

2005 Missions Logs

Daily Log

This study is supported by [NOAA Undersea Research Center in Wilmington.](#)

Research Objectives

1. Characterize the ecological role of lionfish
2. What are they eating?
3. How many are reproducing and where?
4. Determine if temperature is a limiting factor in lionfish distribution.

This information will allow us to assess and possibly predict the risk these invaders pose to their new North Atlantic communities.



This year we will be diving aboard the NOAA ship [RV Nancy Foster](#) and surveying for lionfish and native groupers at locations from 95 to 150 ft deep. Sampling sites are between Cape Fear and Cape Lookout, North Carolina. We will be updating our web page of our daily events starting July 15.

The RV Nancy Foster Research Vessel: Thank you Nancy Foster Crew for a successful cruise!



The Research Divers (from left to right) Doug Kesling (NURC), Paula Whitfield (NOAA), Roldan Munoz (NOAA), Casey Coy (Florida Aquarium), Joe Hoyt (East Carolina University), Christine Addison (NOAA), Jay Styron (NURC) and Clem Shemanski (NURC)

Day 1: July 17, 2005

Air Temperature: 83 °F

Bottom Water Temperature: 75 °F

Seas were calm and the water a deep blue reflecting the influence of the tropical Gulf Stream. A goal of our mission is to survey natural reef (live hard bottom) habitats to determine lionfish abundance and abundances of many native grouper and tropical species. We have completed five sites from 27 to 34 nm offshore of Beaufort NC and have seen lionfish at all locations. Site locations have ranged from 110 to 125 ft deep. Visibility has been exceptional! We are keeping our fingers crossed that no hurricanes will interfere with our research during this upcoming week.



*Jumping off the NOAA ship
Nancy Foster*
(Courtesy of Thomas Nassif)



Videoing lionfish
(Courtesy of Doug Kesling)



Reef habitat
(Courtesy of Doug Kesling)

Day 2: July 18, 2005

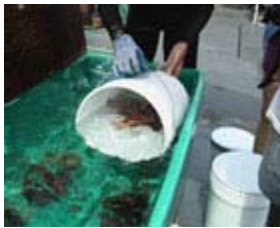
Today on the RV Nancy Foster we traveled farther offshore and conducted our deepest dives yet.

Air Temperature: 90 °F

Surface Water Temperature: 86 °F

Bottom Water Temperature 74 °F

Sites are located approximately 60 miles south of Beaufort Inlet in 146 feet of water. We were able to survey for lionfish and native grouper at three sites and collected live lionfish as well as returning dead specimens for analyses. The weather continues to be outstanding and the underwater visibility is about 60 to 70 ft. The sites we visited today are very low relief unexplored natural hard bottom reef habitats. We found lionfish at all nine sites explored in the past two days. In addition, we deployed a temperature sensor that will allow us to better understand how bottom water temperatures may be controlling the geographic distribution of lionfish.



Bucket of lionfish
(Courtesy of Thomas Nassif)



Lionfish in algae
(Courtesy of Doug Kesling NURC)



Temperature probe
(Courtesy of Doug Kesling)



Transect surveys
(Courtesy of Doug Kesling)

Day 3: July 19, 2005

We had another successful day on the RV Nancy Foster. The seas remain calm so our dive operations are going off without a hitch.

Air Temperature: 93 °F

Surface Water Temperature: 83 °F

Bottom Water Temperature: 76 °F

We dove two sites before lunch and two sites after lunch in water depths from 133 to 146 ft deep. We are about 70 miles SSW of Beaufort Inlet (North Carolina), out on the western edge of the Gulf Stream. This morning the divers experienced considerably more current. Lionfish were observed at every site we visited today which makes a total of 13 sites visited so far. Another exciting occurrence was that some of the live lionfish we collected had spawned overnight in their tanks, releasing egg masses into the surrounding water. Tomorrow we will be visiting two wreck sites where we hope to survey and collect lionfish and retrieve a temperature sensor to examine winter bottom water temperatures.



Lionfish
(Courtesy of Doug Kesling)



Dive team
(Courtesy of Thomas Nassif)

Day 4: July 20, 2005

Overnight we headed south of Cape Fear NC to a site known to divers as the 18 Fathom wreck in 120 ft of water. Last year we dove this site, and it had the highest density of lionfish of all our other sites.

Air Temperature: 89 °F

Surface Water Temperature: 80 °F

Bottom Water Temperature: 75 °F

Dive Team 1 (surveyors): Doug Kesling, Roldan Munoz, Paula Whitfield

Dive Team 2 (collectors): Christine Addison, Casey Coy, Joe Hoyt, Jay Styron

Safety divers: Clem Shemanski, Tracey Hamburger, Dave Score, Joe Bishop

Our goal was to retrieve a temperature sensor to determine if water temperatures remained warm enough for lionfish to overwinter here. The first dive team dropped onto the site and found conditions quite different from the rest of this trip. There was a major current, and the visibility was only about 30 ft on the bottom. Often we could not see the wreck for the fish. The density of lionfish was much lower at this wreck than last year. Our second dive on the City of Houston is the first site we have surveyed that didn't have any lionfish. It is also our shallowest and likely gets much colder in the winter than the other sites we have surveyed.



High density of fish
(Courtesy of Doug Kesling)



Wreck
(Courtesy of Doug Kesling)

Day 5: July 21, 2005

Weather and sea conditions continue to hold for us as we travel through Onslow Bay on the NC shelf. Today we had two more exceptional dive sites that were in water depths from 115 to 130 ft deep.

Air Temperature: 90 °F

Surface Water Temperature: 79 °F

Bottom Water Temperature: 76 °F

Dive Team 1 (surveyors): Doug Kesling, Roldan Munoz, Paula Whitfield

Dive Team 2 (collectors): Christine Addison, Casey Coy, Joe Hoyt, Jay Styron

Safety divers: Clem Shemanski, Tracey Hamburger, Dave Score, Joe Bishop

But conditions in the water were very difficult due to a strong current which caused Dive Team 1 to miss the down line, we swam in the sand for almost 10 minutes before we found our site. We conducted a survey and found lionfish on the transect as well as an abundance of other tropical fishes (rock beauties and butterfly fish) and groupers (scamp, gag and yellowfin). Dive Team 2 was unable to make it to the site because of the currents which swept them far off the dive site. At the afternoon dive location, both teams made successful dives, and Team 2 came up with five live lionfish. This brings our total live lionfish in the tanks to 35. Temperature sensors were also deployed at each of these locations.



Underwater surveys
(Courtesy of Doug Kesling)



Diver
(Courtesy of Doug Kesling)

Day 6: July 22, 2005

Today we dove some of the most beautiful hard bottom habitat of the entire trip. These habitats, also known as ledges, are very distinct with up to 10 feet of relief in some places. This location, nicknamed lobster rocks, is aptly named and is in water depths up to 138 ft.

Air Temperature: 90 °F

Surface Water Temperature: 84 °F

Bottom Water Temperature: 76 °F

Dive Team 1 (surveyors): Doug Kesling, Roldan Munoz, Paula Whitfield

Dive Team 2 (collectors): Christine Addison, Casey Coy, Joe Hoyt, Jay Styron

Safety divers: Clem Shemanski, Tracey Hamburger, Dave Score, Joe Bishop

Spiny Lobsters were quite abundant at this location in addition to lionfish and other tropical fishes and invertebrates. We dove four locations here and were able to conduct two surveys and collect a total of 20 live lionfish for the day.



Caribbean spiny lobsters
(Courtesy of Doug Kesling)



Hardbottom site
(Courtesy of Doug Kesling)



Divers
(Courtesy of Doug Kesling)

Day 7: July 23, 2005

Today we woke to a rainy and stormy morning which dampened everyone's spirits. But the thunderstorms passed through and we were able to get in a full day of diving. Last night we traveled about seven miles due north and are now 55 miles SW of Beaufort Inlet.

Air Temperature: 85 °F

Surface Water Temperature: 86 °F

Bottom Water Temperature: 76 °F

Dive Team 1 (surveyors): Doug Kesling, Roldan Munoz, Paula Whitfield

Dive Team 2 (collectors): Christine Addison, Casey Coy, Joe Hoyt, Jay Styron

Safety divers: Clem Shemanski, Tracey Hamburger, Dave Score, Joe Bishop



Divers
(Courtesy of Thomas Nassif)



Surveyor and videographer
(Courtesy of Doug Kesling)

We completed four dives today at a location also known as lobster rocks. This area is very low relief hardbottom habitat. We are still seeing lionfish on every dive. The underwater visibility was about 70 ft. I don't think I have ever done this much diving with the visibility so good. We will end our mission by diving a wreck called the Naeco where I can retrieve a temperature logger.

FEATURED TEACHER AT SEA

Thomas Nassif is this year's NOAA Teacher At Sea aboard the Invasive Lionfish Survey cruise.

Mr Nassif hopes to spread the word about Lionfish to his students and friends back home in Washington, D.C. He is currently working on a Lionfish video documentary while aboard the Nancy Foster. Thomas is a mentor teacher at the Carnegie Institute and a science teacher for third and fourth grade students at St. Patrick's School. Be sure to check out his daily logs.



Thomas Nassif senior teacher Carnegie Institute