

Scoping Document

Gear Considerations in Atlantic Highly Migratory Species Fisheries

MAY 2024



**NOAA
FISHERIES**

Table of Contents

1. Introduction.....	1
2. Purpose, Need, and Objectives.....	2
3. Background and Range of Potential Options.....	3
3.1 Buoy gear	3
3.1.1 Background.....	3
3.1.2 Range of Potential Options.....	7
3.2 Deep-Set Pelagic Longline.....	11
3.2.1 Background.....	11
3.2.2 Range of Potential Options.....	13
3.3 Bait collection net restrictions.....	16
3.3.1 Background.....	16
3.3.2 Range of Potential Options.....	16
3.4 Speargun.....	18
3.4.1 Background.....	18
3.4.2 Range of Potential Options.....	19
4. References	21

List of Tables

Table 1. Stock Status	3
Table 2. Vessels reporting the use of buoy gear by area and year	5
Table 3. Average number of buoys deployed per trip by year	5
Table 4. Reported swordfish landings (lb dw) in the buoy gear fishery by area and year	6
Table 5. Reported catch and bycatch (number) by year across all areas	6
Table 6. Number of trips using buoy gear by hook and region, 2016-2022	11

List of Figures

Figure 1. Typical U.S. buoy gear	4
Figure 2. Typical U.S. pelagic longline gear	12
Figure 3. Example of deep-set pelagic longline gear	13

List of Acronyms

AP	Advisory Panel
ATCA	Atlantic Tunas Convention Act
BAYS	Bigeye, Albacore, Yellowfin, and Skipjack tuna (i.e., the BAYS tunas)
CFR	Code of Federal Regulations
FMP	Fishery Management Plan
FR	Federal Register
HMS	Highly Migratory Species
ICCAT	International Commission for the Conservation of Atlantic Tunas
LAP	Limited Access Permit
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
SAFE	Stock Assessment and Fishery Evaluation
SCUBA	Self-contained underwater breathing apparatus
VHF	Very High Frequency
VMS	Vessel Monitoring System

1. Introduction

Atlantic Highly Migratory Species (HMS¹) fisheries are managed under the 2006 Consolidated HMS Fishery Management Plan (FMP) and its amendments, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; 16 U.S.C. 1801 *et seq.*) and consistent with the Atlantic Tunas Convention Act (ATCA; 16 U.S.C. 971 *et seq.*). HMS implementing regulations are at 50 CFR part 635. Under the Magnuson-Stevens Act, conservation and management measures must prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery (16 U.S.C. § 1851(a)(1)). Where a fishery is determined to be in or approaching an overfished condition, the National Marine Fisheries Service (NMFS) must adopt conservation and management measures to prevent or end overfishing and rebuild the fishery (16 U.S.C. §§ 1853(a)(10) and 1854(e)). In addition, NMFS must, among other things, comply with the Magnuson-Stevens Act's 10 National Standards, including a requirement to use the best scientific information available as well as to consider potential impacts on residents of different States, efficiency, costs, fishing communities, bycatch, and safety at sea (16 U.S.C. § 1851(a)(1-10)). Under ATCA, the Secretary (through NMFS) shall promulgate regulations as may be necessary and appropriate to carry out binding recommendations adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT).

Since the 1999 Federal Fishery Management Plan (FMP) for Atlantic Tunas, Swordfish, and Sharks and Amendment 1 to the Atlantic Billfish FMP (64 FR 29090: May 28, 1999), NMFS has implemented a wide-range of management measures specific to fishing gear in order to comply with the Magnuson-Stevens Act and ATCA. These management measures were designed to, among other things, prevent or stop overfishing and to minimize bycatch to the extent practicable. "Bycatch" in fisheries is a term that generally refers to discarded fish or interactions between fishing operations and protected species. Under the Magnuson-Stevens Act, bycatch is specifically defined as fish that are harvested in a fishery, but that are not sold or kept for personal use, and includes both economic and regulatory discards (16 U.S.C. § 1802(2)). Many of these management measures included restrictions on fishing gear to reduce impacts on bycatch species, increase post-release survivability, limit the use of some gears to reduce lost and derelict gear, and meet other objectives as necessary. While each of these management measures helped achieve fishery management and conservation goals, the combination of over two decades of gear-specific measures may have had unanticipated consequences given the many changes in species distributions, fishing gears, fishing techniques, market conditions, and fishing interests that have occurred. These unanticipated consequences could include limiting fishing opportunities, which in turn may limit the ability to achieve optimum yield in the fisheries. Additionally, these unanticipated consequences may reduce the ability of fishermen to adjust their fishing techniques to account for a changing environment and changing species

¹ The Magnuson-Stevens Act, at 16 U.S.C. 1802(14), defines the term "highly migratory species" as tuna species, marlin (*Tetrapturus* spp. and *Makaira* spp.) oceanic sharks, sailfishes (*Istiophorus* spp.), and swordfish (*Xiphias gladius*). Further, the Magnuson-Stevens Act, at 16 U.S.C. 1802(27), defines the term "tunas species" as albacore tuna (*Thunnus alalunga*), bigeye tuna (*Thunnus obesus*), bluefin tuna (*Thunnus thynnus*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*Thunnus albacares*).

distributions and/or to modify their gear to be more efficient or less likely to catch non-target species. NMFS anticipates potential changes to gear regulations and requirements in fisheries targeting HMS through a future rulemaking. After the analysis of any public comment received, NMFS will determine whether it will be necessary to proceed with preparation of a draft environmental impact analysis (environmental assessment or environmental impact statement) along with a proposed rule.

The purpose of this scoping document is to consider potential changes to gear regulations in HMS fisheries and to solicit public comment on the range of options presented as well as additional ideas that could provide increased flexibility and still meet applicable goals. The comments received will help develop options to be considered in a future rulemaking. Most of the options outlined in this document are the result of public or HMS Advisory Panel (AP) comments and suggestions. Those options are presented here for additional public input and NMFS invites additional suggestions, beyond those presented in this document, for changes to gear regulations that could increase flexibility and efficiency while still achieving fishery management and conservation goals.

Any written comments on this document should be submitted to NMFS via the Federal e-Rulemaking Portal (NOAA-NMFS-2024-0050) by July 31, 2024. For further information, contact Steve Durkee, Guy DuBeck, Becky Curtis or Karyl Brewster-Geisz at (301) 427-8503.

2. Purpose, Need, and Objectives

The purpose of this scoping document is to consider potential changes to the gear regulations in HMS fisheries and to solicit public comment on the range of these potential options. The options being considered may address some of the unanticipated consequences that may have occurred as a result of the many changes in species distributions, fishing gears, fishing techniques, market conditions, and fishing interests that have happened over the years.

The objectives of this scoping document are to present options and solicit public comment on gear regulations that could:

- Provide increased flexibility in targeting HMS while maintaining consistency with management and conservation goals, and other domestic fishery regulations and international agreements.
- Consider regulatory changes to facilitate fishing for swordfish deeper in the water column where data collection in some other swordfish fisheries has demonstrated high catch rates of swordfish and lower rates of bycatch.
- Reduce conflict between newer and more established fishing gears and techniques.
- Consider authorization of additional species for certain gears.
- Consider authorization of gears under additional permit types.
- Address gear regulation inconsistencies across HMS and non-HMS fisheries.

3. Background and Range of Potential Options

In this section, NMFS provides background information and sets out a broad range of options to revise management measures. The comments received will assist us in determining the appropriate level of analysis needed for any future proposed rule that could include one or more of the options described below. Any future rulemaking would provide additional opportunities for public comment.

To provide context for the range of potential options, Table 1 provides stock status information for many of the species discussed in this document. See the 2022 Stock Assessment and Fishery Evaluation (SAFE) Report for more information (NMFS 2022).

Table 1. Stock Status

Species	Overfished status	Overfishing status
North Atlantic swordfish	Not overfished	No overfishing occurring
Atlantic bigeye tuna	Overfished	No overfishing occurring
North Atlantic albacore tuna	Not overfished	No overfishing occurring
Atlantic yellowfin tuna	Not overfished	No overfishing occurring
Western Atlantic skipjack tuna	Not overfished	No overfishing occurring

3.1 Buoy gear

3.1.1 Background

Buoy gear is defined in the regulations at 50 CFR 635.2 as a handgear and is authorized in regulations at 50 CFR 635.4 for use under certain fishing permits for swordfish, as described below. The commercial handgear swordfish fishery exists chiefly off the east coast of Florida but also occurs in other locations of the Atlantic, Gulf of Mexico, and U.S. Caribbean. Buoy gear is generally used at night when swordfish are near the water's surface, although it is increasingly being used during the day with deeper sets when swordfish are found at deep depths.

Buoy gear consists of one or more floatation devices supporting a single mainline, to which no more than two hooks or gangions are attached (Figure 1) (50 CFR 635.2). Authorized permit holders may not possess or deploy more than 35 floatation devices and may not deploy more than 35 individual buoy gears per vessel (50 CFR 635.21(g)). Buoy gear must be constructed and deployed so that the hooks and/or gangions are attached to the vertical portion of the mainline. Floatation devices may only be attached to one end of the mainline,

and no hooks or gangions may be attached to any floatation device or horizontal portion of the mainline. If more than one floatation device is attached to a buoy gear, no hook or gangion may be attached to the mainline between them. Individual rigs of buoy gear may not be linked, clipped, or connected together in any way. Buoy gear must be released and retrieved by hand. All deployed buoy gear must have some type of affixed monitoring equipment, such as radar reflectors, beeper devices, lights, or reflective tape. If only reflective tape is affixed, the vessel deploying the buoy gear must possess on board an operable spotlight capable of illuminating deployed floatation devices. If a gear monitoring device is positively buoyant and rigged to be attached to a fishing gear, it is included in the 35-floatation device vessel limit and must be marked appropriately.

Buoy gear is primarily used by fishermen holding a Swordfish Handgear limited access permit (LAP) and may also be used aboard vessels issued a Swordfish Directed LAP (along with an Atlantic Tunas Longline permit and a Shark Directed or Shark Incidental LAP). There were approximately 82 Swordfish Handgear permits and 177 swordfish directed permits in 2021 (NMFS 2022). When used with these permits, buoy gear is authorized for swordfish fishing only. An HMS Commercial Caribbean Small Boat permit (valid only in the U.S. Caribbean) is another permit option that authorizes fishermen in the U.S. Caribbean to fish for and retain swordfish using buoy gear. Fishermen operating in the U.S. Caribbean under a Commercial Caribbean Small Boat permit may also retain a limited number of Atlantic Bigeye, Northern Albacore, Yellowfin and Skipjack Tuna (BAYS) tunas. Fishermen in the U.S. Caribbean should also be aware of territorial fishing permits and other requirements that may apply.

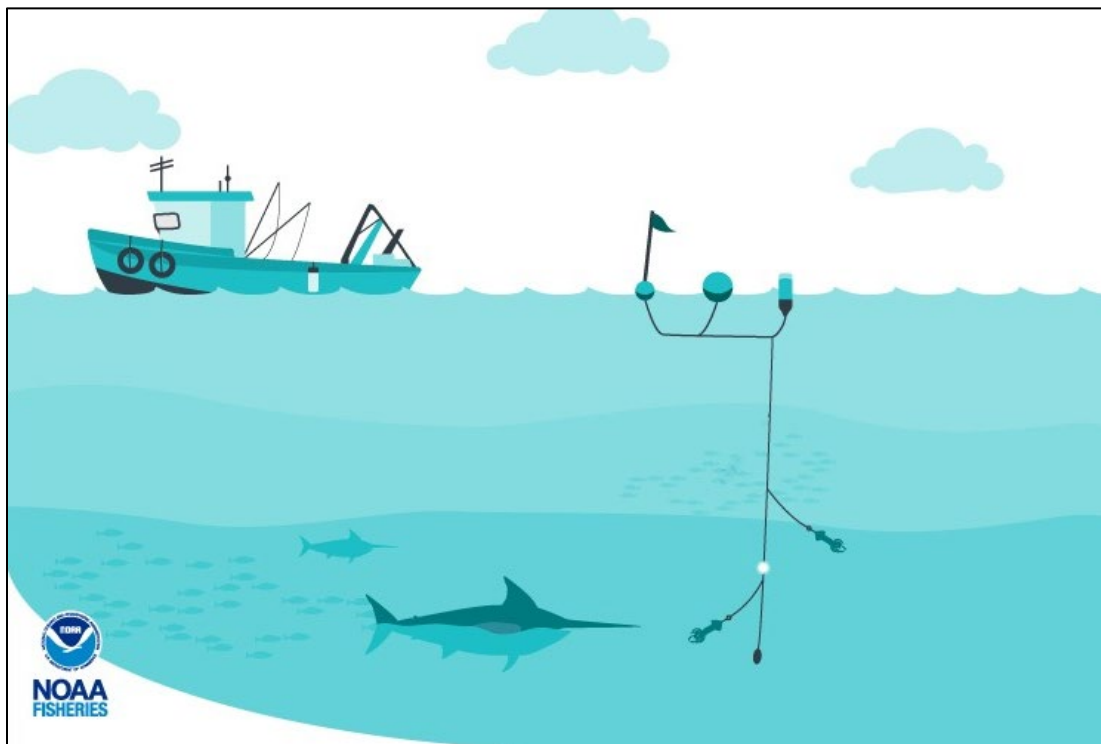


Figure 1. Typical U.S. buoy gear

The use of buoy gear is largely concentrated off the east coast of Florida, particularly south of Cape Canaveral. As of 2022, the buoy gear fishery had 62 active vessels, based primarily in southeastern Florida (Table 2). Buoy gear is occasionally used in other areas, specifically off the west coast of Florida and Louisiana in the Gulf of Mexico and Massachusetts and North Carolina in the Atlantic. The gear is also used in the U.S. Caribbean but data on buoy gear use in that area are sparse. The swordfish buoy gear fishery is likely concentrated in the South Florida area for two reasons. First, prime swordfish habitat (deep oceanic water and the Gulf Stream) is close to the South Florida coast, an area with a highly concentrated human population where fishermen are numerous. In other areas, swordfish habitat is further from shore, requiring longer transit times to reach fishing grounds. Second, and relatedly, horsepower upgrade restrictions attached to the Swordfish Handgear LAPs, the predominant permit used in the fishery, limit the ability of vessels to reach offshore fishing grounds. When buoy gear is used to target swordfish outside of the South Florida region, fewer buoys are deployed per trip (Table 3).

Table 2. Vessels reporting the use of buoy gear by area and year

Area	Vessels/Trips	2016	2017	2018	2019	2020	2021	2022
Florida - East Coast	Vessels	38	32	37	53	54	50	51
	Trips	325	241	459	761	792	796	746
Other (Florida - West Coast, Massachusetts, North Carolina, and Louisiana)	Vessels	4	5	7	7	10	11	11
	Trips	12	10	22	13	29	38	28

Source: Fisheries Logbook System.

Table 3. Average number of buoys deployed per trip by year

Area	2016	2017	2018	2019	2020	2021	2022
Florida - East Coast	24	24	25	26	29	30	32
Other (Florida - West Coast, Massachusetts, North Carolina, and Louisiana)	13	12	15	10	13	15	12

Source: Fisheries Logbook System.

Swordfish catch in the buoy gear fishery is similarly concentrated in the South Florida region (Table 4). Regardless of fishing location, buoy gear appears to have low rates of bycatch and incidental catch. Based on fisheries logbook data, for 2016 through 2022, swordfish made up over 80 percent of buoy gear catch by numbers with no catch of protected resources (Table 5). These low bycatch rates were also observed during the Deepwater Horizon Oceanic Fish Restoration Project. This project tested alternative gear types in the Gulf of Mexico, including buoy gear, and found that dead discard rates in

alternative gear types, including buoy gear, were significantly lower than pelagic longline dead discard rates (Kersetter 2020). Additionally, high selectivity for swordfish off the southern coast of California has been shown to be associated with the daytime use of deep-set gear (Sepulveda and Aalbers 2018, Sepulveda et al. 2014). Sepulveda and Aalbers (2018) demonstrated that over 80 percent of catch was swordfish, (a higher selectivity than longline and drift gillnet fisheries), while approximately 16 percent was bigeye thresher shark which was either marketed, or rest released alive.

Table 4. Reported swordfish landings (lb dw) in the buoy gear fishery by area and year

Area	2016	2017	2018	2019	2020	2021	2022
Florida - East Coast	91,554	75,933	181,895	297,244	296,939	363,018	288,571
Other (Florida-West Coast, Massachusetts, North Carolina, and Louisiana)	1,806	1,310	4,287	1,718	11,282	7,773	5,940
Total	93,360	77,243	186,182	298,962	308,221	370,791	294,511

Source: Fisheries Logbook System.

Table 5. Reported catch and bycatch (number) by year across all areas

Species	2016	2017	2018	2019	2020	2021	2022	Total	Percent of Total
Swordfish	1,794	1,765	3,978	5,515	5,152	5,981	5,198	29,383	84.1%
BAYS tunas	0	1	10	4	13	332	336	726	2.1%
Bluefin tuna	0	0	1	0	0	0	0	1	<0.1%
Pelagic sharks	12	12	7	15	20	490	216	772	2.2%
Large coastal sharks	29	32	112	207	343	801	596	2,120	6.1%
Prohibited sharks (predominantly live release of night and white sharks - 77%)	62	39	16	61	166	310	219	873	2.5%
Billfish	0	1	0	4	9	0	0	14	<0.1%
Other (predominantly blackfin tuna and dolphinfish - 22% and 64%)	111	58	92	156	145	475	27	1,067	3.1%
Marine Mammals	0	0	0	0	0	0	0	0	0%
Sea Turtles	0	0	0	0	0	0	0	0	0%

Source: Fisheries Logbook System.

NMFS authorized buoy gear in the commercial swordfish handgear fishery in the final rule

for the 2006 Consolidated HMS FMP (71 FR 58058, October 2, 2006). Prior to that action, buoy gear was not defined separately from other handline gears and was subject to the same restrictions as other handline gears including a two-hook limit and a requirement to retrieve the gear by hand. A separate “buoy gear” definition was necessary as the 2006 Consolidated HMS FMP modified the “handline” definition to require that the gear be attached to a vessel (50 CFR 635.2). Buoy gear is fished unattached to the vessel and free-floating. The commercial swordfish fishery became the only fishery at the time in which free floating handlines were authorized. Under the 2006 Consolidated HMS FMP, buoy gear fishermen were limited to 35 floatation devices, two hooks per piece of gear, and retrieval by hand only. The two-hook limit and hand-retrieval requirements are in place largely to remain consistent with other handline requirements and to distinguish buoy gear from pelagic longline, however, these measures in combination with the 35-buoy limit also serve to ensure fishermen could properly monitor the floating gear. At the time of authorization, buoy gear was relatively new, catch data were sparse, and ecological impacts were not clear.

3.1.2 Range of Potential Options

Option A1 – No action. Maintain current buoy gear regulations

Under this option, NMFS would maintain the current buoy gear regulations as described above.

Pros

- This option would maintain the current regulations and would not require compliance changes for the affected community.

Cons

- This option would not be responsive to some public comments to provide additional flexibility in gear configurations across all regions to better facilitate the trend in the swordfish fishery of fishing at deeper depths.
- The status quo would not provide added regulatory flexibility to facilitate deep-set buoy gear which research indicates can be high in target catch of swordfish and low in bycatch rates.

Option A2 – Authorize the use of power assistance (e.g., hydraulic, electric) for buoy gear

Option A2 considers authorizing the use of power (e.g., hydraulic, electric) assistance as an option for retrieving buoy gear mainline, similar to electric reels used with rod and reel or hydraulic power used with bandit rigs. The current hand deployment and retrieval requirement has been in place since buoy gear was authorized in the swordfish fishery in 2006 and the requirement was implemented because prior to 2006, buoy gear was categorized as handline, which was deployed and retrieved by hand. This requirement separated it from other gear types that can be retrieved by power assistance (i.e., pelagic or bottom longline). While it has always been possible, albeit difficult, to fish buoy gear by

hand at deep depths, there has been increased interest in fishing buoy gear at deeper depths for swordfish. Authorization of power assistance would apply to Swordfish Directed and Swordfish Handgear LAPs fishermen targeting swordfish and HMS Commercial Caribbean Small Boat permit holders targeting swordfish and BAYS tunas in the U.S. Caribbean. Under this option, NMFS could also consider additional gear requirements to limit increases in effort, such as reducing the maximum number of individual pieces of buoy gear (10 to 20 instead of 35) or a maximum of one hook per buoy (instead of two) when using power assistance to retrieve gear.

Pros

- Allowing power assistance for retrieving buoy gear could provide additional flexibility in how buoy gear is used, which could increase the use of buoy gear across the management area.
- This option may facilitate increased effort in the swordfish handgear fishery and could result in increased harvest of swordfish. The U.S. quota for the North Atlantic swordfish stock has been underharvested for several years.
- Data collected from deep-set buoy gear fisheries have demonstrated low bycatch rates.

Cons

- Authorizing power assistance could increase fishing effort with buoy gear. If this fishing effort continues to focus off the east coast of Florida, the increased effort could result in additional gear conflict between buoy gear and other gear types operating in the area (*e.g.*, recreational rod and reel), particularly in the southeastern Florida region.
- Although bycatch associated with buoy gear appears to be low, increased efforts with this gear type in areas where it isn't used currently could increase bycatch.

Option A3 – Authorize the use of buoy gear for Swordfish General Commercial permit holders

Option A3 considers authorizing the use of buoy gear to target swordfish under the open access Swordfish General Commercial permit. In 2021, there were a total of 701 Swordfish General Commercial Permits (NMFS 2022). Currently, buoy gear is only authorized for use under the Swordfish Directed LAP, Swordfish Handgear LAP, or a Commercial Caribbean Small Boat permit. Since two of the permits are limited access and the Commercial Caribbean Small Boat permit is only valid in the U.S. Caribbean, the use of buoy gear is limited to the current number of permit holders. This option would not change the current retention limits of the Swordfish General Commercial permit. This means that the default swordfish retention limit in the Florida Swordfish Management Area, which covers the east coast of Florida and the Florida straits south of approximately Cocoa Beach, Florida, would remain at zero fish. This option in combination with Option A4, which considers the retention of BAYS tunas caught on buoy gear, the BAYS retention limit would also be zero in the Florida Swordfish Management Area.

Pros

- Expanded use of buoy gear under an open access permit could increase opportunities to commercially fish for swordfish and possibly increase swordfish landings. The U.S. quota for the North Atlantic swordfish stock has been underharvested for several years.
- Authorizing buoy gear under the Swordfish General Commercial permit could increase fishing opportunities outside of the southeastern Florida area where use of the gear is currently concentrated. Constituents in that area have been hesitant to support expanded use of buoy gear due to gear conflict concerns. The Swordfish General Commercial permit has a zero swordfish retention limit in the Swordfish Management Area (which included southeastern Florida) so any increased buoy gear usage under this permit would not result in increased effort in the southeastern Florida area.
- This option is not likely to negatively impact the value of Swordfish Handgear LAPs because Swordfish Handgear LAPs may be used in the productive South Florida fishing grounds that coincide with the Florida Swordfish Management Area where the swordfish handgear fishery is chiefly located.

Cons

- This option could lead to an increase in permitted vessels using buoy gear to target swordfish in areas where the fishery has not historically operated and where little data on environmental impacts, including bycatch and incidental catch data, is currently available.

Option A4 – Allow the retention of BAYS tunas with buoy gear in all areas, except in the Florida Swordfish Management Area

Under Option A4, NMFS would allow BAYS tunas to be retained with buoy gear in the Atlantic Ocean, Gulf of Mexico, and Caribbean by certain permit holders. Currently, fishing for, retaining, or possessing BAYS tunas with buoy gear is only authorized under an HMS Commercial Caribbean Small Boat permit that is only valid in the U.S. Caribbean. Since buoy gear is a type of handgear, NMFS could allow BAYS tunas to be retained by permit holders who hold permits that allow for the use of handgear to catch BAYS tunas. These permits include Atlantic Tunas General category, the Atlantic Tunas Harpoon category, and HMS Charter/Headboat (with a commercial endorsement) permits. In 2021, a total of 2,730 General, and 35 Harpoon permits were issued. There were also 4,055 HMS Charter/Headboat permits issued (1,793 of which had commercial sale endorsements) (NMFS 2021, NMFS 2022). NMFS would continue to allow vessels with a HMS Commercial Caribbean Small Boat permit to retain BAYS tunas.

Although Atlantic bigeye tuna is an overfished stock internationally, U.S. catch of this species is less than one percent of Atlantic-wide landings.

Under this option in combination with Option A3, which considers the use of buoy gear to target swordfish under the open access Swordfish General Commercial permit, the BAYS retention limit would also be zero in the Florida Swordfish Management Area.

Pros

- This option would allow more permit holders the opportunity to retain BAYS tunas with an additional gear type.
- Increased catch of BAYS tunas with buoy gear is unlikely to affect the stock status of any of those species. Of the four BAYS tuna species, only albacore has a domestic quota and it has not been fully harvested in recent years. Yellowfin and skipjack tunas do not have quotas, but both stocks are healthy and the United States catches only a small portion of the Atlantic-wide catch. Bigeye tuna does not have a quota and the stock is overfished, however, the United States implemented a minimum size for bigeye tuna, which would not change under this option, to protect juveniles.

Cons

- Geographically and temporally expanding buoy gear use to new areas where BAYS tunas are targeted could cause fishing gear conflicts between buoy gear and other gear types (*e.g.*, recreational rod and reel) operating in areas where buoy gear is not currently fished.

Option A5 – Allow the retention of some shark species with buoy gear

Under this option, NMFS could allow some shark species to be retained with buoy gear in the Atlantic Ocean, including the Caribbean Sea and Gulf of Mexico. Currently, buoy gear is not an authorized gear type for shark species. Buoy gear would need to be authorized for shark harvest under a Shark Directed LAP, Shark Incidental LAP, HMS Charter/Headboat permit with a commercial endorsement and a Shark Directed or Incidental LAP, or a HMS Commercial Caribbean Small Boat permit to retain all authorized shark species including Atlantic sharpnose, smoothhound, blacktip, bull, and thresher sharks. Shortfin mako would be allowed if the retention limit was greater than zero at the time of fishing. No prohibited species (Appendix A to Part 635, Title 50) could be retained.

Pros

- This option could allow the retention of some sharks that would otherwise need to be discarded. Since shark landings have declined over recent years, this option could assist in fully harvesting U.S. quotas and achieving optimum yield.

Cons

- There is potential for buoy gear fishermen to commit violations if they misidentify shark species, *i.e.*, there is a possibility that some unauthorized shark species could be captured by buoy gear fishermen.

Option A6 – Require circle hooks on buoy gear

Option A6 would require fishermen to use circle hooks with buoy gear. Currently, NMFS does not specifically require which type of hook must be used with buoy gear and the majority of buoy gear fishermen use J-hooks while targeting swordfish (Table 6). This option would specify the type of hooks to be deployed. Requiring circle hooks would be consistent with requirements for other HMS, including fishing that targets sharks with the use of bottom longline, hook and line. Since NMFS is considering allowing retention of sharks with buoy gear (Option A5), this would maintain regulatory consistency, though Option A5 could be adopted with or without adoption of A6.

Table 6. Number of trips using buoy gear by hook and region, 2016-2022

Hook Type	Number of trips		Percentage of Trips		Overall
	Atlantic Region	Gulf of Mexico Region	Atlantic Region	Gulf of Mexico Region	
J-Hooks	4,357	318	98%	70%	95%
Circle Hooks	86	113	2%	25%	4%
Mix	<10	<25	<1%	<5%	<1%

Source: Fisheries Logbook System.

Pros

- Could provide consistency with the requirements for some other HMS gear types (bottom longline, pelagic longline).
- The use of circle hooks generally results in the fish being hooked in the jaw rather than internally. Thus, the use of circle hooks may reduce the mortality of released fish.

Cons

- Majority of buoy gear fishermen would need to switch the type of hooks they use.
- There is a lack of data to compare the catch rate and hooking location of fish caught with J-hooks and circle hooks on buoy gear. The use of circle hooks may be less efficient than J-hooks for catching swordfish on buoy gear.

3.2 Deep-Set Pelagic Longline

3.2.1 Background

As specified in 50 CFR 635.2, pelagic longline means:

“ a longline that is suspended by floats in the water column and that is not fixed to or in contact with the ocean bottom. For the purposes of this part, a vessel is

considered to have pelagic longline gear on board when a power-operated longline hauler, a mainline, floats capable of supporting the mainline, and leaders (gangions) with hooks are on board. Removal of any of these elements constitutes removal of pelagic longline gear.”

Typically, pelagic longline gear consists of a mainline that can vary from 5 to 40 miles in length, with approximately 20 to 30 hooks per mile. The mainline is suspended in the water column by floatlines connected to buoys on the surface. Each individual hook is connected by a gangion to the mainline (Figure 2). Lightsticks, which contain light-emitting chemicals, are used, particularly when targeting swordfish. When targeting swordfish, pelagic longline gear is generally deployed at sunset and hauled at sunrise to take advantage of swordfish’s nocturnal, near-surface feeding habits. In general, pelagic longlines targeting BAYS tunas are set in the morning, fished deeper in the water column, and hauled back in the evening.

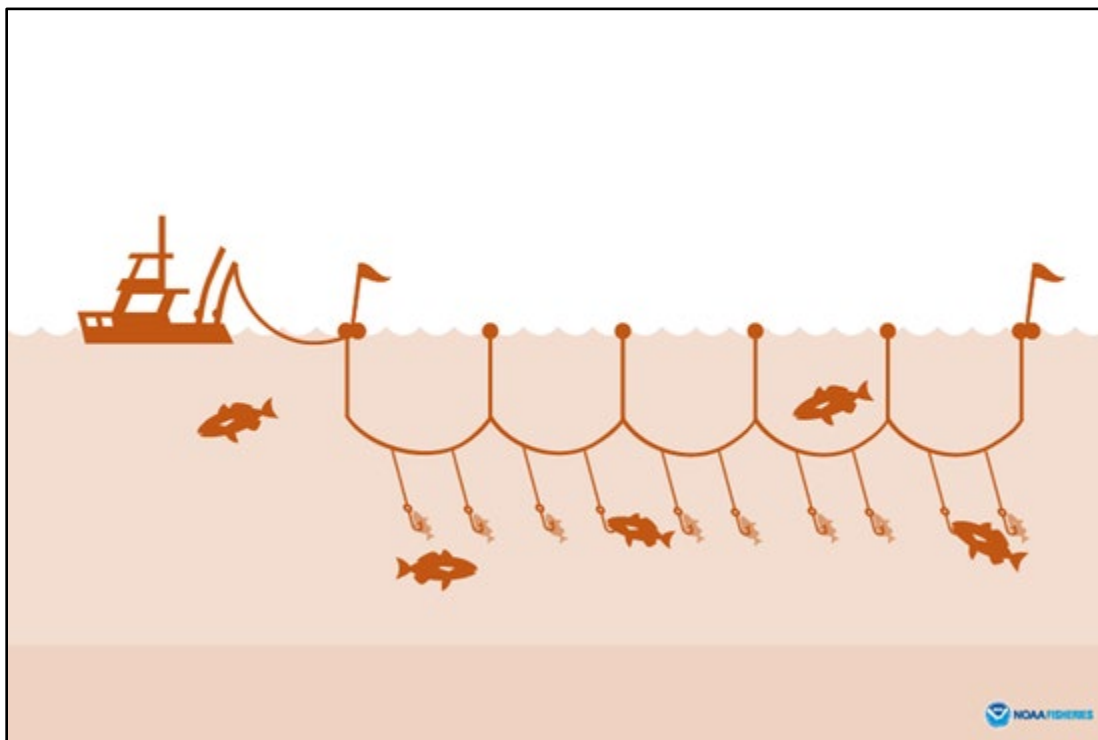


Figure 2. Typical U.S. pelagic longline gear

In recent years, pelagic longline fishermen in the Atlantic Ocean and Gulf of Mexico have increasingly experimented with setting gear deeper than usual, most often to target swordfish during the day when the species is deeper in the water column. On deep sets, floats on the mainline are spaced farther apart, more hooks are deployed between floats, and weights are sometimes added along the mainline. This creates more of a sag in the mainline, allowing the set to fish deeper, typically below the thermocline, than in a typical shallow set (Figure 3). Interest in and use of the deep-set configuration of pelagic longline gear by U.S. vessels has increased in recent years, and the technique and gear configuration can vary as fishermen determine the best way to use the technique in the Atlantic Ocean and Gulf of Mexico. Although deep-set pelagic longline is configured differently than for

conventional sets, NMFS has determined that it is consistent with the current definition of pelagic longline and is subject to the same requirements. Additionally, NMFS has determined that the gear configuration is not consistent with the definition for bottom longline which is defined at 50 CFR 635.2 as “...a longline that is deployed with enough weights and/or anchors to maintain contact with the ocean bottom.”

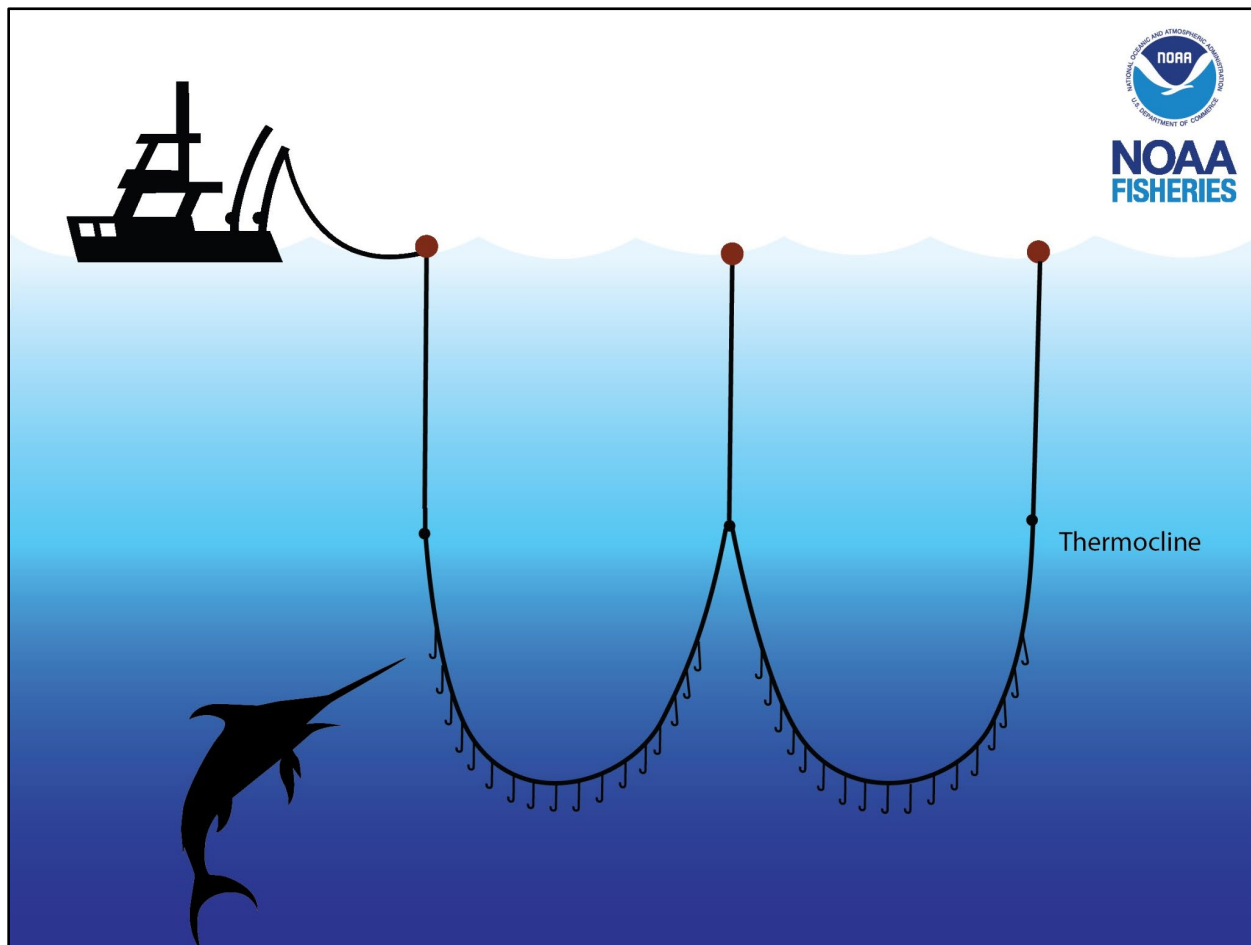


Figure 3. Example of deep-set pelagic longline gear

3.2.2 Range of Potential Options

Option B1 – No action. Keep the current pelagic longline gear regulatory definition.

NMFS would keep the current definition (as shown in Section 4.2.1) and regulations for pelagic longline.

Pros

- NMFS has already determined that current deep-set gear configurations and techniques meet the existing pelagic longline definition.

- Since the technique of using deep-set pelagic longline is still evolving, preemptively changing the definition might not meet the current deep-set best practices for the fishery.

Cons

- Without modification to the definition, the wider use of this new technique by fishermen who are not skilled with the deployment of this gear could lead to gear making sustained contact with the ocean floor, thus failing to meet the definition of pelagic longline and instead potentially meeting the definition of bottom longline and triggering bottom longline regulations.
- Some regulatory uncertainty among constituents and enforcement agents and partners could continue.

Option B2 – Modify the pelagic longline gear definition to clarify the recent deployment of the gear in deep sets

NMFS would modify regulations to more explicitly allow deep-set pelagic longline. Although NMFS has determined that deep-set pelagic longline gear configuration and technique meets the current definition of “pelagic longline” in the HMS regulations, this option would modify the pelagic longline definition to more explicitly allow deep-set pelagic longline. Specifically, this option could clarify that occasional and inadvertent contact with the sea floor is consistent with the pelagic longline definition. For example, we could update the definition to be, “pelagic longline means a longline that is suspended by floats in the water column and that is not fixed to *and does not sustain* contact with the ocean bottom.”

Since deep-set pelagic longline is used to target pelagic species such as swordfish, it is unlikely that fishermen intentionally set the gear deep enough to interact with the sea floor. However, pelagic observer program data shows that deep-set pelagic longline sea floor interaction does occasionally occur as indicated by bycatch of benthic species such as golden tilefish, black bellied rosefish, cusk, sea anemones, sea stars, and lobster. Such reports are rare, though, and since target catch is likely reduced when the gear is at or near the sea floor, contact with the sea floor is likely undesirable to fishermen. NMFS anticipates that fishermen will continue to develop the deep-set technique. As that occurs and fishermen become more skilled at it, such interactions with the sea floor will likely decrease. NMFS continues to monitor incoming logbook and observer data for further developments.

Pros

- Modification of the pelagic longline definition to explicitly authorize pelagic longline fishing techniques that may inadvertently contact the ocean floor could reduce uncertainty among constituents and enforcement agents and partners. Reduced uncertainty could foster wider adoption of the technique.
- Preliminary results of this technique of gear deployment indicate that swordfish catch has increased and bluefin tuna interactions have decreased.

Cons

- It may be premature to alter the pelagic longline gear definition since the technique is still evolving and a definition that meets current needs may not be adequate once fishermen settle on deep-set best practices. NMFS has already determined that current deep-set gear configurations and techniques meet the existing pelagic longline definition so there may not be an immediate need to alter the definition in the regulations.
- Careful consideration would be needed to minimize or eliminate unintended consequences of any definition change.

Option B3 – Require enhanced communication when deploying deep-set pelagic longline

Since deep-set pelagic longlines are fished deeper in the water column, movement of the gear is less subject to surface level ocean currents. In other words, deep-set pelagic longlines do not drift as far or in the same manner as conventional pelagic longlines. For example, while conventional gear may drift approximately 8 to 20 miles depending on the current, deep-set pelagic longline gear tends to drift approximately 0.5 to 1 mile. If other fishermen operating in the area, including pelagic longline fishermen using conventional techniques for setting the gear, incorrectly expect the deep-set gear to drift in a certain direction and distance, gears could become entangled. NMFS has received reports of such conflict between conventional and deep-set pelagic longline from fishermen as well as from other sectors such as charter/headboat participants. However, reports of gear conflict with deep-set pelagic longline have decreased recently as the technique is more widely adopted and fishermen have recalibrated gear drift expectations.

To reduce gear conflicts, this option would require enhanced communication by vessel operators deploying deep-set pelagic longline to ensure that others operating in the area are aware. Options for enhanced communication include identification of deep sets via buoy or high-flyer markings or through Very High Frequency (VHF) announcements by fishermen.

Pros

- Enhanced communication could reduce gear conflict by actively or passively notifying other fishermen in the area of the presence of deep-set pelagic longline gear. Other fishermen could then alter fishing practices or locations to account for deep-set pelagic longline, including different drift rates.

Cons

- Some fishermen may be hesitant to widely communicate fishing practices or locations if such information is considered private.
- Deep-set techniques continue to evolve and it may be premature to implement additional regulations before standard practices are widely adopted.

Option B4 - Require a VMS hail-out when embarking on a deep-set pelagic longline trip

Currently, pelagic longline vessels must hail out via VMS when embarking on a trip, and declare target species and gear type(s). This option would require the declaration of the intent to deep-set pelagic longline during hail-out if the vessel intends to deep set their gear.

Pros

- Make it easier for data analysis to identify trips deploying deep sets. NMFS would be able to determine the catch and interactions rate variations between the gear deployment.
- Provide a pathway for separate conventional and deep-set requirements and regulations.

Cons

- If conventional and deep-set requirements are the same, this option could be unnecessarily burdensome.
- Enforcement partners would need additional training to identify deployed and stowed gear intended to be deep set. Initial conversations with enforcement partners indicate that deep and traditional set gear can be differentiated in the water and on the vessel.

3.3 Bait collection net restrictions

3.3.1 Background

Across HMS regulations, specific gear types and gear configurations are authorized based on permit type and target species. Other gear types that are not explicitly authorized are prohibited and may not be on board the vessel (see 50 CFR 635.19(a)), with the exception of secondary gears (e.g., dart harpoons, gaffs, flying gaffs, and tail ropes) that may be used at boat side to aid and assist in subduing, or bringing on board a vessel, Atlantic HMS that have first been caught or captured using primary gears. However, there are other gears for bait collection that may be commonly carried on board some fishing vessels but are not explicitly authorized in the HMS regulations and are not considered secondary gears. Fishing gear used for bait collection (such as cast nets and small dip nets) are generally too small to target or fish for HMS, thus from a practical standpoint would not reasonably be expected to be used to harvest HMS. Revising the regulations to reflect common practice would be beneficial for fishermen.

3.3.2 Range of Potential Options

Option C1 – No action. Maintain current regulations that do not authorize bait collection nets on HMS fishing vessels

Under Option C1, NMFS would maintain the current primary and secondary gear authorizations without exemptions for bait collection nets.

Pros

- Maintaining the current authorizations without exemptions for bait collection nets would not require any changes to enforcement or compliance with HMS regulations.

Cons

- Maintaining the current authorizations without exemptions for bait collection nets could maintain a mismatch between current regulations and common practices in some HMS fisheries. Many HMS fishermen may have bait collection gears on board their vessels and are inadvertently in violation of authorized gear regulations.

Option C2 – Modify regulations to allow small nets for bait collection on HMS fishing vessels

This option would authorize the presence and use of small nets such as cast nets and dipnets provided the nets are small enough they cannot be used to target HMS.

Authorization could occur through different mechanisms. For example:

- Specific authorization could be provided through regulatory definitions and allowances such as addition of the following text to 635.21(a): “cast nets and dipnets intended to be used to capture or handle bait may be possessed and used on board the vessel. A cast net is a circle-shaped net thrown by hand and designed to spread out and capture fish as the weighted circumference sinks to the bottom and comes together when pulled by a line. Cast net diameter cannot exceed 20 feet. A dipnet is a small, pocket-shaped net attached to a circular, rectangular, or similar frame with a handle. In the case of dipnets used for bait capture and handling, openings cannot exceed 18 inches at the largest span.”
- Wider authorization could be provided as an “exempted gear” similar to authorizations in other fisheries. For instance, similar to how the issue is addressed in regulations for the Fisheries of the Northeastern United States (see 50 CFR 648.2), a definition for “exempted gear” could be added to the HMS regulations and the definition could list gear that is deemed to be not capable of catching HMS. For example, a new definition at 635.2 could read as follows: “Exempted gear, with respect to HMS fisheries, means gear that is deemed to be not capable of catching HMS, and includes: cast nets, dipnets.”

Pros

- This option would allow widely used bait collection and handling nets that are too small for catching HMS. Such a measure could reduce uncertainty and be responsive to past requests from the Regional Fishery Management Councils and fishermen.
- There is unlikely to be any impact to HMS since new authorizations would limit net size to those that cannot capture HMS.

- This option would be responsive to public comments that we have received requesting that cast nets and dip nets be allowed for use to reflect the practical behavior of fishermen.

Cons

- This option could lead to enforcement challenges if bait collection gear is not carefully defined.

3.4 Speargun

3.4.1 Background

Under HMS regulations (and as defined at 635.2), speargun means:

“a muscle-powered speargun equipped with a trigger mechanism, a spear with a tip designed to penetrate and retain fish, and terminal gear. Terminal gear may include, but is not limited to, trailing lines, reels, and floats. The term “muscle-powered speargun” for the purposes of the HMS fisheries definition means a speargun that stores potential energy provided from the operator’s muscles, and that releases only the amount of energy that the operator has provided to it from his or her own muscles. Common energy storing methods for muscle-powered spearguns include compressing air and springs, and the stretching of rubber bands.”

The speargun operator must be physically in the water when using this gear, and may freedive, use a self-contained underwater breathing apparatus (SCUBA), or other underwater breathing devices. See 635.21(h). Currently, the use of spearguns to target HMS is only authorized in the recreational and charter/headboat BAYS tuna fisheries. See 635.19(b). Other HMS may not be targeted or retained, nor is the gear authorized in any commercial HMS fisheries.

Spearguns were authorized in the 2006 Consolidated HMS FMP and the species were limited to BAYS tunas due to stock status concerns for bluefin tuna, swordfish, and some large coastal sharks. At that time, bluefin tuna, swordfish, and some large coastal sharks were overfished with overfishing occurring. However, the 2006 Consolidated HMS FMP stated that NMFS may reconsider the use of spearguns in other fisheries as stock status improves and other factors change. At this time, the stock status for many of these species and the fisheries that target them have changed. However, NMFS does not anticipate reconsideration of authorization of new gears, including speargun, for Atlantic bluefin tuna until its stock status is officially changed to "not overfished" based on a future stock assessment. In a future rulemaking NMFS could evaluate allowing retention of Atlantic bluefin tuna using speargun as an authorized gear; this would be evaluated based on a multitude of factors (e.g., environmental (including stock status), economic, and social).

3.4.2 Range of Potential Options

Option D1 – No action. Keep the speargun regulations the same.

Option D1 would continue to authorize recreational speargun use by HMS Angling or HMS Charter/Headboat permit holders (recreational only) fishing for BAYS tunas only. The speargun would be equipped with a trigger mechanism, a spear with a tip designed to penetrate and retain fish, and terminal gear. The operator would need to be in the water when using this gear.

Pros

- This option would maintain the current regulations regarding the usage of spearguns.

Cons

- This option would not provide flexibility to expand the usage of this gear type.

Option D2 – Authorize speargun use for HMS Angling or HMS Charter/Headboat permit holders fishing for swordfish.

Under Option D2, NMFS would expand the speargun authorization to include recreational fishing for swordfish. The North Atlantic swordfish stock is healthy and the U.S. quota for the stock has been underharvested in recent years. All other speargun regulations would be the same.

Pros

- This option would allow the expansion of speargun use to include the recreational retention of swordfish, which have a healthy stock status and are underutilized.
- Allowing the recreational retention of swordfish would have minimal increase in landings.

Cons

- Although speargun fishing can be highly selective on target individuals, there is a possibility that some swordfish captured by speargun could be undersized and could not be released alive, although this would be less likely than for swordfish caught with rod and reel gear.

Option D3 – Authorize speargun use for HMS Angling or HMS Charter/Headboat permit holders fishing for sharks authorized for retention by recreational fishermen.

Under Option D3, NMFS would expand speargun authorization to include recreational fishing for shark species including Atlantic sharpnose, smoothhound, blacktip, bull, and thresher sharks, all of which are authorized to be retained by recreational fishermen. Shortfin mako could only be targeted if the retention limit is greater than zero when fishing

occurs. No prohibited species could be targeted or retained. All other speargun regulations would be the same.

Pros

- This option would allow the expansion of speargun to include the retention of some shark species.
- Allowing the retention of shark species would have minimal increase in landings.

Cons

- There is potential for spearfishermen to commit violations if they misidentify shark species, i.e., there is a possibility that some unauthorized shark species could be speared by speargun operators.

Option D4 – Authorize speargun use for some HMS commercial permit holders fishing for swordfish, BAYS tunas, and sharks authorized for retention by their commercial permit.

Option D4 would authorize the use of spearguns to retain swordfish, BAYS tunas, and sharks with commercial permits. The authorized commercial permits could be swordfish LAPs (Directed, Incidental, or Handgear), Atlantic Tunas Longline, shark LAPs (Directed or Incidental), Atlantic Tunas General category, Atlantic Tunas Harpoon category, the open access HMS Commercial Caribbean Small Boat permit (valid only in the U.S. Caribbean Region), the open access Swordfish General Commercial permit, the open access Smoothhound shark permit, and HMS Charter/Headboat permit (with a commercial endorsement and on non-for-hire trips only). All other speargun regulations would be the same.

Pros

- This option would allow the expansion of speargun into *commercial* fisheries to include the retention of swordfish, which have a healthy stock status and are underutilized.
- Allowing the commercial retention of swordfish, BAYS tunas, and sharks with spearguns would result in a minimal increase in landings.
- Since shark landings have declined over the past few years, this option would allow the opportunity for fishermen to retain some sharks with another gear type and assist with fully harvesting U.S. quotas and achieving optimum yield.

Cons

- This option would create a new fishery with an unknown number of participants and distribution since the level of interest in using the gear type to fish for these species commercially is not known at this stage.
- There is potential for spearfishermen to commit violations if they misidentify shark species, i.e., there is a possibility that some unauthorized shark species could be captured by speargun operators.

4. References

Kerstetter, D. & Garvey, D. 2020. Deepwater Horizon Oceanic Fish Restoration Project. Monitoring Report 2017-2019. Final grant ending report.

NMFS. 2022. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2022. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 296 pp.

NMFS. 2021. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2021. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 273 pp.

Sepulveda, C. A., Aalbers, S.A. 2018. Exempted Testing of Deep-set Buoy Gear and Concurrent Research Trials on Swordfish, *Xiphias gladius*, in the Southern California Bight. National Marine Fisheries Service.

Sepulveda, C. A., C. Heberer, and S. A. Aalbers. 2014. Development and trial of deep-set buoy gear for swordfish, *Xiphias gladius*, in the Southern California Bight. *Mar. Fish. Rev.* 76:28–36. (doi: <https://doi.org/10.7755/MFR.76.4.2>).