White Paper on the Potential 2018 Experimental Wave 1 Recreational Black Sea Bass Fishery

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Background

Historically, black sea bass was an important component of the Wave 1 (January – February) recreational offshore fishery, particularly among the for-hire sector that had the vessel capabilities to travel offshore during that time of year. From 1996, when black sea bass was added to Summer Flounder Fishery Management Plan, through the mid-2000's recreational management measures in Wave 1 have become progressively more restrictive in an effort to reduce fishing mortality and promote stock rebuilding (Table 1). Since then, additional management restrictions have been implemented in order to constrain landings to the recreational harvest limit (RHL) and in 2010, the Wave 1 fishery was closed due to overages in 2009. Since then, the Wave 1 fishery has remained closed with the exception of 2013.

In 2014, the Council considered re-opening the Wave 1 fishery for federally permitted for-hire vessels in federal waters for the 2015 fishing season. The Council ultimately decided against the re-opening due to implications for the remaining recreational fishery and the potential disproportionate impacts to states that may not participate in the Wave 1 fishery. In February 2017, the Council and the Atlantic States Marine Fisheries Commission (ASMFC) Summer Flounder, Scup and Black Sea Bass Management Board (Board) were presented the results of the 2016 benchmark stock assessment which indicated the black sea bass stock was at 229% of the biomass target and the fishing mortality was 25% below Fmsy in 2015, the terminal year of the assessment. Based on this positive information, the Council and Board are considering a potential re-opening of the Wave 1 fishery in 2018. The Council and Board made the following motion in considering the 2018 Wave 1 fishery:

I move to allow an experimental 2018 January/February (wave one), recreational, federally permitted for-hire fishery for black sea bass with a 15 fish per person possession limit, a suspended minimum size limit, and a zero discard policy to allow for barotrauma, and a mandatory trip reporting requirement. Council: DiLernia/King; Board: Heins/Reid

This white paper evaluates black sea bass catch and effort data available during Wave 1, the potential implications of a Wave 1 fishery, potential requirements necessary for the fishery operating under an Exempted Fishing Permit and other items for consideration if this fishery is re-opened.

Wave 1 Black Sea Bass Fishery Information

There is limited catch and effort data available on the recreational black sea bass fishery during Wave 1. Outside of North Carolina since 2004, the Marine Recreational Information Program (MRIP survey) (or its predecessor, the Marine Recreational Fisheries Statistics Survey or MRFSS) does not sample the mid and north Atlantic during this time of the year; therefore, the majority of the available Wave 1 information is derived from mandatory for-hire Vessel Trip Reports (VTR). Federally permitted for-hire vessels are required to submit a VTR on each fishing trip, regardless of species fished for or taken. All federal for-hire black sea bass permit data and all Wave 1 VTR information available from 1996 – 2016 was used to evaluate the Wave 1 black sea bass fishery and its potential re-opening in 2018. Three different Wave 1 time periods were evaluated: a.) the entire 1996 – 2016 time period to take advantage of all data available; b.) only those years in which the Wave 1 fishery was open (1996 – 2009, 2013), given the differences in the fishery and data when open versus closed; c.) 2013 only, the most recent year the fishery was open and likely most representative of the proposed fishery.

A combination of black sea bass permit and VTR data were used to evaluate the potential participation in an experimental Wave 1 fishery by federally permitted for-hire vessels. Federal black sea bass for-hire permits are open access permits and the total number of permits steadily increased from 1997, the first full in year in which the permit requirement was implemented, to a peak of 904 permits in 2009 (Figure 1; Table 1). Since then, the total number of permits has declined and is currently at its lowest level since 2004. On

average in any given year, less than half (44.5%) of all black sea bass permit holders have any documented black sea bass catch reported on their VTR at any time during the entire year. The number of permitted vessels with reported black sea bass catch at any time of year has remained fairly constant from 1997 – 2016 (Figure 1; Table 1), with an average of 306 permits reporting any catch. When evaluating the number of vessels participating in the Wave 1 fishery, on average, only 4.7% of the active black sea bass permit holders reported any black sea bass catch during Wave 1. The number of vessels with reported catch during Wave 1 averaged 15 vessels and is variable year to year with a low of 4 vessels in 2001 and a high of 39 vessels in 2013, the last year the Wave 1 fishery was open (Figure 1; Table 1). All states from Rhode Island to North Carolina have reported some amount of black sea bass catch in Wave 1 in at least one year from 1996 – 2016 (Table 2). New Jersey accounts for the overwhelming majority of the Wave 1 catch with nearly 83%, followed by New York (9.4%) and Virginia (5.5%). Similar trends are observed when evaluating angler participation within each state during Wave 1, calculated as the total number of anglers from 1996 – 2016, with New Jersey accounting for nearly 78% of all anglers participating in the Wave 1 fishery (Table 2).

Black sea bass Wave 1 total catch steadily increased from 1996 through 2001, then declined until 2005 and once again began to steadily increase until the Wave 1 fishery was closed in 2010 (Figure 2). When the fishery re-opened in 2013, catch was more than doubled the highest catch observed in any year from 1996-2009. In those years in which the Wave 1 fishery was open, harvest by federally permitted for-hire vessels averaged 21,052 fish or about 1.6% of the total recreational sea bass harvest, in numbers of fish, during those years. Discards during the open Wave 1 seasons comprised a small portion of the overall catch with an average of 3,279 fish or 13.7% of the total catch. The low discard ratio in the Wave 1 fishery is significantly lower than what occurs during the rest of the recreational black sea bass fishery where 80%, on average, of the catch is discarded.

The Wave 1 VTR data that is available from 1996 – 2016 includes information on 1,311 trips, carrying over 35,500 passengers. Although not a direct measurement of effort, the total number of trips in which black sea bass were caught in Wave 1 follows a very similar pattern to that observed with total catch (Figure 2) with generally increasing participation until the fishery closed in 2010 and another increase in 2013 when the fishery re-opened. Unlike total catch, there are some years, 2012 and 2016 for example, in which the Wave 1 fishery was closed and a high number of trips with reported catch were observed. To evaluate the proposed 15 fish possession limit, the average catch per angler (CPA) was calculated for all 1,311 Wave 1 trips. The average CPA for all trips was 8.7 sea bass and 11.0 sea bass on trips when the Wave 1 season was open. CPA increased from 1996 to a peak in 2001 of 22.4 sea bass and then remained relatively stable around 12.0 sea bass per angler until 2010 when the fishery closed (Table 3). When the Wave 1 fishery re-opened in 2013, CPA averaged 15.5 sea bass, nearly identical to the proposed possession limit.

The 2016 black sea bass benchmark stock assessment developed a CPA tuning index and, although the calculations are different, can be used to make relative comparisons in angler catch rates in Wave 1 to the rest of the recreational fishery. This comparison indicates the Wave 1 fishery, when open, is likely much more productive with catch rates that are 5 times greater, on average, than those observed the rest of the year. For example, in 2013 the CPA in the Wave 1 fishery was 15.5, compared to approximately 2.0 for the rest of the fishery. A cumulative frequency CPA for all Wave 1 trips during the three different time periods was evaluated to determine the proportion of trips that would be constrained by the 15 fish possession limit (Figure 3). When using the CPA for all Wave 1 trips from 1996 - 2016, the 15 fish possession limit would cover 68.5% of all trips; therefore, 31.5% of the trips had a CPA greater than 15 fish and would be constrained by the 15 fish possession limit. As you remove the trips in which the Wave 1 fishery was closed, the CPA increases and therefore fewer trips would be covered (i.e. more trips constrained) under the proposed possession limit. When using only those trips when the Wave 1 fishery was open, 60.1% of all trips would be covered by the 15 fish possession limit; 39.9% would be constrained. Using only the 2013 Wave 1 trips, only 49.8% of the trips would be covered by the 15 fish possession limit and 50.2% would

be constrained. Given the high catch rates and the relatively high proportion of trips with catch rates above the 15 fish possession limit, the proposed possession limit will likely help constrain black sea bass harvest in Wave 1 but may increase discards.

In the absence of any Wave 1 weight or length frequency information to evaluate the weight/size distribution of black sea bass harvest or discards, total Wave 1 catch data was used to estimate the potential harvest of the Wave 1 fishery under a no minimum size and no discard policy. In those years in which the Wave 1 fishery was open, total catch information, in numbers of fish, was used under the assumption that all fish caught would be harvested under a no discard policy. The total Wave 1 catch in numbers of fish was multiplied by the average weight of harvested black sea bass during the rest of the fishery utilizing MRIP data to develop an estimate of total harvest in weight of the Wave 1 fishery.

The average weight of harvested fish within a given year may not be reflective of the average weight of sea bass during this proposed Wave 1 fishery. The average weight during Wave 1 might be higher because the sea bass available at that time of the year are likely larger than at other times of the year. However, under a no minimum size and no discard policy, the average weight of sea bass harvested may be smaller due to smaller sea bass that must be retained. Given these caveats, the average weight of harvested fish during the other times of year seemed reasonable for a first approximation of what total harvest, in weight, might be during the Wave 1 fishery. As with the total catch in numbers of fish, the potential Wave 1 harvest in weight steadily increased to a peak of 59,418 pounds in 2009 (Table 3). When the fishery re-opened in 2013, the potential harvest under a no minimum size and no discard policy would have been an estimated 188,523 pounds, or about 7.7% of the total recreational black sea bass harvest in 2013. If increasing participation and harvest trends within the Wave 1 fishery continue, and with the high availability of black sea bass, its likely Wave 1 harvest would increase in 2018.

In summary, the Wave 1 black sea bass for-hire fishery is comprised of a relatively small fleet of federally permitted for-hire vessels from a limited number of states. Catch per angler during Wave 1 is likely much higher than it is at other times of the year and has a significantly lower discard ratio. Overall black sea bass catch and harvest in Wave 1 has been relatively small in relation to the rest of the fishery. However, with the potential for continued increased participation, high angler success and high sea bass availability during this time of the year, there is the potential for a sizable black sea bass harvest during a Wave 1 fishery in 2018.

2018 Wave 1 Considerations and Fishery Requirements

When considering the Wave 1 re-opening, the Council and Board agreed not to change the overall 2018 recreational fishing season to include a Wave 1 (January/February) season but to allow for a limited fishery in Wave 1 for only federally permitted for-hire vessels. The motion also stipulates a mandatory trip reporting requirement, and although not explicit in the motion, would be accomplished through the submission of electronic VTRs (eVTR) as part of the Council's eVTR framework that will be finalized in 2017. Lastly, it was suggested the most appropriate method to implement this fishery would be through the issuance of an Exempted Fishing Permit (EFP) by the NMFS Regional Administrator that would cover for-hire vessels that apply to participate in the fishery. This approach was made in an effort to limit the number of potential participants, and therefore limit the potential harvest, and also allow for the collection of fishery information through VTR submissions.

A re-opening of the 2018 Wave 1 recreational black sea bass fishery could provide additional recreational opportunities at a time of year with limited options, particularly for a fishery that has only been open once in the last eight years. However, given the trends observed in the Wave 1 black sea bass fishery and expected high interest, there is the potential for a significant harvest to occur which will have implications for the rest of the year. Establishing the Wave 1 fishery within the EFP process provides a unique opportunity to

collect additional information regarding the fishery, an evaluation of the zero discard policy for future application and also obtain biological information that may help future stock assessments. However, there are additional monitoring and administrative costs that will need to be considered.

Given these parameters for a potential re-opening of the Wave 1 fishery in 2018, several issues and decision points outlined below will be need be addressed and decided by the Council and Board.

Implications for the rest of recreational black sea bass fishery

Any catch that occurs during the 2018 Wave 1 fishery will be accounted for and evaluated against the recreational sector Annual Catch Limit (ACL) and Recreational Harvest Limit (RHL), along with the entire 2018 recreational black sea bass fishery. In order to constrain recreational catch and not exceed the ACL and RHL, any black sea bass catch that is allocated to the Wave 1 fishery will require adjustments to the rest of the year. The required adjustments for the remainder of the fishing year will depend on the catch that occurs during Wave 1. There are a variety of catch estimates or allocations that can be derived for the Wave 1 fishery and the potential implications, through modifications to the season, can be determined. Example catch estimates or allocation scenarios are provided in the table below along with potential implications for the remainder of the recreational fishery.

Option	Projected / Allocated Catch	How Derived	Reduction Needed to Rest of Rec Fishery[a]	Season Implications
1	250,000 lb	Approximate 25% increase in 2013 Wave 1 catch estimate, in weight	6.8%	**Coastwide:** 12 days in either Wv 3 or Wv 5 **Federal/Southern Region:** 9 days in Wv 3 or 8 days in Wv 5 **State Specific:** 5 days in Wv 4 for NY; 5 days in Wv 3 or 5 in NJ
2	109,800 lb	3% of the 2018 Recreational Harvest Limit	3.0%	**Coastwide:** 5 days in either Wv 3 or Wv 5 **Federal/Southern Region:** 4 days in Wv 3 or Wv 5 **State Specific:** 2 days in Wv 4 for NY; 2 days in Wv 3 or 5 in NJ
3	215,400 lb	3% of the 2018 Recreational Harvest Limit and 2018 Commercial Quota	3.0%	Same as those described for Option 2
4	188,500 lb	Estimated 2013 Wave 1 catch, in weight	5.2%	**Coastwide:** 9 days in either Wv 3 or Wv 5 **Federal/Southern Region:** 7 days in Wv 3 or 6 days in Wv 5 **State Specific:** 4 days in Wv 4 for NY; 4 days in Wv 3 or 5 in NJ

[a] Assumes no other reduction is needed to constrain harvest to the 2018 RHL

- **Option 1** – assumes the Wave 1 black sea bass fishery trends of increasing participation and catch would continue and increases the 2013 Wave 1 for-hire catch estimate, in weight, by 25%. This option provides the greatest Wave 1 allocation and would require a 6.8% reduction in the season length for the rest of the year.

- **Option 2** – assumes 3% of the 2018 RHL would be allocated to the Wave 1 fishery and would therefore result in a 3% reduction in season length for the rest of the year. The allocation of 109,800 pounds under this option is 41.8% less than the estimated total catch in the 2013 Wave 1 fishery.

- **Option 3** – assumes 3% of the 2018 RHL and 3% of the 2018 commercial quota are allocated to the Wave 1 fishery. Adjustments to the season for the rest of the year would need to be made but only to account for the 3% utilized from the 2018 RHL. The 3% from the 2018 commercial quota would be an additional allocation provided to the recreational sector for the Wave 1 fishery. Therefore, the season implication examples would be the same as those provided in Option 2 in the table above. Of note, after discussions with GARFO and a review of the regulations, it does not appear the FMP regulations would allow for the transfer of commercial quota to the recreational sector nor would it be allowed under an EFP program. Additional regulatory adjustments would be required to allow for this type of transfer.

- **Option 4** – this option assumes a constant catch from the 2013 Wave 1 fishery and would allocate the estimated 2013 Wave 1 catch. This option would require a 5.2% reduction in the season length for the rest of the year.

In order to evaluate the potential implications a Wave 1 fishery may have on the rest of the year, recreational season reduction options were evaluated at the coastwide, regional and state level. Given the continually changing and disparate regulations, particularly for the Northern Region states of NJ-MA, quantifying the seasonal reduction on a coastwide or regional basis has become increasing complex and difficult. Coastwide reductions are based upon data from 2006-2008 (Table 4), the last time there were consistent coastwide measures. Federal/Southern Region reductions are based upon data from 2014-2015 (Table 5). Given the regulatory complexity in the Northern Region, state specific reductions were calculated for New York and New Jersey as examples. New York and New Jersey were chosen since they represent nearly 95% of the Wave 1 black sea bass catch and participation. Reductions were based upon data from 2014-2015 (Table 6). The examples provided here should be used for refence to evaluate the relative reductions needed, but additional analysis by staff and the Monitoring Committee will be necessary to finalize. Also of note, the season reductions provided here do not account for any reductions/liberalizations that may be needed once 2017 recreational black sea bass harvest estimates are available and evaluated to the 2018 RHL.

Potential Wave 1 Fishery Implementation

If the Council and Board decide to allow for a 2018 Wave 1 fishery and set a specific allocation from one of the options above, implementing the Wave 1 fishery could be accomplished by capping the total number of vessels allowed to participate and establishing a total number of trips allowed by each participating vessel. The number of vessel/trip combinations would be set in order to achieve the desired catch allocation and minimize any potential overages. The tables below provide examples of potential vessel and trip combinations assuming a Wave 1 harvest allocation under Option 1 (250,000 pounds) and Option 2 (109,800 pounds) from the table above.

a) Utilizes data from all years the Wave 1 fishery was open (1996-2009, 2013). Top options have a target total catch of 250,000 pounds as specified under Option 1 above. Bottom options have a target total catch of 109,800 pounds as specified under Option 2 above.

Number of Vessels	Number of Trips / Vessel	Total Trips	Ave Number of Anglers / Trip	Avg. Catch / Angler	Avg. Catch / Trip (#)	Avg. Catch / Trip (lb)	Total Catch (lb)
10	36	360	31	11	341	702	252,886
15	24	360	31	11	341	702	252,886
30	12	360	31	11	341	702	252,886
39	9	351	31	11	341	702	246,563
45	8	360	31	11	341	702	252,886
10	15	150	31	11	341	702	105,369
15	10	150	31	11	341	702	105,369
30	5	150	31	11	341	702	105,369
39	4	156	31	11	341	702	109,584
45	3	135	31	11	341	702	94,832

b) Utilizes data from 2013 Wave 1 fishery only. Top options have a target total catch of 250,000 pounds as specified under Option 1 above. Bottom options have a target total catch of 109,800 pounds as specified under Option 2 above.

Number of Vessels	Number of Trips / Vessel	Total Trips	Ave Number of Anglers / Trip	Avg. Catch / Angler	Avg. Catch / Trip (#)	Avg. Catch / Trip (lb)	Total Catch (lb)
10	30	300	26	15.5	403	830	249,054
15	20	300	26	15.5	403	830	249,054
30	10	300	26	15.5	403	830	249,054
39	8	312	26	15.5	403	830	259,016
45	7	315	26	15.5	403	830	261,507
10	13	130	26	15.5	403	830	107,923
15	9	135	26	15.5	403	830	112,074
30	4	120	26	15.5	403	830	99,622
39	3	117	26	15.5	403	830	97,131
45	3	135	26	15.5	403	830	112,074

Depending on which option is selected, the Council and Board then determine the number of vessels that would participate in the fishery. The number of trips allowed, in total and for each vessel, would then be calculated based on the total catch allocated to the Wave 1 fishery. The fishery would be monitored by the

number of trips taken, in total and by vessel (see "Implementation of an Exempted Fishing Permit" for additional details on monitoring). The fishery would close once the total number of trips allotted to the Wave 1 fishery was reached, but no later than February 28th, and an individual vessel would finish its participation in the fishery once it reached its allotted number of trips.

The two different data time periods were provided to show the variability in the data and the potential implications for the number of vessels and trips under each option. The projected total catch in weight under the various vessel and trip combinations assumes an average number of anglers, an average catch per angler and the average weight of harvested sea bass in 2016. If the observed participation, catch per angler or average weight of black sea bass harvested is higher or lower than the respective averages used in this analysis, then the actual harvest observed during the Wave 1 fishery will be very different. This could pose significant implications for the rest of the year or in 2019 if the actual Wave 1 harvest is substantially higher than projected.

Data collection and data validation issues

Federal for-hire VTR data provides managers and scientists with a large quantity of information to evaluate a particular fishery; however, this information is self-reported and is not validated to determine its accuracy and therefore limits it potential utility. The need for accurate, verifiable and validated information is extremely critical for the success, or failure, of an implemented Wave 1 fishery. This necessity is even more critical if a trip or catch cap is put in place. Under a trip or catch cap system, there may be incentive to under-report black sea bass harvest in order to keep catch under the specified cap. Therefore, it is critical that an observer and/or dockside monitoring program be implemented to sub-sample a portion of the vessels and/or trips during the Wave 1 fishery. A significant amount of federal, state and/or other resources would likely be needed to conduct the dockside and/or at-sea monitoring program in order to adequately sample and validate the eVTR information. Depending on the number of vessels and trips specified for the fishery, staff will work with the Monitoring Committee to determine an appropriate level of dockside and/or at-sea sampling needed.

There is an also opportunity, and need, to collect additional information about this fishery. In addition to the information currently required by federal VTR reporting regulations, the total weight and individual length and weight information from a sub-sample of black sea bass caught may be required. This additional information would provide valuable biological, fishery and management information. This data could provide information on the size distribution of sea bass available at this time of year, effects/implications of a zero discard policy and provide an example sampling platform to collect data on other recreational fisheries that take place during this time.

Biological and enforceability considerations under a no discard policy

Due to the deeper depths at which the Wave 1 fishery typically occurs and presence/concentration of a number of predators, black sea bass discard mortality is likely to be high during this time of year. In order to eliminate discards, the Council and Board agreed to a no minimum size and no discard policy. However, even under this policy, discards will likely not be eliminated. As described in the "Wave 1 Black Sea Bass Fishery Information" section, catch rates in Wave 1 are extremely high and more than 50% of the trips in 2013 had catch rates higher than 15 fish per angler. There is also an increased probability of high grading under a no minimum size policy. If the first fishing location visited results in a large number of small black sea bass being caught and the vessel moves to another location where larger sea bass are prevalent, anglers will likely discard the smaller sea bass they needed to retain from the first location. The zero discard policy also creates enforceability concerns and difficulties, particularly in the absence of any observer coverage, to ensure no discarding is occurring. The Council and Board may want to consider other alternatives such

as the use of descending devices or minimum hook sizes, used in conjunction with the other measures, to help reduce discards even further.

Implementation of an Exempted Fishing Permit

As per 50 CFR 600.745(b)(1) an EFP may be authorized by the Regional Administrator "*for limited testing, public display, data collection, exploratory fishing*[1]*, compensation fishing, conservation engineering, health and safety surveys, environmental cleanup, and/or hazard removal purposes, the target or incidental harvest of species managed under an FMP or fishery regulations that would otherwise be prohibited."*

An EFP application needs to be provided at least 60 days prior to the desired start date of an approved EFP. An applicant(s) requesting an EFP must complete an application package that provides details on information such as (not an exhaustive list):

- A statement of the purposes and goals of the exempted fishery and a justification for issuance of the EFP
- Information on each vessel and owner participating under the EFP
- Time, place, type and amount of gear used
- Species (target and non-target) expected to be harvested, amount of harvest needed, disposition of all regulated species harvested under EFP
- Potential impacts to environment, fisheries, protected resources and EFH

In addition to the EFP, the applicant(s) may also need to obtain state specific exemption/scientific collection permits in order for vessels participating in the program to land black sea bass out of season in the state they are returning to and offloading passengers.

All federally permitted for-hire vessels participating in the program will be required to submit electronic VTRs (eVTR) documenting all fishing activity and catches. Report submission will follow the Council's eVTR framework which will be finalized in 2017 for implementation in 2018. All eVTRs will be submitted within 48 hours after the completion of a for-hire trip. Failure to provide reports within the specified time period would immediately result in losing the opportunity to continue fishing during the Wave 1 season. All participating vessels will be required to call GARFO's interactive voice recording system (IVR) prior to making a directed black sea bass trip and provide any required information, including the vessel's trip number (eg. trip 3 of the allowed 10 trips for each vessel). This call-in requirement will allow GARFO to monitor the fishery and provide a cross validation of the 48 hour eVTR submission and allow for potential at-sea or dockside sampling opportunities. Black sea bass will only be allowed to be retained on directed black sea bass trips designated under the 2018 Wave 1 EFP program. Black sea bass caught on a non-directed sea bass trip, and therefore not covered under this Wave 1 EFP, would need to be discarded.

When issuing an EFP, the Regional Administrator has the ability to include additional terms, conditions and reporting requirements to the EFP. As discussed in the previous sections, there is a critical need to validate the information provided on the eVTRs and collect additional biological information during the Wave 1 fishery. Therefore, participating vessels may be required to allow federal or state staff observers on board or dockside to collect additional biological information and/or validate VTR reports.Iin addition to the information currently required by the federal VTR reporting regulations (eg. number of anglers, average depth, location and count of all fish harvested and discarded by species), the total weight and

[1] In discussions with GARFO regarding the potential issuance of an EFP for the Wave 1 fishery, exploratory fishing was deemed the most appropriate activity covered by the EFP.

individual length and weight information from a sub-sample of black sea bass caught may be required as additional permit or reporting conditions for each participating vessel.

Administrative and other EFP considerations

If an experimental Wave 1 fishery in 2018 to be administered through an EFP process were approved, there are some administrative issues and questions that will need additional guidance from the Council and Board to address and will require further discussions with Council and GARFO staff.

Topics for additional input and consideration are as follows:

- What is the purpose, goals and justification for the experimental Wave 1 fishery? This is necessary as part of the EFP application.
- Who would be the applicant for the EFP? Is there one "lead" principal investigator or would each interested vessel apply for an individual permit? How would the EFP be administered by GARFO?
- If the number of vessels that apply to participate in the fishery exceeds the number of vessels that are allocated under the selected option, how are participants selected?
- Are there additional data and/or reporting requirements, not mentioned here, that should be implemented?

Table 1. Summary of the recreational Wave 1 (January – February) black sea bass management measures and Federally permitted for-hire participation within the black sea bass fishery. Management measures are shaded from 2010 – 2012, 2014-2017 due to closed Wave 1 fishery.

Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Minimum Size (in)	9	9	10	10	10	11	11.5	12	12	12	12
Possession Limit	NA	NA	NA[a]	NA[a]	NA[a]	25	25	25	25	25	25
# of Federal Black Sea Bass Permit Holders	NA	306	437	501	593	629	667	680	706	826	832
# of Permit Holders with Black Sea Bass Catch		248	254	281	311	306	295	304	275	284	327
# of Permit Holders with Black Sea Bass Catch in Wave 1		12	6	7	12	4	10	8	6	6	11
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Minimum Size (in)	12	12.5	12.5				12.5				
Possession Limit	25	25	25				15				
# of Federal Black Sea Bass Permit Holders	881	868	904	902	819	808	802	763	778	749	
# of Permit Holders with Black Sea Bass Catch	342	330	333	358	322	320	331	297	324	291	
# of Permit Holders with Black Sea Bass Catch in Wave 1	26	21	28	10	8	34	39	7	12	26	

[a] There were no federal possession limits but some states implemented a 20 fish possession limit in these years.

Table 2. Total 1996 – 2016 proportion of Wave 1 black sea bass catch by state reported on VTRs submitted by federally permitted for-hire vessels.

State	Proportion of Catch	Proportion of Participation
RI	0.29%	1.74%
CT	0.06%	1.44%
NY	9.41%	11.52%
NJ	82.85%	77.77%
DE	1.30%	0.75%
MD	0.54%	1.90%
VA	5.50%	4.75%
NC	0.06%	0.13%

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Table 3. Wave 1 recreational black sea bass harvest, discards, catch and average catch per angler from federally permitted for-hire vessels based on VTR information. Average weight of harvested fish from MRIP survey, not including Wave 1, was used to calculate the total weight of Wave 1 catch. Information from 2010 – 2012, 2014-2017 are shaded to indicate closed Wave 1 fishery.

Year	Harvest (#)	Discards (#)	Catch (#)	Avg. Catch Per Angler	Avg Weight of Harvested Fish (lb)	Total Weight of Catch (lb)
1996	3,854	132	3,986	9.2	1.10	4,385
1997	5,542	75	5,617	4.6	0.90	5,055
1998	5,103	245	5,348	6.0	1.00	5,348
1999	10,997	507	11,504	14.6	1.21	13,920
2000	1,597	572	2,169	2.4	1.10	2,386
2001	12,636	1,315	13,951	13.5	1.20	16,741
2002	18,129	2,989	21,118	9.8	1.30	27,453
2003	16,201	988	17,189	14.3	1.01	17,361
2004	14,765	1,159	15,924	10.6	1.29	20,542
2005	17,680	1,185	18,865	11.0	1.49	28,109
2006	34,640	1,498	36,138	14.7	1.40	50,593
2007	32,979	3,511	36,490	11.8	1.42	51,816
2008	34,562	3,077	37,639	12.8	1.57	59,093
2009	36,555	5,289	41,844	13.8	1.42	59,418
2010	61	2,258	2,319	5.9	1.45	3,363
2011	1	368	369	2.2	1.43	528
2012	1,147	7,495	8,642	2.6	1.70	14,691
2013	70,533	27,656	98,189	15.5	1.92	188,523
2014	1	542	543	2.1	1.73	939
2015	42	701	743	2.3	1.71	1,271
2016	0	5,358	5,358	4.0	2.06	11,027
T.S. Avg.	15,096	3,187	18,283	8.7	1.4	27,741
Open Season Avg.	21,052	3,347	24,398	11.0	1.3	36,716

Table 4. Projected percent reduction in black sea bass landings associated with closing one day per wave, based on 2006-2008 MRIP landings data.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
MA	0.000	0.000	0.608	0.323	0.702	0.000
RI	0.000	0.000	0.072	0.394	1.050	0.117
CT	0.000	0.000	0.033	1.166	0.016	0.405
NY	0.000	0.000	0.407	0.475	0.592	0.158
NJ	0.000	0.002	0.681	0.268	0.636	0.047
DE	0.000	0.074	0.846	0.350	0.336	0.027
MD	0.000	0.010	0.967	0.154	0.404	0.101
VA	0.000	0.041	0.703	0.415	0.286	0.188
NC[a]	0.041	0.090	0.405	0.381	0.502	0.217
Coast	0.001	0.009	0.594	0.352	0.592	0.087

[a] North of Hatteras

Table 5. Projected percent reduction in black sea bass landings associated with closing one day per wave for the federal/southern states measures, based on MRIP landings data and the number of open days in each wave for 2014-2015.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
DE	0.000	0.000	1.120	0.240	0.310	0.410
MD	0.000	0.000	0.340	0.340	1.140	0.430
VA	0.000	0.000	1.350	0.140	0.550	0.200
NC[a]	0.000	0.000	0.370	0.390	0.920	0.000
Southern Region	0.000	0.000	0.750	0.270	0.820	0.360

[a] North of Hatteras

Table 6. Projected percent reduction in black sea bass landings associated with closing on day per wave for New York and New Jersey, based on average MRIP landings data and the number of open days in each wave for 2014-2015.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
NY	0.000	0.000	0.002	1.393	0.517	0.025
NJ	0.000	0.000	1.456	0.351	1.438	0.145

Figure 1. Number of federal black sea bass for-hire permits, the number of permit holders with reported black sea bass catch at any time of year and the number of permit holders with reported black sea bass catch during Wave 1 according to Vessel Trip Reports (VTR) from 1997 – 2016.

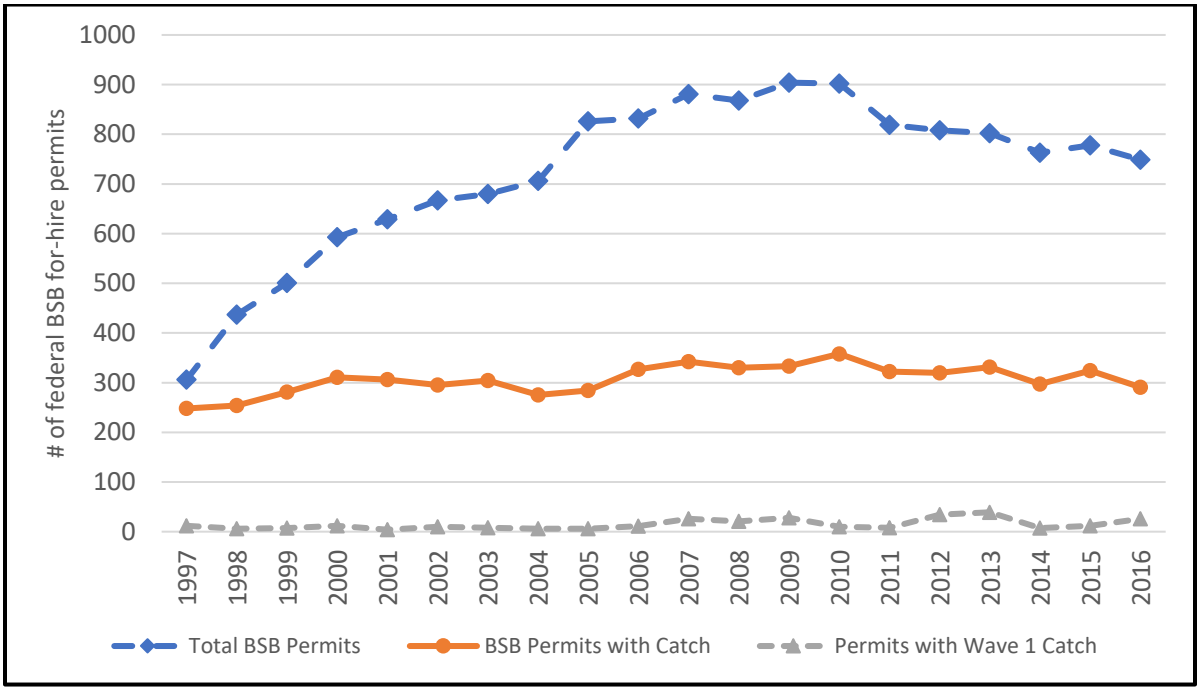

Figure 2. Black sea bass harvest and discards, in numbers of fish, and number of trips with black sea bass catch from federally permitted for-hire vessels VTR reports during Wave 1. The Wave 1 fishery was closed from 2010-2012 and 2014-2016.

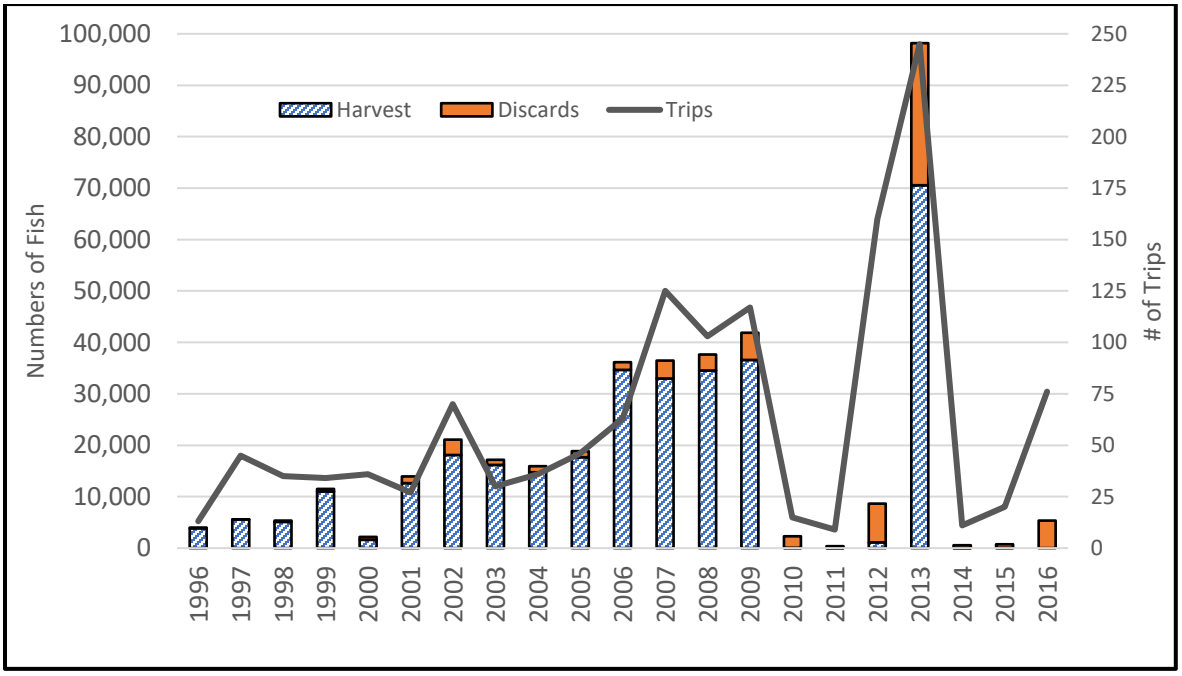

Figure 3. Cumulative frequency of average catch of black sea bass per angler during the Wave 1 fishery from 1996 – 2016; 1996-2009, 2013; and 2013 only. The vertical/horizontal lines indicate the total number of trips with an average catch of 15 black sea bass per angler, the proposed 2018 Wave 1 possession limit.