

Background

The primary objective of the EFP is to conduct exploratory fishing both inside and outside of the Georges Bank closed areas using 6.0-inch diamond and 5.1-inch square mesh codend nets to inform questions about target and non-target catch using this gear configuration in these areas. However, in order to acquire data that can be appropriately analyzed and potentially used in future management actions, some tows must be conducted using a scientifically sound comparative design. We have developed methods for what we consider to be the two primary and most “testable” goals of the study. These are goals #2 (mesh size) and #4 (closed area access) from the original application.

2-Test the effectiveness of utilizing gear comparable to Canadian fishermen (i.e., 5.1-inch square mesh codend net) to improve haddock selectivity, catch ratios and improved ACL utilization rates.

4-The effectiveness of providing access to portions of the existing closed areas for improving utilization rates on Georges Bank haddock.

While our methods are focused on these two goals, we recognize that the remaining goals are still very much a part of this project and that the data collected from the EFP trips might be used to address the remaining goals. For example, all tows from these trips will generate data on the composition of catch, including presence/absence of target (GB haddock) and non-target species, which is goal #1 in the application.

The following methods establish a framework to enable the collection of data in a scientifically sound approach to support goals 2 and 4, while retaining the flexibility to conduct exploratory fishing, as requested. These updated methods were agreed upon with the applicant. It was also agreed that as initial trips are taken and preliminary data is reviewed, modifications to these methods may be necessary.

Study Methods

Initially, there will be 2 comparative treatments for this study: 1) Fishing area (open area or closed area); and 2) codend configuration (6.0” diamond or 5.1” square mesh). When conducting the comparative tows, the applicant will initially use only the haddock separator trawl. It is understood that vessels may fish with a Ruhle trawl during non-comparison tows. At present, in an attempt to minimize the number of test variables, this study makes an assumption that Closed Areas I and II are not different from each other, and that all 3 vessels are relatively similar in regards to their performance and catch rates. We may reexamine these assumptions. The following list identifies the potential treatment comparisons:

Inside Closed Area

A-haddock separator trawl with 6.0” diamond mesh codend*

B-haddock separator trawl with 5.1” square mesh codend*

C-Ruhle trawl with 6.0” diamond mesh codend

D-Ruhle trawl with 5.1” square mesh codend

Outside Closed Area

E-haddock separator trawl with 6.0” diamond mesh codend*

F-haddock separator trawl with 5.1” square mesh codend*

G-Ruhle trawl with 6.0” diamond mesh codend

H-Ruhle trawl with 5.1” square mesh codend

*The initial “test” treatments are in bold.

Comparative test tows must be conducted in an unbiased, standardized, and scientifically sound manner (e.g., consistent tow time) to support statistical inference. As discussed, requiring vessels to complete at least two sets of standardized “test” tows on every trip should generate sufficient data to inform goals 2 and 4. The preferred way to conduct the comparative tows is to use an ABBA sequence (set of two test tows). Conducting tows in this sequence reduces the need to switch the comparative treatments after every tow, which reduces the amount of time between test tows (a source of error). For example, applying an ABBA sequence using the treatments above would result in the vessel using a haddock separator trawl while fishing inside the closed area, and only switching the codend between the third and fourth tows, resulting in two sets of codend comparisons. Conducting the two sets of test tows consecutively in the ABBA sequence could reduce the variability of environmental conditions, however, the vessels may choose to do one set of test tows (AB), and later in the trip, conduct the second set of test tows (BA). Given the multiple treatments the applicant is attempting to address, adopting a BAEF sequence could generate two codend comparisons and one area comparison, which would generate significantly more data, with less error, than if the comparative tows were done independent from each other.

While we require the vessel to complete at least two sets of test tows per trip, it is desirable that the vessel continue in a “test” mode if possible, in order to collect as many comparative tows across the treatments as possible, although we recognize that this may not always be feasible, economically or otherwise. The applicant has agreed that based on initial trips and preliminary analysis, more sets of comparative tows per trip may be necessary in order to create more replicates to generate a robust data set, or we may need to focus on testing one treatment over another. Lastly, as stated previously, the applicant may consider using the Ruhle trawl in the study as well, so we would determine at that time the appropriate steps to modify the study design.

During the collection of the comparative data, at-sea monitoring program protocols will be followed, including weight and length measurements of target species. Tows must be conducted to reduce bias associated with the study design; it is important that paired tows be conducted in similar locations, at similar times, for equal towing times (i.e., 1-hour tows) in a manner that is representative of general procedures followed by the vessel when targeting haddock. Data collected during each tow should include: Location, tow start and end time, tow speed, depth, amount of wire out, length frequency and total weight of focus species, gear type, fishing area, and codend configuration, among other relevant data points. A determination on focus species will be made over time, but in general, the data must include catch information on haddock, cod, and yellowtail flounder, and may include windowpane flounder, winter flounder, among other

species. Comments from the captain and crew following every tow, including gear performance and acoustic echo sounder observations, should be documented.

Vessels

Three vessels will be utilized for this EFP:

F/V Harmony, federal permit # 410457, Doc. 930191 --- 93' and 1,250 hp

F/V Nobska, federal permit # 410452, Doc. 932694 --- 95' and 1,200 hp

F/V Morue, federal permit # 410522, Doc. 963865 --- 95' and 900 hp

Monitoring

100% at-sea-monitoring coverage for all EFP trips, whether the vessel intends to fish inside the closed areas or not. We require that every standardized "test" haul be observed, and as many other hauls as possible be observed, in order to maximize data collection on these EFP trips.

The ASM will coordinate closely with the captain to ensure they are available to document and sample all comparative fishing tows, and as many closed area tows as possible. The captain will inform the ASM of any gear changes, including whether the vessel is fishing with a separator trawl or Ruhle trawl, and is fishing with a 6 inch codend or a 5.1 inch codend.

Trip and Tow Information

As requested, an average trip duration will be seven days, with five days for fishing and two days for steaming. If each vessel takes an average of three trips per month as proposed, there would be a total of nine trips per month and a total of 72 trips under this EFP (assumes relatively consistent effort from June through February).

On a single trip, we are requiring the vessel to make at least two sets of comparative tows, each lasting one hour, for a total of four tows (i.e., four hours total of test fishing). The remaining fishing time is being left to the discretion of the captain (at this time), for the vessel to conduct exploratory fishing under normal commercial operations. This can include fishing inside or outside of the prescribed closed areas, and can include fishing with a 6.0 inch diamond mesh codend or the 5.1 inch square mesh codend. As proposed, the tow duration during exploratory fishing will vary between 30 minutes and three hours, with approximately 18 hours of bottom time per day. On each trip there will be approximately 30 tows, including a minimum of four standardized test tows. Lastly, even though the vessel will conduct exploratory fishing in addition to making standardized test tows, it is agreed that all data will be collected in a consistent manner, but may or may not be used to support the comparative analysis. Data confidentiality waivers will be required as a condition of the EFP.