASKA](#)
- [Step by step protocol for how NMFS allocates groundfish between BSAI Trawl Limited Access and Amendment 80, and then within Amendment 80.](#)

### 7.1.1 Pacific cod

Once the TAC is set for BS and AI cod, 10.7% from each goes to CDQ. All CDQ groups participate in the BSAI Pacific cod fishery, and allocations among groups are set by the state of Alaska and reviewed on a 10-year cycle (see section 7 for criteria). Allocations within groups are determined by individual groups. After the CDQ allocation, the remaining AI and BS TAC are combined into a single TAC. This TAC is then allocated across nine subsectors (Table X) that vary in gear, operation type, and vessel size. As an Amendment 80 species (section 7), trawl components include the Amendment 80 sector (non-AFA CP; catch share), AFA vessels (AFA CP and CV), and non-AFA CV. Most subsectors (all but hook-and-line/pot < 60ft) allocate across either 2 or 3 seasons, and often the highest allocation is for the first season because of the roe and high meat quality associated with the first portion of the year. Multiple subsectors allocate ICAs. The hook-and-line/pot gear subsectors allocate 500 mt to ICA. The PCTC Program allocates 1500 mt of Season A quota and 700 mt of Season B quota to ICA. In 2024, the Council implemented the Pacific Cod Trawl Cooperative Program (PCTC; Amendment 122; catch share) for trawl catcher vessels (22.1% of TAC) for seasons A and B. Season C operates outside of PCTC, and is open to all trawl catcher vessels with LLP license endorsements to harvest in the BS and/or AI with trawl gear (not QS goes to license holders and not vessels).

All vessel and processor (both shoreside and catcher/processor motherships) participants in seasons A & B of the trawl catcher vessel subsector fishery must join a cooperative as a part of the PCTC program. PCTC quota share (QS) is allocated to qualifying License Limitation Program (LLP) license holders and qualifying processors with a history of participation in the fishery. Original QS were based on 2009-2019 landings and processing activity (minus the lowest year of participation), with the exception of those with LLP licenses with transferable AI endorsements, for which QS was also based on 2004-2009 landings. The Council allocates cooperative quota (CQ) based on combined QS of cooperative harvesters and processors. If Adak or Atka shore processors petition to process fish in a given year, cooperatives must allocate 12% of season A CQ to these shoreplants. The PCTC program establishes QS ownership at 5% for harvesters and 20% for processors. Additionally, it establishes CQ caps at 5% for harvesters and 20% for processors. However, there are exceptions for participations that have historically harvested or processed over these caps. These exceptions are not transferable with QS or CQ transfers. However, PCTC allows transfers of both QS (sale) and CQ (annual transfer allowing cooperatives to account for unforeseen circumstances).

The AFA (American Fisheries Act) subsector resulted from the American Fisheries Act of 1998. AFA vessels can participate in PCTC as long as they are listed on a LLP license with BS/AI endorsements. Harvest of BSAI Pacific cod by AFA catcher vessels is managed through private inter-cooperative agreements.



**Figure X.** Flowchart describing allocations of BSAI Pacific cod.

**Table X.** Subsector and seasonal allocations of Pacific cod in BS/AI once CDQ is allocated from [Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands; Revised Final 2023 and 2024 Harvest Specifications for Groundfish](#).

Subsector	Subsector and seasonal allocation
Hook-and-line trawl catcher vessels (CV) $\geq$ 60 ft	0.2% Season A: 1/1-6/10: 51% Season B: 6/10-12/31: 49%
Jig gear	1.4% Season A: 1/1-4/30: 60% Season B: 4/30-8/31: 20% Season C: 8/31-12/31: 20%
Pot catcher/processors (C/Ps)	1.5% Season A: 1/1-6/10: 51% Season B: 9/1-12/31: 49%
Hook-and-line and pot CVs < 60 ft	2.0%
American Fisheries Act (AFA) trawl C/Ps	2.3% Season A: 1/20-4/1: 75% Season B: 4/1-6/10: 25% Season C: 6/10-11/1: 0%

Pot CVs greater >+ 60 ft	8.4% Season A: 1/1-6/10: 51% Season B: 9/1-12/31: 49%
Non-AFA trawl C/Ps (Amendment 80) <i>*managed through cooperative catch share program with other groundfish</i>	13.4% Season A: 1/20-4/1: 75% Season B: 4/1-6/10: 25% Season C: 6/10-12/31: 0%
Trawl CVs (now managed through PCTC catch share program) <i>*Incidental Catch Amount accounts for projected incidental catch of Pacific cod by trawl catcher vessels engaged in directed fishing for groundfish other than PCTC Program Pacific cod</i>	22.1% Season A: 1/20-4/1: 74% Season A ICA: <b>1500 mt</b> Season B: 4/1-6/10: 11% Season B ICA: <b>700 mt</b> Season C: 6/10-11/1: 15%
Hook-and-line C/Ps	48.7% Season A: 1/1-6/10: 51% Season B: 6/10-12/31: 49%

#### Resources:

- [Fisheries of the Exclusive Economic Zone Off Alaska; Amendment 122 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area; Pacific Cod Trawl Cooperative Program](#)
- [50 CFR § 679.23 - Seasons. | Electronic Code of Federal Regulations \(e-CFR\) | US Law | LII / Legal Information Institute](#)
- [50 CFR § 679.130 - Allocation, use, and transfer of PCTC Program QS permits.](#)
- [Apportionment of BSAI Pacific Cod Sector Allocations Between BS and AI Areas Discussion paper](#)
- [Implementing the American Fisheries Act of 1998](#)
- [Fisheries of the Exclusive Economic Zone Off Alaska; Amendment 122 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area; Pacific Cod Trawl Cooperative Program](#)

#### 7.1.2 Atka mackerel

The EBS/EAI, CAI, and EAI each get an individual sub TAC of total BSAI TAC. Currently, these are split at 45% EBS/EAI, 23% CAI, and 32% WAI. As an Amendment 80 species (section 7), 10.7% of each regional TAC is allocated to CDQ. In the EBS/EAI subarea, up to 2% is allocated to the jig fishery. The annual percentage is dependent on the previous jig landings and the predicted future jig landings. There is also an allocation for incidental catch in BSAI trawl and non-trawl sectors. Similar to other Amendment 80 (section 7.1) species, the remaining TAC is then allocated among BSAI trawl components—the Amendment 80 sector (non-AFA CP), AFA vessels (AFA CP and CV), and non-AFA CV sectors. Within the trawl sectors, TAC is allocated equally between Season A (January 20 - June 10) and Season B (June 10 - December 31). Unharvested catch from Season A can be harvested in Season B.

[Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands; Final 2024 and 2025 Harvest Specifications for Groundfish](#)  
[50 CFR § 679.20 - General limitations.](#)

### 7.1.3 Pollock

The Council sets separate TAC for BS and AI subareas. For both subareas, 10% of TAC goes to CDQ. In both subregions, ICA is then set-aside (BS: 50,000mt; AI: 3,420mt). The remaining BS TAC is then allocated across subsectors (Table X). As of 1998, the BS pollock fishery is largely allocated through the American Fisheries Act Pollock Cooperatives (see AFA description below). Broadly, 50% goes to the AFA inshore sector, 40% goes to the AFA catcher/processor sector, and 10% goes to the AFA mothership sector. Allocations are further divided by seasons for all subsectors and for CDQ, with 45% allocated to Season A (January 20-June 10) and 55% allocated to Season B (June 10 - November 1) (Table X). There is an excessive harvesting share limit of 17.5% and an excessive processing share limit of 30%. For participants in the inshore subsector cooperative allocation program, vessel catch history (vessel's best 2 of 3 years from 1995-1997 with some vessel specific exceptions) is converted into an annual cooperative quota share (vessel based) that is added to the total cooperative allocation. Participation in inshore cooperatives is optional, and there are a few vessels that instead elect to participate in the inshore open access fishery. Vessels can move between cooperatives, but must participate in the open access fishery for a year in between transitions. Allocations within offshore and mothership cooperatives are not managed by NMFS. Rather, the cooperatives manage allocations internally to prevent overharvest by the subsector. Quota shares are transferable within sectors, but not between inshore and at-sea sectors, that some argue may lead to underages (Criddle and Strong 2013).

As a result of the Consolidated Appropriations Act of 2004, the non-CDQ AI TAC is fully allocated to the Aleut Corporation to foster economic development in Adak, AK. There is a 250 mt ICA for the Bogoslof District, although direct harvest is prohibited. Season A is allocated 40% of AI ABC (including CDQ, ICA, and Aleut Corporation) but unharvested catch can be caught in Season B. There are also spatial allocations for AI ABC across three areas. Reallocation between subregions can occur midseason. For example, in 2024, projected unused amounts of AI pollock by the Aleut Corporation and the AI CDQ was reallocated from the Aleutian Islands subarea to the Bering Sea subarea (50 CFR Part 679). Recurring underage of AI allocation is linked to the rise of Pacific ocean perch in the region, a bycatch concern in the pollock fishery.

**Table X.** Subsector and subsector, seasonal, and area allocations for BSAI pollock.

Subsector	Subsector, seasonal, and area allocation
BS AFA inshore (deliver to onshore processors)	50% Season A: 1/20-6/10: 45%* Season B: 6/10-11/1: 55%

BS AFA offshore catcher/processor: ● catch by catcher/processors ● catch by catcher vessels ● unlisted catcher processor	40% 91.5% 8.5% <=0.5% Season A: 1/20-6/10: 45%* Season B: 6/10-11/1: 55%
BS AFA motherships (deliver to floating processors)	10% Season A: 1/20-6/10: 45%* Season B: 6/10-11/1: 55%
AI Aleut Corporation	100% Area 541: 30% Area 542: 15% Area 543: 5% Season A: 1/20-6/10: Max 40% across all subsectors ^these rules apply across all subsectors (CDQ, Aleut, and ICA)
Bogoslof District ICA	250 mt incidental

\*No more than 28% from sea lion conservation area (SCA) by 4/1

[Federal Register/Vol. 89, No. 52/Friday, March 15, 2024/Rules and Regulations](#)

[Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands; Final 2024 and 2025 Harvest Specifications for Groundfish](#)

[50 CFR § 679.23 - Seasons. | Electronic Code of Federal Regulations \(e-CFR\) | US Law | LII / Legal Information Institute](#)

[Pollock Conservation Cooperative and High Seas Catchers' Cooperative Joint Annual Report 2021 North Pacific Fishery Management Council April 1, 2022](#)

[Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands; Final 2024 and 2025 Harvest Specifications for Groundfish](#)

[Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Application for an Exempted Fishing Permit](#)

[50 CFR § 679.62 - Inshore sector cooperative allocation program.](#)

[Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bycatch Management in the Bering Sea Pollock Fishery](#)

[Groundfish Quota Programs | North Pacific Fishery Management Council](#)

Climate

- Midseason re-allocation of pollock from Aleut & AI CDQ to Bering Sea CDQ and sectors

#### 7.1.4 Sablefish

Sablefish (*Anoplopoma fimbria*) across the EBS, AI, and GOA are considered a single stock and therefore jointly managed by BSAI and GOA Groundfish FMPs. TACs are set independently for

management areas (Figure X). TAC has been allocated between fixed and trawl gears since 1986 in GOA, and since 1990 in BSAI. In BSAI, the trawl fleet receives 50% of the BS TAC, and 25% of the AI TAC, and in each subregion 15% is allocated to non-specified reserve that helps facilitate in-season adjustments. Additionally, 7.5% is allocated to the CDQ reserve. In the case of GOA, the trawl fleet receives 20% of the Western and Central GOA TAC, and 5% of the Eastern GOA TAC (full allocation to West Yakutat District). Except for the allocation of sablefish to cooperatives as a secondary species in the Rockfish Program (6.78% to CV cooperatives and 3.51% to CP cooperatives), directed fishing for sablefish in GOA is closed and allocations represent anticipated incidental catch.

Figure 1.2-2 Sablefish IFQ Regulatory Areas

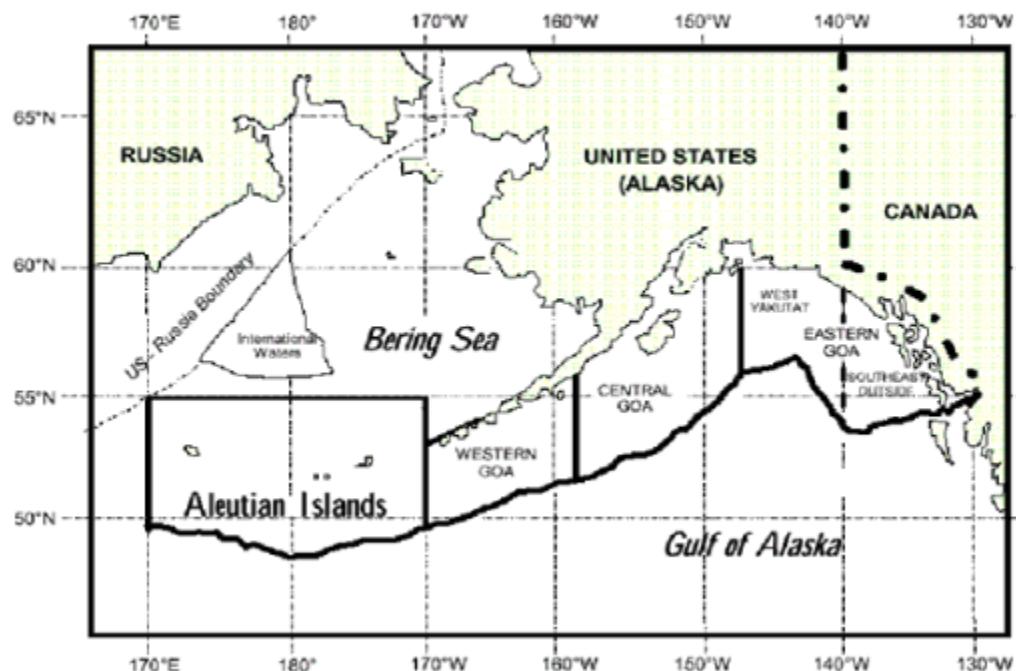


Figure X. Sablefish management areas. [From Halibut Sablefish IFQ Program Review, 2016.](#)

Most of the fixed gear fishery is managed through a catch share program. The Council implemented the IFQ program (which includes quota for both Pacific halibut and sablefish) in 1995 following Amendment 15 to the BSAI groundfish FMP and Amendment 20 to the GOA groundfish FMP. It is now the largest catch share program in the country. Allocation to the IFQ program varies by region, with the program receiving 80% of the TAC in the Western and Central GOA, 95% of the TAC in the Eastern GOA, 50% of the TAC in the BS, and 75% of the TAC in the AI. Twenty-percent of the fixed-gear TAC in the BS and AI are allocated to CDQ. Quota shares (QS) were initially allocated to persons who landed halibut or sablefish using fixed-gear between 1988-1990 using either an owned or leased vessel, as the Council equated record of landings with dependence on the fishery. QS are assigned to both management areas and vessel class (A: Any length, B: >60 ft, C: <= 60 ft; Table X). Original QS was set based on the best five out of seven years of landings between 1984-1990, and on the management areas where landings occurred (Figure X, Table X). Some QS from non-CDQ management areas were reallocated to program participants allocated CDQ management area QS to compensate

for CDQ allocations. Vessel class was based on the length of the vessel upon which the participant made landings in the most recent year of participation in the fishery, and whether fish were processed on the vessel (e.g. 1998, 1989, 1990, or 1991).

QS is converted to IFQ annually by multiplying QS by the TAC. Each management area has an individual QS pool that has been largely unchanged since implementation of the program. QS can be transferred between specified areas and vessel sizes with the goal of avoiding consolidation. Beginning in 1996, IFQ participants can “fish down” (IFQ allocated to larger class vessels can be fished on smaller class vessels). The QS an individual can hold is capped at a specified QS unit across the fishery, with the Southeast Outside District having an additional SE cap. Additionally, IFQ landed by a vessel in a given year cannot exceed 1% of the total IFQ TAC of sablefish (in the case of Southeast Outside District, this 1% cap also applies to SE sablefish IFQ TAC). Strict rules on control, use, and transfer of QS reflect the Council’s desire to maintain the small-scale, community based nature of the fishery. However, restrictions unrelated to maintaining the owner-operator characteristic of the fleet have been relaxed since the IFQ was first implemented. For example, the Council can authorize the formation of community quota entities that can buy QS and distribute among residents to keep QS in small coastal communities (Community Quota Entity (CQE) Program; 2004). The CQE program reduces the barrier to entry by allowing residents to lease annual IFQ and eventually build up to buy QS. Allocation policies can be changed by the Council without permission of program participants.

\*I don't think we are including halibut, as it's not a federally managed fishery, but under this IFQ program, commercial IFQ can be transferred to charter sector.

**Table X.** Sablefish quota share distribution by vessel class and area for initial allocation (1995) and in 2015. Percents based on summed QS of individual participants. [Source: NMFS. 2015. Transfer Report – Changes under Alaska’s Sablefish IFQ Program, 1995 through 2014.](#)

Table 2.3-5 Sablefish QS distribution by vessel class and area at initial allocation and in 2015

Area	Vessel Class	Initial Percentage of Area QS	2015 Percentage of Area QS
SE	Class A	10%	9%
	Class B	21%	20%
	Class C	70%	70%
WY	Class A	8%	8%
	Class B	61%	61%
	Class C	31%	31%
CG	Class A	15%	16%
	Class B	48%	48%
	Class C	37%	37%
WG	Class A	38%	38%
	Class B	43%	43%
	Class C	19%	19%
BS	Class A	39%	40%
	Class B	42%	41%
	Class C	19%	19%
AI	Class A	56%	56%
	Class B	36%	35%
	Class C	8%	8%

Source: NMFS 2015b

## References

- [Pacific Halibut and Sablefish Individual Fishing Quota \(IFQ\) Program in Alaska | NOAA Fisheries](#)
- [Twenty-Year Review of the Pacific Halibut and Sablefish Individual Fishing Quota Management Program](#)
- [Federal Register :: Pacific Halibut Fisheries; Groundfish of the Gulf of Alaska; Groundfish of the Bering Sea and Aleutian Islands; Limited Access Management of Fisheries off Alaska November 1993 Final Rule](#)
- [Alaska Halibut and Sablefish Fixed Gear Individual Fishing Quota Program](#)

- [Appendix E: Federal CDQ Regulations | The Community Development Quota Program in Alaska | The National Academies Press](#)
- [Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands; Final 2024 and 2025 Harvest Specifications for Groundfish](#)
- [Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Gulf of Alaska; Final 2024 and 2025 Harvest Specifications for Groundfish](#)
- <https://www.fisheries.noaa.gov/s3/2024-03/2024QSUseCapsandVesselIFQCaps-FINAL.pdf>

### 7.1.5 Rockfish

The FMP manages northern rockfish, Pacific ocean perch, shortraker rockfish, blackspotted and rougheye rockfish complex, and the other rockfish complex. The Aleutian Island stock of Pacific ocean perch is an Amendment 80 species (section 7.1), and therefore 10.7% of each regional TAC goes to CDQ, and the remaining TAC is allocated among the Amendment 80 sector (non-AFA CP), AFA vessels (AFA CP and CV), and non-AFA CV. Some rockfish stocks are allocated by TAC across regions (Bering Sea BS, East Aleutian Islands EAI, Central Aleutian Islands CAI and Western Aleutian Islands WAI) (Table X). Northern and shortraker rockfish are not allocated across regions.

Table X. Spatial allocations of rockfish set by the BSAI groundfish FMP.

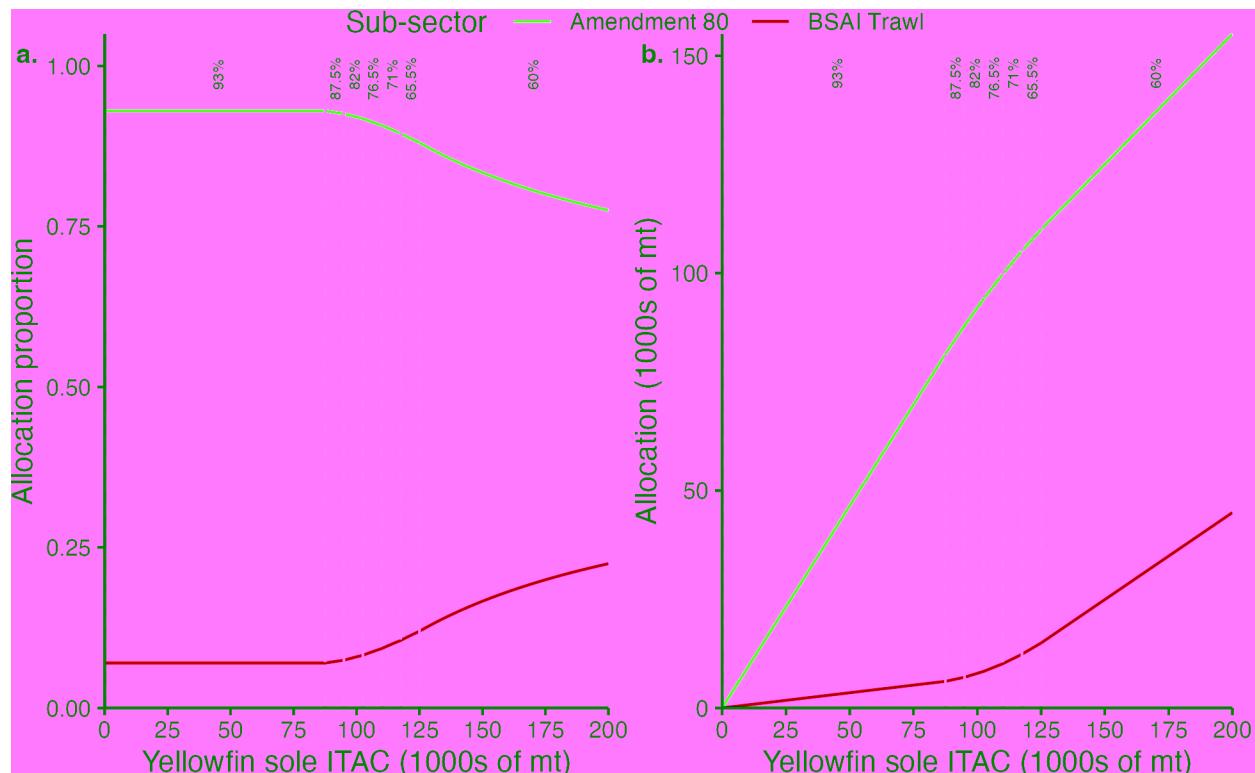
Species	BS	EAI	CAI	WAI
Pacific ocean perch	29%	23%	17%	31%
Northern rockfish	100%			
Rougheye and blackspotted rockfish	46%		54%	
Shortraker rockfish	100%			
Other rockfish*	43%	57%		

\*Other rockfish" includes all *Sebastodes* and *Sebastolobus* species except for Pacific ocean perch, dark rockfish, northern rockfish, shortraker rockfish, and blackspotted/rougheye rockfish.

### 7.1.6 Yellowfin sole

Yellowfin sole is the target of the largest flatfish fishery in the US, and is highly concentrated in the BS with a limited AI population. As an Amendment 80 species (section 7.1), 10.7% of TAC is allocated to CDQ. There is also an allocation for incidental catch in BSAI trawl and non-trawl sectors. Similar to other Amendment 80 species (Section 7.1), the remaining TAC is then allocated among BSAI trawl components—the Amendment 80 sector (non-AFA CP) and the

BSAI TLAS sector (AFA CP and CV, and non-AFA CV sectors). At lower stock biomass, a higher proportion is allocated to Amendment 80 vessels (Figure X). The BSAI trawl limited access sector (TLAS) vessels gain a higher allocation portion at higher stock biomass levels. The ITAC has been above 125,000 mt since 2008. TLAS vessels require a groundfish LLP license with a yellowfin endorsement, but this does not qualify as a LAPP because the endorsement does not assign a portion of TLAS allocation to a person.



**Figure X.** Allocation by proportion (left) and biomass (right) of yellowfin sole between Amendment 80 and BSAI trawl vessels from [50 CFR Part 679 Table 34](#). Vertical dashed lines and associated percentages identify the percentage of yellowfin sole in that biomass bin allocated to the Amendment 80 fleet.

## References

[Federal Register :: Fisheries of the Exclusive Economic Zone Off Alaska; Yellowfin Sole Management in the Groundfish Fisheries of the Bering Sea and Aleutian Islands](#)

## 7.2 GOA Groundfish

The Gulf of Alaska (GOA) groundfish FMP was implemented in 1978 and manages all finfish in the region except salmon, steelhead, halibut, herring, and tuna.

**Table 1.** Allocation policies for Gulf of Alaska (GOA) groundfish stocks.

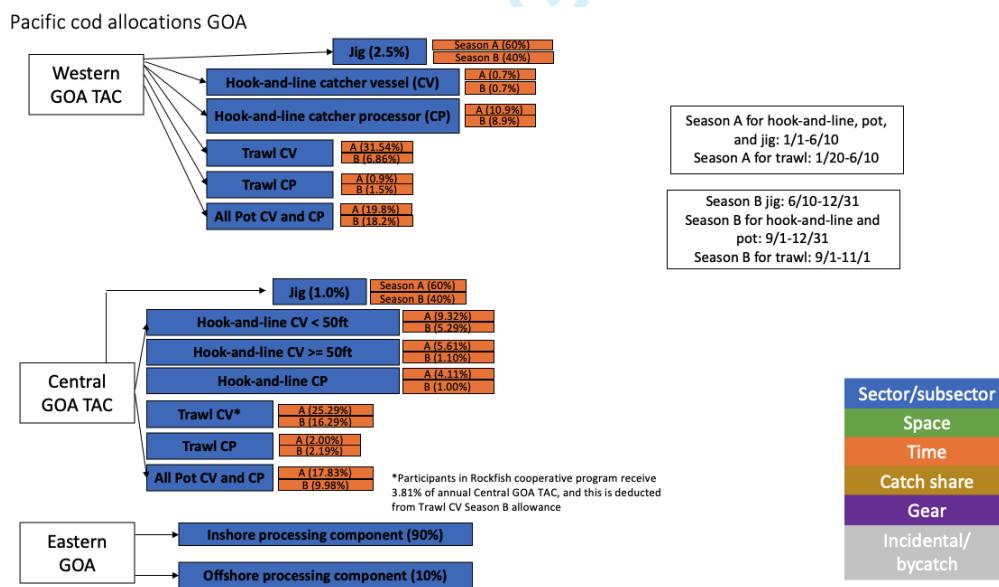
Stock	Allocation policies
Arrowtooth flounder	Spatial (area)
Atka mackerel	<i>No allocation (except minor incidental catch set asides)</i>
Big skate	Spatial (area)
Blackspotted and Rougheye Rockfish complex	Spatial (area), catch shares
Deepwater flatfish complex	Spatial (area)
Demersal shelf rockfish complex	Spatial (area) - though 100% is allocated to the SEO
Dusky rockfish	Spatial (area), catch shares
Flathead sole	Spatial (area)
Longnose skate	Spatial (area)
Northern rockfish	Spatial (area), catch shares
Octopus complex	<i>No allocation (except minor incidental catch set asides)</i>
Other rockfish complex	Spatial (area)
Pacific cod	Spatial (area), subsector (gear, vessel type), season
Pacific ocean perch	Spatial (area), catch shares
Rex sole	Spatial (area)
Sablefish ( <i>jointly managed with BSAI FMP</i> )	Subsector (gear), catch shares (see section 7.1.4)
Shallow water flatfish complex	Spatial (area)
Shark complex	<i>No allocation (except minor incidental catch set asides)</i>
Shortraker rockfish	Spatial, catch shares
Other skates complex	<i>No allocation (except minor incidental catch set asides)</i>
Thornyhead rockfish complex	Spatial (area), catch shares
Walleye pollock (Southeast)	Subsector (ICA)
Walleye pollock (Western, Central, West Yakutat)	Spatial (area), subsector (ICA), season

### 7.2.1 Pacific cod

Individual TACs are set for Western, Central, and Eastern federal regulatory regions.

**Subsector allocations:** For the Western and Central regions, Amendment 83 (2011) implemented subsector allocations defined by gear, operation type, and vessel size. Initial subsector allocations were set based on historical catch (1995-2005 for Western GOA and 2000-2008 for Central GOA). The Eastern regulatory region is allocated between vessels catching for processing by offshore (10%) and inshore (90%) operations. Jig sector allocations occur before other subsector allocations, and may go up to 6% depending on sector performance up until the most recent year (**Table 1**). Decreases in jig allocation are reevaluated every year, and increases are evaluated every two years. If they reach 90% of their allocation, they will receive a 1% increase. If they DO NOT reach 90% of their allocation over 2 years then we decrease their TAC by 1% (Jahn, personal communication). NMFS can reallocate among sectors if a sector is at risk of underharvesting their allocation.

**Seasonal allocations:** For the Western region, all subsector allocations are split between Season A and Season B, which vary by region and subsector. Any overages or underages from season A can lead to season B adjustments.



**Figure 1.** Flow chart of allocations for GOA Pacific cod.

**Table 2.** Jig subsector allocations over time. These will be updated in 2025.**Table 3 -- Summary of Western GOA and Central GOA Pacific Cod Catch by Jig Gear in 2014 through 2023, and Corresponding Percent Allocation Changes**

Area	Year	Initial Percent of TAC	Initial TAC Allocation	Catch (mt)	Percent of Initial Allocation	> 90% of Initial Allocation?	Change to Percent Allocation
Western GOA	2014	2.5	573	785	137%	Y	Increase 1%
	2015	3.5	948	55	6%	N	None
	2016	3.5	992	52	5%	N	Decrease 1%
	2017	2.5	635	49	8%	N	Decrease 1%
	2018	1.5	125	121	97%	Y	Increase 1%
	2019	2.5	134	134	100%	Y	Increase 1%
Central GOA	2020	n/a <sup>1</sup>					
	2021	3.5	195	26	13%	N	None
	2022	3.5	243	2	1%	N	Decrease 1%
	2023	2.5	131	131	101%	Y	Increase 1%
	2014	2.0	797	262	33%	N	Decrease 1%
	2015	1.0	460	355	77%	N	None
	2016	1.0	370	267	72%	N	None
	2017	1.0	331	18	6%	N	None
	2018	1.0	61	0	0%	N	None
	2019	1.0	58	30	52%	N	None
	2020	n/a <sup>1</sup>					
	2021	1.0	102	26	26%	N	None
	2022	1.0	113	3	3%	N	None
	2023	1.0	111	246	222%	Y	Increase 1%

<sup>1</sup>NMFS did not evaluate the 2020 performance of the jig sectors in the Western and Central GOA because NMFS prohibited directed fishing for all Pacific cod sectors in 2020 (84 FR 70438, December 23, 2019).

## 7.2.2 Pollock

Two stocks of pollock are managed through the GOA groundfish FMP: Western/Central/West Yakutat (W/C/WYK) and Southeast Outside (SEO).

**Subsector allocations (and incidental catch set asides):** The resource is fully allocated to inshore components, barring an incidental allocation for non-pollock directed offshore fisheries. The Southeast Outside stock is small, closed to trawling, and is not allocated. In W/C/WYK, 2.5% of the ABC is allocated to the Prince William Sound pollock fishery.

**Spatial and seasonal allocations:** Subsequently, the remaining catch is allocated among statistical areas 610-Shumagin, 620-Chirikof, 630-Kodiak, and 640-West Yakutat as subarea ACLs. Areas 610, 620, and 630 are further allocated across Season A (January 20-May 31) and Season B (September 1-November 1). The overall seasonal allocation is 50% Season A (pre-spawning) and 50% Season B (post-spawning), but how this manifests across subareas varies by year. Area and seasonal allocations are based on recent acoustic and bottom trawl surveys. TAC can be transferred among subareas ([50 CFR § 679.20](#); [NPFMC 2021](#)).

**Table 3.** Area and seasonal allocations of GOA pollock in W/C/WYK for 2024.

<b>Area</b>	<b>Area (%)</b>	<b>Season A, 1/20 - 5/31 (%)</b>	<b>Season B, 9/1-11/1 (%)</b>
610 Shumagin	18.6%	14%	86%
620 Chirikof	53%	78%	22%
630 Kodiak	23.2%	27%	73%
640 West Yakutat	0.05%	N/A	N/A

### 7.2.3 Rockfish

**Spatial allocations:** The Western, Central, West Yakutat (WYK), Eastern Regulatory Areas, and Southeast Outside District (SEO) statistical regions each get individual TACs for multiple rockfish species (**Table X**). Only the Central statistical region is further allocated. The regional TACs are allocated based on either (1) the biennial GOA trawl survey or (2) both the trawl survey and longline survey for sablefish (**Table 4**) ([NPFMC 2024](#)).

**Table 4.** Spatial allocations of rockfish set based on recent survey results.

<b>Species</b>	<b>Western</b>	<b>Central</b>	<b>WYK</b>	<b>Eastern</b>	<b>SEO</b>	<b>Basis</b>
Pacific ocean perch	6.8%	80.5%	3.68%		9.02%	Trawl
Northern rockfish	53%	47%				Trawl
Shortraker rockfish	7%	40%		53%		Trawl and longline
Dusky rockfish	1.7%	97%	1%		0.3%	Trawl
Rougheye & blackspotted rockfish	23%	30%		47%		Trawl and longline
Demersal shelf rockfish <sup>+</sup>					100%	Trawl
Thornyhead rockfish	19%	43%		38%		Trawl and longline
Other rockfish* (OROX)		58%	23%		19%	Trawl and longline

+Demersal shelf rockfish include

\*Other rockfish" includes all *Sebastodes* and *Sebastolobus* species except for Pacific ocean perch, dark rockfish, northern rockfish, shortraker rockfish, and blackspotted/rougheye rockfish.

**Incidental catch set asides:** In the Central GOA, an incidental catch allowance (ICA) for catch in non-rockfish fisheries is allocated (3,500 mt of Pacific ocean perch (*Sebastodes alutus*), 300 mt of northern rockfish (*S. pollyspinis*), and 250 mt of dusky rockfish (*S. ciliatus*)). These amounts are updated annually based on recent dynamics.

**Catch shares:** Since 2012, the Central GOA rockfish fishery has been managed through a [catch share program](#) (implemented as a pilot program in 2007 and formally implemented with Amendment 88 and maintained with Amendment 111 in 2021) for groundfish License Limitation Program (LLP) holders for primary and secondary species. Primary species are pacific ocean perch, northern rockfish, and dusky rockfish. Secondary species are the following species: Pacific cod (*Gadus macrocephalus*), rougheye (*S. aleutianus*) and blackspotted rockfish (*S. melanostictus*), sablefish (*Anoplopoma fimbria*), shortraker rockfish (*S. borealis*), and thornyhead rockfish (*S. alascanus*). The non-ICA TAC is first allocated to the small-scale rockfish entry level longline fishery with set caps for primary species (northern rockfish - 2%, Pacific ocean perch - 1%, dusky rockfish - 5%). Yearly allocations can increase in set increments if entry level catch exceeds 90% of allocation in the previous year until the overall Program TAC is met for a given species. The remaining TAC is then allocated to rockfish cooperatives.

Allocations of primary species are primarily (97.5%) based on rockfish landings between 2000-2006 (best 5/7 years) or landings in the entry level trawl fishery (2.5%) in 2007, 2008, or 2009 as a part of the pilot rockfish program (Amendment 68; 2007). CV Program participants collectively also receive secondary species allocations (**Table 5**). Qualifying LLP holders join a cooperative associated with a processor, and cooperatives then receive an annual CQ for all rockfish species based on collective QS of cooperative members. Although there is no formal allocation between CV and CP, each subsector is allocated catch based on summed QS of participants across cooperatives. CQ can be transferred between cooperatives within CV and CP subsectors, and from CP sector to CV sector (except for shortraker/rougheye). Individuals are capped at 4% of CV QS and 40% of CP QS. Cooperatives are capped at 30% CV QS. Vessels are capped at 8% CQ of CV sector and 60% CQ of CP sector. Processors are capped at 30% CQ of CV sector for primary species, Pacific cod, and sablefish. Program participants also receive a portion of halibut PSC limit (References: [50 CFR 679.81](#); [50 CFR § 679.83](#); [50 CFR Appendix Table 28e](#); [McLwain and Hill 2013](#); [Bonney 2022](#); [NOAA 2021; 2023 and 2024 Harvest Specifications for GOA Groundfish](#)).

**Table 5.** Portion of secondary species CGOA TAC allocated to Rockfish Program participants by subsector.

Subsector	Pacific cod	Sablefish	Thornyhead rockfish	Rougheye rockfish	Shortraker rockfish
CV	3.81%	6.78%	7.84%	MRA may not exceed 9.72%	MRA may not exceed 9.72%
CP	MRA	3.51%	26.50%	58.87%	40%

### 7.3 BSAI King and Tanner Crabs

The [BSAI King and Tanner Crab FMP](#) was implemented in 1989 and manages four red king crab (*Paralithodes camtschaticus*) stocks, two blue king crab (*Paralithodes platypus*) stocks, two golden (brown) king crab (*Lithodes aequispinus*) stocks, one tanner crab (*Chionoecetes bairdi*) stock, and one snow crab (*Chionoecetes opilio*) stock (**Table 1**). It excludes the following stocks managed by the State of Alaska: Aleutian Islands tanner crab, Dutch Harbor red king crab, St. Matthew golden king crab, and St. Lawrence blue king crab.

**Table 1.** Properties of BSAI crab rationalization program by stock.

<b>Species</b>	<b>Stock</b>	<b>Quota share basis</b>		<b>Quota share caps</b>	
		<b>Vessels</b>	<b>Processors</b>	<b>Owners</b>	<b>Crew</b>
Red king crab	Aleutian Islands	1992-1995	1996-1999	10%	20%
Red king crab	Bristol Bay	1996-2000	1997-1999	1%	2%
Red king crab	Pribolof Island	1994-1998	1996-1998	2%	4%
Red king crab	Norton Sound	<i>Rationalization program does not apply</i>			
Blue king crab	St. Matthew Island	1994-1998	1996-1998	2%	4%
Blue king crab	Pribolof Island	1994-1998	1996-1998	2%	4%
Golden king crab	Aleutian Islands	1996-2000	1996-1999	10%	20%
Golden king crab	Pribolof Island	<i>Rationalization program does not apply</i>			
Tanner crab	Eastern Bering Sea	1991-1996	1997-1999	1%	2%
Snow crab	Eastern Bering Sea	1996-2000	1997-1999	1%	2%

**Catch shares:** In 2005-2006, the NPFMC proposed the BSAI Crab Rationalization Program (CRP) to “allocate crab resources among harvesters, processors, and coastal communities for nine BSAI crab fisheries (Amendment 18-19 of FMP).” The CRP allocates 90% of stocks to IFQs and 10% to community development quota (CDQ) programs and the Adak Community Development Corporation (ACDC) (**Table 2**). The ACDC and CDQ programs are both managed by ADF&G. CDQs existed before crab rationalization, but rationalization changed the CDQ program and established the ACDC because Adak was not a CDQ community. Almost all CDQ harvest is fished jointly with IFQs, but IFQ is not necessary to participate in CDQ.

In the case of crab rationalization, initial quota shares (QS) were vessel based and issued to license holders based on crab landings by vessel owners (both catcher vessels and catch processors) and crew in qualifying years that vary by stock (**Table 1**). Initial QS for processors was based on three year averages for processing history, and also varied by species. To receive QS, participants needed to be active as of June 2002. Class A shares went to catcher vessel owners (CVO), and restricts landings to processors with a QS. Class B shares also went

to CVO, but with no delivery requirements. Class C went to crew that made landings with an Interim Use Permit (catcher vessel crew (CVC) or catcher-processor crew (CPV)), and made up 3% of all QS in the fishery. CV QS are region specific (North vs. South of 56°20'N). Now, QS can only be obtained through transfers from quota holders. IFQ is calculated annually based on QS. Vessel QS is capped between 1-10%, varying by stock, but initial allocations above this limit are grandfathered in. Processor QS is capped at 5%, but again, initial allocations above this limit are grandfathered in. IFQ caps are two times the QS ownership cap, and apply to vessels that are not a part of the voluntary cooperative program. With approval, those with QS can pool IFQ into cooperatives with processors. IFQ can also be leased, or used on a vessel that the QS owner holds less than 10% of ownership of, or on a vessel where the QS owner is not present. There is a crew loan program to assist crew and captains in buying harvestable amounts of QS. See stock specific details below.

**Table 2. CDQ and ACDC catch allocations for all BSAI stocks (*Annual management report for shellfish fisheries of the Bering Sea*).**

Table 32.—Community Development Quota (CDQ) and Adak Community Allocation (ACA) program percent allocation by fishery to each group, 2003–2018/19.

Fishery	Percent allocation by group <sup>a</sup>						
	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA	ACDC
Bristol Bay Red King Crab	17	19	10	18	18	18	0
Pribilof Red & Blue King Crab	0	0	100	0	0	0	0
St. Matthew Blue King Crab	50	12	0	12	14	12	0
Norton Sound Red King Crab	0	0	0	0	50	50	0
Eastern Bering Sea Tanner Crab	10	19	19	17	18	17	0
Western Bering Sea Tanner Crab	10	19	19	17	18	17	0
Bering Sea Snow Crab	8	20	20	17	18	17	0
Aleutian Islands Red King Crab (west of 179° W long) <sup>b</sup>	8	18	21	18	21	14	0
Eastern Aleutian Islands Golden King Crab (east of 174° W long) <sup>b</sup>	8	18	21	18	21	14	0
Western Aleutian Islands Golden King Crab (west of 174° W long)	0	0	0	0	0	0	100

<sup>a</sup> APICDA (Aleutian Pribilof Island Community Development Association).

BBEDC (Bristol Bay Economic Development Corporation).

CBSFA (Central Bering Sea Fishermen's Association).

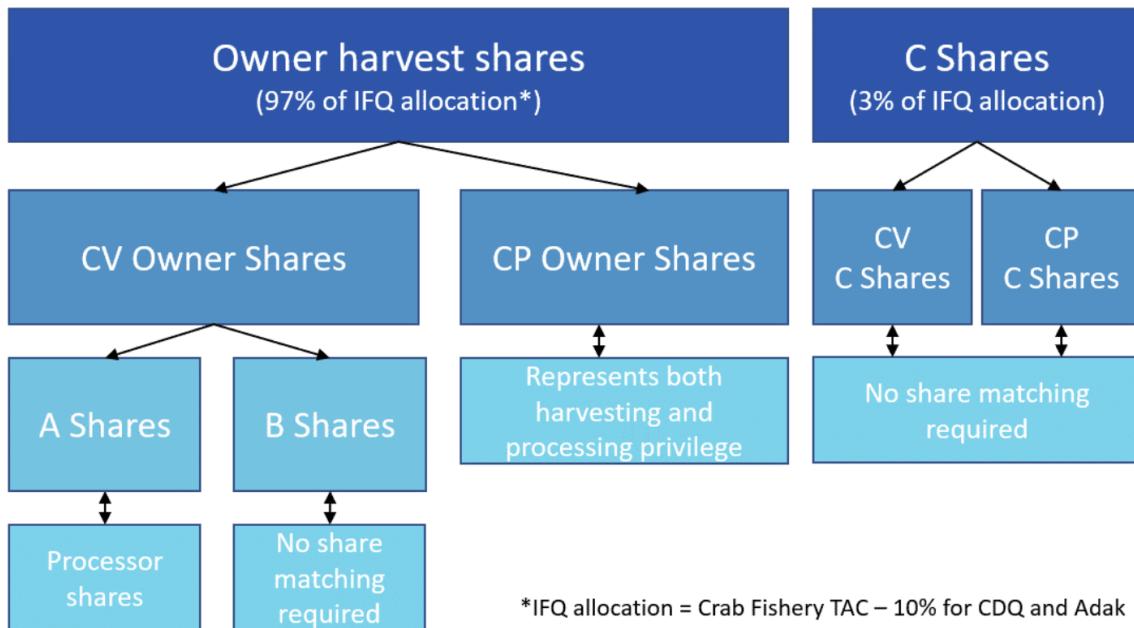
CVRF (Coastal Villages Region Fund).

NSEDC (Norton Sound Economic Development Corporation).

YDFDA (Yukon Delta Fisheries Development Association).

ACDC (Adak Community Development Corporation).

<sup>b</sup> Aleutian Islands red king crab west of 179° W long and Eastern Aleutian Islands golden king crab east of 174° W long were not part of the CDQ program until the initiation of crab rationalization in the 2005/06 season.



**Figure 1.** Allocation of crab TAC within crab rationalization program ([NPFMC website](#)).

### 7.3.1 Red king crab

**Aleutian Islands:** Western AI Red King Crab (west of 171°W) is managed by two districts, east (Adak) and west (Petrel) of 179°W. This fishery was not a part of the CDQ program until rationalization. Initial vessel QS based on best three years of landings between 1992/93-1995/96 (four seasons). Initial QS for processors based on 1996/97-1999/2000. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 10.0% of initial QS pool. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 20.0%.

**Bristol Bay:** Bristol Bay red king crab follows typical rationalization rules. Initial vessel QS based on best four seasons between 1996-2000. Initial processor QS based on processing 1997-1999. Fishing for the Bristol Bay stock was closed for the 2021/2022 and 2022/2023 fishing seasons however, the fishery opened for the 2023-2024 season. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 1.0% of initial QS pool. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 2.0%.

**Pribilof Island:** Fishing of red king crab has been closed in Pribilof region since 1999 to avoid bycatch of blue king crab. However, if it were to reopen, fishery follows typical rationalization rules. Initial vessel QS based on dropping one season between 1994-1998. Initial processor QS based on processing 1996-1998. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 2.0% of initial QS pool. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 4.0%.

**Norton Sound:** The crab rationalization program does not apply to the Norton Sound red king crab fishery, as king crab in this region is already managed through an exclusive permit

program that prohibits participants from participating in any other BSAI crab fisheries. CDQ receives 7.5% of total commercial guideline harvest level, and this quota share can be caught in summer (on or after June 15 - ~August) and winter (~November 15-May 15, opening varies year to year) seasons. As of 2017, the BOF responded to the surge in nearshore winter commercial harvest by allocating 8% of total commercial guideline harvest level to the winter commercial fishery (small fishery using hand lines and pots). If the winter commercial fishery does not catch their allocation, this allocation rolls over to open access summer fishery.

### 7.3.2 Blue king crab

**St. Matthew:** Fishery follows typical rationalization rules. Initial vessel QS based on dropping one season between 1994-1998. Initial processor QS based on processing 1996-1998. The fishery closed in 2023-2024. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 2.0% of initial QS pool.. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 4.0%.

**Pribilof Island:** Fishing of blue king crab has been closed in Pribilof region since 1999 . However, if it were to reopen, fishery follows typical rationalization rules. Initial vessel QS based on dropping one season between 1994-1998. Initial processor QS based on processing 1996-1998. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 2.0% of initial QS pool. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 4.0%.

### 7.3.3 Golden king crab

**Aleutian Island:** AI Golden King Crab is managed east (Dutch Harbor) and west (Adak) of 174°W longitude with a separate TAC for each area. East of 174°, the stock is allocated between IFQs (90%) and CDQ (10%). West of 174°, the stock is allocated between IFQs (90%) and Adak Community Allocation (ACA) (10%). Initial vessel QS is based on landings between 1996/97-2000/01 (all five seasons), and is regionally specific (Dutch Harbor (EAI) vs. Adak western AI)). Initial QS for processors was based on processing in 1996/97 - 1999/2000. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 10.0% of initial QS pool. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 20.0%.

**Pribolof Islands (no allocations):** The crab rationalization program does not apply to the Pribilof Islands golden king crab fishery. This stock is not allocated.

### 7.3.4 Tanner crab

**Eastern Bering Sea:** BS Tanner Crab is managed as two separate fisheries, east and west of 166°W, and has a separate TAC for each fishery. The Tanner crab fishery follows typical rationalization rules. Initial vessel QS based on best four seasons between 1991/92-1996 (out of six), and is regionally specific (east of 166°W vs. west of 166°W). Initial QS for processors based on 50% Bristol Bay red king and 50% EBS snow crab processing between 1997-1999. The Catcher Vessel Owner and Catcher Processor Owner (CVO/CPO) use cap is 1.0% of initial QS pool. The Catcher Vessel Crew and Catcher Processor Crew (CVC/CPC) use cap is 2.0%.

### 7.3.5 Snow crab

**Eastern Bering Sea:** BS snow crab follows typical rationalization rules. Initial vessel QS based on best four seasons between 1996-2000. Initial processor QS based on processing 1997-1999. Directed fishery closed in 2022-2023, and 2023-2024. The CVO/CPO use cap is 1.0% of the initial QS pool. The CVC/CPC use cap is 2.0%.

### References

- [Norton Sound Commercial Red King Crab Fishery Guideline Harvest Level Set 2024](#)
- [2015 NORTON SOUND SUMMER COMMERCIAL RED KING CRAB OUTLOOK](#)
- [Red King Crab | NOAA Fisheries](#)
- [2023 norton sound summer commercial king crab fishery to open](#)
- [Law | LII / Legal Information Institute](#)
- [Norton Sound Red King Crab SAFE Report 2022](#)
- [BSAI Crab Rationalization Program | North Pacific Fishery Management Council](#)
- [BSAI Crab Rationalization Program Frequently Asked Questions and Small Entity Compliance Guide](#)
- [The Community Development Quota Program in Alaska | The National Academies Press](#)
- [5 AAC 34.915 - Norton Sound Section red king crab harvest strategy | State Regulations | US](#)
- [Norton Sound Red King Crab SAFE Report 2022](#)
- [Annual management report for shellfish fisheries of the Bering Sea/Aleutian Islands Management Area, 2021/22.](#)
- [Western Aleutian Islands Red King Crab SAFE 2020](#)
- [Aleutian Islands Golden King Crab Stock Assessment SAFE Report 2023](#)

### 7.4 Salmon

The [NPFMC Salmon FMP](#) was implemented in 1979 and was comprehensively revised in 1990 and again in 2011.

**International allocations:** As fish that originate in one EEZ are often fished in another, the U.S. and Canada entered into the [Pacific Salmon Treaty](#) in 1985 to coordinate management efforts. However, the original Treaty did not reflect a true compromise between Canada and the U.S. on whether rights to fish should be based on origin (Canada) or current location (U.S.). In 1999, continued negotiations led to an eventual compromise setting harvest rates by stock abundances ([Anderson et al. 2022](#)). A number of transboundary stocks have a transboundary TAC set by the Pacific Salmon Commission. As a few examples, the U.S. has a 25.7% share of the Fraser River pink salmon TAC, 16.5% share of the TAC of Fraser River sockeye, 50% of Stikine River sockeye salmon. Allocations vary by estimated run size and enhancement success.

**Sector and subsector allocations:** The NPFMC delegates the regulatory authority for implementing the FMP to the Alaska Department of Fish and Game (ADF&G) because the large majority of salmon fishing occurs within state waters. Allocation policies follow those set by the

Alaska Board of Fisheries. For Chinook salmon, an annual harvest ceiling (AHC) is established by the Pacific Salmon Commission under the Pacific Salmon Treaty. First, the AHC is allocated to purse seines (4.3%), drift gillnets (2.9%), and set gillnets (1,000 mt). Then, the remaining portion of the harvest ceiling (~92%) is allocated between the troll fishery (80%) and the sport fishery (20%). If the net and sport sectors are aiming for underage, the Board can reallocate a portion to the troll fishery. For coho salmon, ADF&G aims to maintain allocations of coho salmon in the Southeastern Alaska and Yakutat commercial salmon fisheries at traditional levels (1971 through 1980) of 61% troll, 19% purse seine, 13% drift gillnet, and 7% set gillnet. Coho near Dixon Entrance are managed in coordination with Canada under the Pacific Salmon Treaty.

(References: [5 AAC 29.060](#); [McDorman 2009](#); [Emery 1919](#); [Bennet 2018](#); [Kwong 2018](#); [Woolsey 2018](#); [FAO Miller](#)).

## 7.5 Scallop

The [NPFMC Scallop FMP](#) was implemented in 1995 and governs the management of scallop fisheries in nine management zones (scallop registration areas) off the coast of Alaska. The fishery is co-managed by ADF&G and the NPFMC. The FMP covers weathervane scallops (*Patinopecten caurinus*), which are targeted in the fishery, and other scallop species that are not targeted. The FMP does not formally allocate scallop catch. However, in 2000, six of the nine scallop permit owners voluntarily created the Weathervane Scallop Cooperative with the goal of extending the season, reducing bycatch, and reducing the race to fish ([Brawn and Scheirer 2008](#)). The cooperative does not receive an allocation of the scallop harvest, but regulates vessel allocations of members within the guideline harvest limit set by ADF&G in addition to crab bycatch. The cooperative negotiates allocations of both scallop and crab bycatch annually after setting aside a reserve for non-cooperative vessels. Annual allocation is frequently leased from permit holders with cooperative allocation to other vessels in the cooperative.

## 7.6 Arctic Fish Resources

There are no fisheries currently authorized to operate in the Arctic; thus, there are no allocation policies. However, the FMP specifies rules for if and when commercial fisheries are authorized.

## 7.7 Prohibited Species

Table X. 2017 allocation percentages of prohibited species TAC for CDQ. From [The Western Alaska Community Development Quota Program](#).

Table 4. 2017 Prohibited Species CDQ and allocation percentages

Prohibited Species in Groundfish Fisheries	2017 TAC (numbers)	Program allocations	CDQ Reserve (numbers)	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA
Zone 1 Red King Crab	97,000	10.7%	10,379	24%	21%	8%	12%	12%	23%
Zone 1 Bairdi Tanner Crab	830,000	10.7%	88,810	26%	24%	8%	8%	8%	26%
Zone 2 Bairdi Tanner Crab	2,070,000	10.7%	221,490	24%	23%	8%	11%	10%	24%
COBLZ Opilio Tanner Crab	9,105,477	10.7%	974,286	25%	24%	8%	10%	8%	25%
Pacific Halibut	2,805	varies	315	22%	22%	9%	12%	12%	23%
BS Chinook Salmon (A Season)	42,000	9.3%	3,906	14%	21%	5%	24%	22%	14%
BS Chinook Salmon (B Season)	18,000	5.5%	990	14%	21%	5%	24%	22%	14%
BS Chinook Salmon (Total)	60,000	8.2%	4,896	14%	21%	5%	24%	22%	14%
Al Chinook Salmon	700	7.5%	53	14%	21%	5%	24%	22%	14%
Non-Chinook Salmon	42,000	10.7%	4,494	14%	21%	5%	24%	22%	14%

For Review Only

## 8. Western Pacific

The WPFMC replaced its five species-based Fishery Management Plans (FMPs) with five place-based Fishery Ecosystem Plans (FEPs) in 2009. These FEPs direct management for the following ecosystems: American Samoa Archipelago, Hawaii Archipelago, Mariana Archipelago, Pacific Remote Island Areas, and Pacific Pelagic Fisheries.

None of the FEPs include explicit catch allocations although some stocks are managed using commercial and non-commercial Annual Catch Limits, which are a form of implicit allocation. The Western and Central Pacific Fisheries Commission (WCPFC), a regional fishery management organization, allocates catch for some highly migratory pelagic species to member countries, but the WPFMC does not perform any allocation itself.

FEP	Species	Allocation policy
American Samoa Archipelago	Bottomfish complex	None
Hawaii Archipelago	Deep 7 bottomfish complex, Uku, Crustaceans, Precious corals	None
Guam (Mariana Archipelago)	CNMI shallow/deepwater bottomfish complexes and Guam shallow/deepwater bottomfish complex	None
Pacific Remote Island Areas	Limited fishing occurs.	None
Pacific Pelagic	Tunas, billfishes, sharks, other pelagics	None; Development of international allocations are managed through collaboration with the Western and Central Pacific Fisheries Commission (WCPFC)