UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

F/SER25: KM

Mr. Robert K. Mahood
South Atlantic Fishery Management Council
4055 Faber Place Drive, Suite 201
Charleston, South Carolina 29405

FEB 0 2 2015

Dear ~~Mr. Mahood~~ Bob:

Enclosed are two requests to obtain Exempted Fishing Permits (EFP). The first is from Dr. Janelle Fleming of the Eastern Carolina Artificial Reef Association (ECARA); the second is from Dr. James Morris of the National Ocean Service (NOS). If issued, the ECARA EFP would be valid from the time of issuance through December 31, 2016; the NOS EFP would be valid from the time of issuance through December 31, 2018. The objective of both projects is to support continued research on traps and attracting devices that could be used for collecting invasive lionfish off eastern North Carolina artificial reefs and hard bottom areas. The EFP requests are very similar and were received by the NOAA Fisheries South East Regional Office (SERO) within close proximity to one another. Therefore, the two EFP requests are being considered concurrently; however, if granted, separate EFPs would be issued to each entity.

The applicants request authorization to deploy two sets of five Maine lobster traps, crab pot Christmas trees, and horizontal structures (specific to the NOS project), along artificial reef sites, natural reef sites, rocky reef bottom, and a flat sandy area off North Carolina. The purpose of the studies is to support continued research on traps that could be used for collecting invasive lionfish off eastern North Carolina artificial reefs, and to determine the efficacy of fish attracting devices. Additionally, the ECARA project intends to assess consumers' preference for lionfish as an exotic food source in a restaurant setting to determine if Carteret County, North Carolina would support a consumer market for the species.

In both studies, five Maine lobster traps and crab pot Christmas trees (a type of fish attracting device) will be connected by a chain with no buoy lines to the surface, and deployed along designated hard bottom features with a distance of 30 feet (ft) (9.14 meters [m]) to 50 ft (15.24 m) between each trap. The NOS project will include a second fish attracting device called a horizontal structure, attached to the string of Main lobster pots and crab pot Christmas trees. After deployment, divers will verify the position of the traps to ensure the traps are located between 20 ft (6.10 m) and 30 ft (9.14 m) from the designated bottom feature. Trap deployment would occur year-round along the North Carolina coast from three miles offshore, and up to 360 ft (109.68 m) in depth. The traps will be deployed for at least 48 hours and no longer than three weeks. After 48 hours, divers will count and identify the number of fish inside and around the

traps, and record video prior to hauling the traps.

Video images will be used to assess the success of the crab pot Christmas trees and horizontal structures as attracting devices for lionfish, and other fish species. Under the ECARA project, fish captured in the Main lobster traps will be quantified to the lowest possible taxon, measured, photographed/video documented, and released alive. Any egg bearing lobsters captured will remain in the water and released alive. Captured lionfish will be counted, measured, and prepared for consumption for patrons of nearby restaurants. Lionfish will be offered, free of charge, to patrons as part of the consumer demand assessment portion of the research project. Under the NOS project, fish caught in the Maine lobster traps would be removed and released alive.

Due to the low number of Maine lobster traps that would be deployed, and the small sample areas, impacts essential fish habitat are expected to be minimal. Furthermore, NOAA Fisheries has determined issuance of the EFPs is not likely to adversely affect ESA-listed species. The amount and types of gear to be used for collection activities under the EFP are extremely unlikely to result in adverse effects, and adverse effects that may occur are considered discountable.

For your review, please also find enclosed a draft EFP for this proposed activity. Please contact us by March 5, 2015, should you have questions or concerns about issuance of this EFP. If you need additional information, please contact Kate Michie at (727) 824-5305, or at Kate.Michie@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enclosures

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Center for Coastal Fisheries and Habitat Research
101 Pivers Island Road, Beaufort, NC 28516

November 24, 2014

MEMORANDUM FOR: Roy E. Crabtree, Ph.D.
NMFS SERO Regional Administrator

FROM: James A. Morris, Jr., Ph.D.
NOS/NCCOS
Date: 2014.11.24 11:12:13 -05'00'

SUBJECT: Exempted Fishing Permit (EFP) request

We respectfully submit a request for an Exempted Fishing Permit (EFP) to allow the testing of lionfish aggregating devices off the coast of North Carolina. A full description of this work is provided in the attached. Prior to departure of sampling trip, the charter vessel(s) info. (name of vessel, name of owner, resident port, phone no., and vessel documentation) will be communicated to the NMFS Southeast Regional Office (contact Nikhil Mehta) for vessel clearance.

cc: Nikhil Mahta

Exempted Fishing Permit Request

Brief summary of the situation or problem to be addressed:

The invasive lionfish is now one of the most dominant predators on offshore artificial and hard bottom reefs in North Carolina. Lionfish overwinter off North Carolina at depths greater than 100 ft given the warming influence of the Gulf Stream current. They pose a significant threat to reef-fish communities throughout the region due to their high densities (up to 500 lionfish per hectare) (Morris and Whitfield 2009) and generalist dietary habits (Morris and Akins 2009). Negative impacts to the biodiversity of reef communities have been observed in many locations with lionfish consuming greater than 70 percent of the forage base on some reefs. A significant number of juvenile grouper and snapper are among the species consumed by lionfish and both are important to commerce. Gut analyses of lionfish captured in North Carolina have shown these predators are capable of consuming dozens of prey per day. Lionfish are long lived and are sexually mature as early as one year old. Fecundity is high resulting in millions of eggs produced by one female per year. Due to venomous spines and protective coloration, they have no significant natural predators in North Carolina.

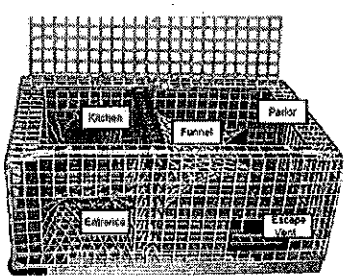
Lionfish pose a unique threat to artificial reefs. By design, artificial reef programs provide habitat and nursery grounds for economically and ecologically important species such as grouper and snapper. Lionfish settle on artificial reefs at a higher rate than natural reefs, a likely function of high rugosity (complexity) and height compared to natural reefs. The high affinity of lionfish to artificial reef structures suggests a large number of juvenile lionfish are found around bridge pilings, seawalls, and artificial reefs throughout the Southeast U.S., Gulf of Mexico, and Caribbean (J. Morris, pers. obs).

Presently, there is no commercial fishery for lionfish because they are difficult to capture with standard commercial gear. To date, the only effective method for collecting lionfish has been through spearfishing and hand-netting. These methods are labor intensive and costly. Also, lionfish cannot be captured via hook and line fishing. Several studies have attempted to develop trapping methods specifically for lionfish based on conventional gear; however, none have been successful at developing devices specifically for lionfish. Furthermore, bycatch of other reef fish is high making conventional trapping impractical. Lionfish are being landed regularly as bycatch in the Florida Keys spiny lobster fishery. It is believed that lionfish are recruiting into and around the spiny lobster trap because of the structural attributes of the trap. In this study the traps will not be baited, which may reduce the bycatch of other reef fish.

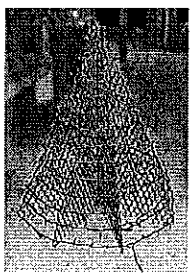
We propose to test three trapping methods for lionfish off North Carolina: the Maine lobster trap, a Crab Pot Christmas Tree (CPCT) concept, and a horizontal structure (HS) concept. The Maine lobster trap is larger than the spiny lobster trap providing additional structure and a larger funnel. Due to their size, a larger trap design is needed. The CPCT idea is based on developing a lionfish attracting device that can be deployed away from the reef. The CPCT provides a high relief (reef height) and complexity (lots of folds and corners) that may attract lionfish out away from the reef and to the device. The HS concept is based on replicating overhanging reefs, an habitat type that is preferred by lionfish. The HS concept will involve elevating a horizontal and concave structure off the bottom similar to an upside down satellite dish. This structure type has been documented to attract large aggregations of lionfish.

Purposes (objectives) of the project:

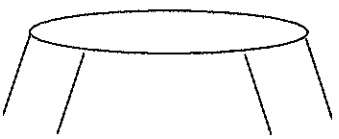
To evaluate potential trapping methods for Lionfish in North Carolina as an effort to create a viable trap design. We propose to test three methods: the Maine lobster trap (MLT) and a crab pot Christmas tree (CPCT).



Maine lobster trap



CPCT (lights will be removed)



Horizontal structure

Anticipated outcomes of the project:

We will obtain preliminary data on the catch rate of lionfish using the two methods described above. This information will be used to determine if either or both of these concepts are viable and if additional testing is warranted. The potential for these concepts to have an impact on invasive lionfish control is significant. At present, there are no lionfish attracting devices or trap targeted trapping technique that is being used by reef managers. Should either of these concepts prove useful, the impact could be very high on this invasive species problem. Further research is anticipated to develop the most viable trap design and to grow the burgeoning commercial demand for lionfish as an exotic food.

Methods

We propose to deploy the MLT, HS, and CPCT at three reef sites off North Carolina. Sites will be selected based on lionfish densities to ensure that the possibility of lionfish entrapment is high, but generally, these sites will include an artificial reef, a natural, rocky reef bottom, and a flat, sandy area. Depths of the sites will vary between 90 and 120 feet, based on previous assessments of lionfish abundance.

A series of five MLTs, HS, and CPCTs will be tethered together and spaced approximately 30-50 feet apart along the reef. The MLT distance will vary in order to randomly sample the reef. Prior to deployment of the MLTs, divers will assess the densities of lionfish using standardized lionfish monitoring methods (Morris 2012). After deployment, divers will verify the position of the trap to the reef to ensure that the trap is in close (between 20-30 ft) proximity to the reef. The MLT and CPCTs will be deployed for at least 48 hours with a maximum of one week, weather depending. After 48 hours, divers will observe (count and identify the number of fish inside and around) the MLT and CPCT and record video prior to hauling. For the MLT, all catch will be quantified to the lowest possible taxon. The experiment will be replicated at least twice during the summer season, weather depending. The objective of this experimental design is to determine if either of these trapping/aggregating approaches may be worth pursuing on a larger scale.

Dimensions of the aggregating devices:
The CPCTs will be approximately 24" in base diameter and 48" in height. The HS will not exceed 5' in diameter and will be approximately 1-2' off the bottom supported by frame legs. The MLT are approximately 36"x18"x18" wide.

Impacts to sensitive habitat and protected species:
The devices will be deployed in sandy substrate and will not be deployed directly in reef habitats. The objective is to aggregate the lionfish away from the reef habitat to the device. Devices will be secured to the substrate using weight amounts similar to those used on traps. All devices will be deployed and retrieved by divers to ensure accurate placement. No vertical lines will be used in order to avoid entanglement interactions with protected species.

Literature Cited:
Morris, J.A., Jr. and P.E. Whitfield. 2009. Biology, Ecology and Control Management of the Invasive Indo-Pacific Lionfish: An Updated Integrated Assessment. NOAA Technical Memorandum NOS NCCOS 99. 57 pp.

Morris, J.A., Jr. and J.L. Akins. 2009. Feeding ecology of invasive lionfish (*Pterois volitans*) in the Bahamian archipelago. Environmental Biology of Fishes 86: 389-398.

Morris, J.A., Jr (ed.) 2012 *Invasive Lionfish: A Guide to Control and Management.* Gulf and Caribbean Fisheries Institute Special Publication Series Number 1, Marathon, Florida, USA 113 pp.

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F/SER25:KM

James A. Morris Jr., Ph.D.
Center for Coastal Fisheries and Habitat Research
National Centers for Coastal Ocean Service
National Ocean Service, NOAA
101 Pivers Island Road
Beaufort, North Carolina 28516

Dear Dr. Morris:

This letter is an Exempted Fishing Permit (EFP) for fishing activities associated with a research project to be conducted by the National Ocean Service (NOS). The EFP is effective from the date of issuance through December 31, 2018. The EFP would exempt you from federal snapper-grouper regulations found at 50 CFR 622.180 (prohibited gear and methods), 622.183 (area and seasonal closures), 622.184 (seasonal harvest limitations), 622.185 (size limits), and 622.187 (bag and possession limits); and from federal regulations governing spiny lobster at 50 CFR 640.

The purpose of the study is to test crab pot Christmas trees and horizontal structures (fish attracting devices), and Maine lobster traps that could be used for collecting invasive lionfish off eastern North Carolina artificial reefs and hard bottom areas. A series of five Maine lobster traps, crab pot Christmas trees, and horizontal structures will be connected by a chain with no buoy lines to the surface, and deployed along designated hard bottom features with a distance of 30 feet (ft) (9.14 meters [m]) to 50 ft (15.24 m) between each trap. After deployment, divers will verify the position of the traps to ensure the traps are located between 20 ft (6.10 m) and 30 ft (9.14 m) from the designated bottom feature. Trap deployment would occur year-round in depths between 90 ft (27.43 m) and 120 ft (36.58 m). The traps will be deployed for at least 48 hours and no longer than three weeks. After 48 hours, divers will count and identify the number of fish inside and around the traps, and record video prior to hauling the traps. Traps will be deployed at least twice during the summer season.

Video images will be used to assess the success of the fish attracting devices for lionfish, and other fish species. Fish captured in the Main lobster traps will be quantified to the lowest possible taxon, video documented, and released alive

The research activities addressed in this EFP will be carried out by yourself and Alex Bogdanoff, Ken Riley, Steve Gittings, Brian Degan, Roger Mays, Jenny Vander Pluym, Christine Buckel, Don Field, and Rondan Munoz. The vessel that will be used for sampling activities is the F/V OUTRAGEOUS V (vessel number 598632), owned and operated by Mr. Terry Leonard, 414 Orange St. Beaufort, NC 28516, phone number: 252-728-2265.

This authorization is issued under procedures established at 50 CFR 600.745(b) and exempts the described activities from regulations implementing the FMP for the Snapper-Grouper Fishery of the South Atlantic Region, and the FMP for the Spiny Lobster Fishery of the South Atlantic Region. These exemptions apply to South Atlantic waters under federal jurisdiction with the exception of national marine sanctuaries (NMS), special management zones, or artificial reefs. Collection efforts in state waters or NMS, should be authorized through the appropriate government authorities.

Reporting and other requirements are included in the following conditions of this EFP:

1. This permit authorizes only the use of Maine lobster traps (with no buoy lines), crab pot Christmas trees, horizontal structures, and SCUBA to collect lionfish and record the presence of other incidentally caught species.
2. The Maine lobster traps must be outfitted with degradable escape panels and escape vents to prevent ghost fishing in the event the traps should become lost.
3. The holders of this permit may not collect or attempt to collect fish or invertebrate species within marine protected areas, marine sanctuaries, special management zones, or over artificial reefs, without additional authorization.
4. A report is due annually on January 1. Please report the number of specimens collected by species; the capture mortality, if any; the area collected; and the type of gear used. Please send the report to the Regional Administrator, NOAA Fisheries, Southeast Regional Office, 263 13th Avenue South, St. Petersburg, Florida 33701-5505.

A copy of this EFP shall be maintained onboard each participating vessel and made available for inspection during sampling operations.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

cc: F/EN4, SEFSC, SAFMC