

Crab Pot Removal Program January 2021

N.C. Commercial Fishing Resource Fund

Project Period: January 1 – June 30, 2021

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Report Submitted:
Prepared by: Sara J. Hallas
North Carolina Coastal Federation
3609 Highway 24
Newport, NC 28570

Lost Fishing Gear Recovery Project January 2021

Summary – Lost, derelict and abandoned fishing gear represent one subset of marine debris that can result in degraded habitat, unwanted capture of living marine species, hazards to safety and navigation, and reduced aesthetics. Since the early 1990s, the N.C. Marine Patrol (NCMP) has removed these crab pots during the annual no-potting or closure period. Beginning with the 2014 closure, the NCMP agreed to accept assistance from a select group of commercial fishermen within a defined geographic area and timeframe, and under a permit held by the North Carolina Coastal Federation. North Carolina Sea Grant and NOAA Marine Debris Program monies funded the inaugural private-public partnership effort, and NOAA monies continued small-scale efforts in 2015 and 2016. N.C. General Assembly provided funding to expand the project coastwide 2017-2019. The Commercial Fishing Resource Fund Program provided funding support to re-start the project in 2021. In total, 30, two-person crews of commercial fishermen and women, canvassed internal coastal fishing waters on the northeast and central coasts and removed a total of 3,009 crab pots. Separate from the project efforts, the N.C. Marine Patrol conducted a cleanup on the southeast coast, in water south of the Highway 58 bridge, and removed 119 crab pots. There was a total of 2,940 blue crabs and 575 finfish released from retrieved pots; 27% constituted dead discards. Resources were leveraged to conduct three shoreline cleanups with community volunteers to expand the impact of these marine debris removal efforts. The federation worked with Dare County Public Works and coordinated with the N.C. Division of Marine Fisheries and N.C. Marine Patrol for this project. Results show that the partnership efforts to conduct the lost fishing gear removal are operationally achievable, as well as of value in improving conditions of coastal fisheries and habitat.

Background

Lost fishing gear as used in this report includes crab pots, eel pots, lines, buoys and other recreational or commercial harvest equipment that has been lost or abandoned in internal coastal waterways. The focus of this project is on removal of lost crab pots, although collection efforts often yield additional lost gear.

Historical Lost Fishing Gear Cleanup Efforts – N.C. Marine Patrol (NCMP) cleanup of lost fishing gear, primarily consisting of lost and abandoned crab pots, began in the early 1990s. However, the data on the number of pots collected was not recorded until 2003 (Table 1). These cleanup efforts were timed with the annual closure of internal coastal waters to all crab, eel, fish and shrimp pots, previously called the “no-potting” period. With an amendment to the Blue Crab Fishery Management Plan, the closure was replaced with a closed season Jan. 1-31 north of the Highway 58 bridge to Emerald Isle and March 1-15 south of the Highway 58 bridge.

As a general practice, once the waters close NCMP uses aircraft to spot concentrations of pots, and then deploys boat patrols. NCMP views all pots left in the water as unlawfully set, and thereby, as having the authority to take enforcement action on individuals that intentionally have left large arrays (called strings) of pots in the water.

Table 1. Number of lost crab pots recovered during the annual statewide pot closure period. The N.C. Marine Patrol began recording numbers in 2003. Cells with yellow shading designate years where commercial fishers assisted with recovery activities. See Appendix for approximate boundaries of NCMP districts.

Crab Pots Removed, 2003-2021				
Year	D1 - Northern District	D2 - Central District	D3 - Southern District	Total
2003	4047	900	127	5074
2004	7708*	527	108	8343
2005	2168	N/A	N/A	2168
2006	1117	391	24	1532
2007	896	135	24	1055
2008	757	190	110	1057
2009	589	257	60	906
2010	570	154	24	748
2011	656	183	141	980
2012	684	160	295	1139
2013	451	445	545	1441
2014	364	64	226	654
2015	1,004	149	155	1308
2016	753	80	70	903
2017	2,836	1,219	249	4304
2018	2,245	1,004	247	3496
2019	1,714	1,159	239	3112
2020	n/a	n/a	n/a	**
2021	2,243	766	119	3128
*During the winter of 2004, the high number of lost pots encountered appears to be a result of Hurricane Isabel (Sept. 2003).				
**Funding was not available for contracted cleanup efforts in 2020.				
NC Coastal Federation Lost Fishing Gear Recovery Efforts				

Governing Regulations and Policies – In North Carolina the general public are not freely allowed to remove lost fishing gear. The most pertinent legislation relating to cleanup of lost fishing gear in North Carolina internal coastal waters is North Carolina General Statute §113-268:

§ 113-268. Injuring, destroying, stealing, or stealing from nets, seines, buoys, pots, etc.

- (a) It is unlawful for any person without the authority of the owner of the equipment to take fish from nets, traps, pots, and other devices to catch fish which have been lawfully placed in the open waters of the State.
- (b) It is unlawful for any master or other person having the management or control of a vessel in the navigable waters of the State to willfully, wantonly, and unnecessarily do injury to any seine, net or pot which may lawfully be hauled, set, or fixed in such waters for the purpose of taking fish except that a net set across a channel may be temporarily moved to accommodate persons engaged in drift netting, provided that no fish are removed and no damage is done to the net moved.
- (c) It is unlawful for any person to willfully steal, destroy, or injure any buoys, markers, stakes, nets, pots, or other devices on property lawfully set out in the open waters of the State in connection with any fishing or fishery.
- (d) Violation of subsections (a), (b), or (c) is a Class A1 misdemeanor.
- (e) The Department may, either before or after the institution of any other action or proceeding authorized by this section, institute a civil action for injunctive relief to restrain a violation or threatened violation of subsections (a), (b), or (c) of this section pursuant to G.S. 113-131. The action shall be brought in the superior court of the county in which the violation or threatened violation is occurring or about to occur and shall be in the name of the State upon the relation of the Secretary. The court, in issuing any final order in any action brought pursuant to this subsection may, in its discretion, award costs of litigation including reasonable attorney and expert-witness fees to any party. (1987, c. 636, s. 1; 1989, c. 727, s. 112; 1993, c. 539, s. 849; 1994, Ex. Sess., c. 24, s. 14(c); 1998-225, s. 3.9.)

Project History - From 2014-2016, the N.C. Coastal Federation has, through grant funding, involved commercial watermen in lost crab pot recovery efforts during the “no-potting” period in NCMP District 1. The project received grant monies from N.C. Sea Grant and National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program in the inaugural year to offset equipment and staff costs. Funding for 2015-2017, in part, was provided once more by the NOAA Marine Debris Program. In 2016, the N.C. General Assembly appropriated \$100,000 to the N.C. Department of Environmental Quality, Division of Marine Fisheries (DMF), to be administered by N.C. Sea Grant at North Carolina State University for a “Crab Pot Removal Pilot Program”. The N.C. Coastal Federation was awarded the contract to conduct this work. In 2017 and 2018, the N.C. General Assembly appropriated \$100,000 to the N.C. Coastal Federation for a crab pot cleanup program and included reporting requirements. The Commercial Fishing Resource Fund Program awarded \$115,599 to the Coastal Federation to restart the Fishing Gear Recovery project in 2021.

Methodology

Recruitment and Training – All participating commercial watermen are registered under a Scientific and Educational Activity Permit (SEAP) issued by the state of North Carolina. For simplicity, the N.C. Coastal Federation temporarily added the participant names to the existing SEAP (#707067) during the timeframe of the project. By listing watermen participants on the SEAP, they each become “authorized agents” to clean up lost fishing gear, notably crab pots.

To solicit project participants, the N.C. Coastal Federation issued an open application period from mid-November thru mid-December, 2020. [A press release was issued on November 15, 2020](#) and additional communications were shared through other channels, including the federation’s website and social media platforms. Applicants were expected to meet the following criteria: 1) All applicants must possess a valid Standard Commercial Fishing License (SCFL) and 2) All vessels were required to carry two people for safety and data collection.

All applicants were screened for any major fisheries-related violations through NCMP. Any applicant with a recent or extensive violation history was not permitted to participate in the project. Vessel size, home port, existing onboard equipment, availability and past project experience were additional factors considered when determining whether to accept an applicant.

In total, 60 watermen and women (30 captains and 30 mates) were selected to conduct the on-the-water cleanup. Each vessel received \$450 per day. All 30, two-person crews were required to carry a single tablet (provided by project personnel) to document data. Training sessions on general project protocol were conducted for hired captains. All the participants reviewed data collection procedures and project logistics.

Field Work – With advisement from NCMP and N.C. Division of Marine Fisheries (NCDMF), contracted water-based cleanup efforts took place in marine patrol Districts 1 and 2. Separate from the project efforts, NCMP conducted a cleanup in District 3, in water south of the Highway 58 bridge. With consultation from both hired commercial watermen and NCMP officers, certain areas were prioritized. The hired crews were given clearance to begin cleanup efforts on Jan. 8, 2021, after NCMP did a sweep of the areas. This practice allows watermen participating in the cleanup project not to be involved with any enforcement actions.

On-water cleanup activities occurred at each captain's discretion through January 31. Twenty-one vessels were hired in NCMP District 1 and nine in NCMP District 2. Each captain worked a minimum of three days, but depending on pot accumulation and area density, up to seven days. Individual availability and weather conditions also impacted the number of days worked by each boat. Crews were required to work on the water from 8 a.m. to 2 p.m.

Watermen were instructed to bring lost fishing gear to designated collection sites in each NCMP District. For the crews at port in Wanchese, this step was part of their working day during the course of the project. For crews outside of Wanchese, hauling pots to unload was considered a separate working day, and was scheduled upon completion of the cleanup work on the water.

If a pot had an identifiable buoy, attempts were made to return the pot to its owner. The remainder of the gear was recycled to the best extent possible. NCDMF provided assistance with processing discarded gear and Dare County Public Works provided roll off dumpsters and service to haul the discarded pots to the scrapyards. In the District 1 region, an effort was implemented to return usable gear to its owner. All of the whole pots, deemed in good enough condition to use again, were stored in a secure lot in Wanchese. This gear was made available for the rightful property owners to claim from Feb. 1 to Feb. 15. Approximately 525 crab pots, with an identifiable buoy, recovered from the Albemarle and Pamlico Sound region, were claimed by the rightful owners. Over the course of 15 days, more than half of all the whole pots in good condition were claimed from the storage site in Wanchese. This supports the coastal economy, as the value of a used crab pot put back into the industry, is much greater than scrapping the gear for metal at pennies per pound.

Data Collection and Analysis – Each crew was required to carry a Samsung Galaxy Tablet equipped with a custom data collection program that was built using a program from “Cybertracker.” Created for data collection in remote locations where wireless internet and cellular data signals are not readily available, the program utilizes existing satellite networks. If a crew experienced a tablet or software malfunction, each was equipped with backup data sheets that could be used to manually write down the GPS coordinates of the encountered pot; other data may not be collected in this circumstance.

Watermen participants recorded physical and geographical attributes of each crab pot retrieved, including: (1) GPS coordinate, (2) pot condition (e.g., whole versus partial), (3) whether the pot was in a reusable condition (4) number of live and dead finfish and blue crabs. Maps depicting the number of pots retrieved were created using ArcGIS software (Figure 1 and Appendix A-C).

A limited number of crews used a Garmin echo MAP 74sv side-scan sonar to aid in recovery efforts of submerged pots, as weather and time allowed. Various retrieval methods required grappling hooks and snag lines. Since 2014, these retrieval methods and equipment were designed and created by watermen (who volunteered time and materials) from different areas of the coast.

Results

Lost Fishing Gear Recovered - Thirty, two-person crews retrieved a total of 3,009 lost crabs from NCMP Districts 1 and 2. (Figure 1 and Appendix A).

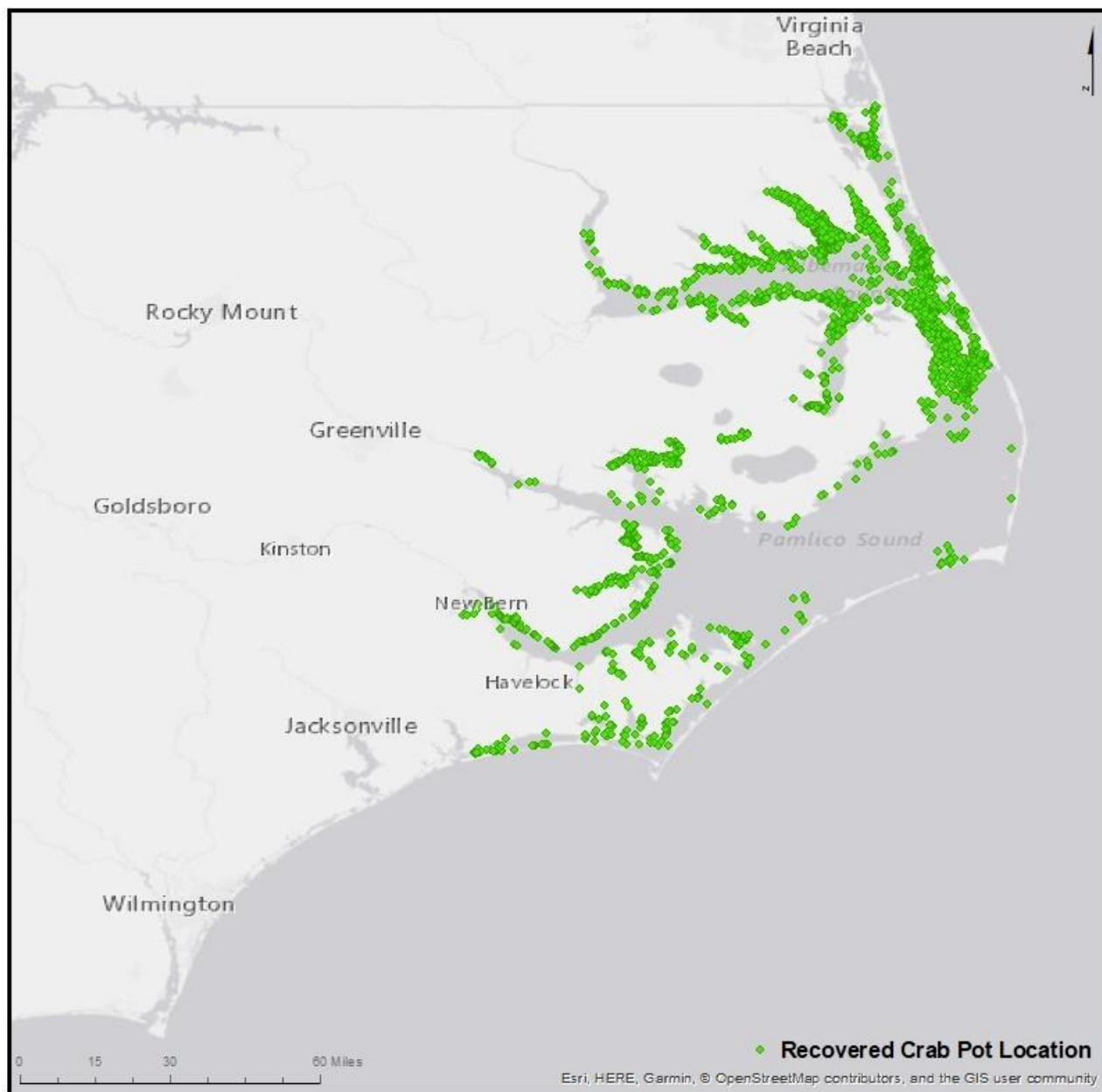


Figure 1. Map showing the entire North Carolina coastline and numbers and locations of lost crab pots (n=3,009) retrieved by 30 contracted crews over the period spanning January 8-31, 2021.

In Marine Patrol District 1 — which covers the northeast region of the North Carolina coast from the Virginia line to Ocracoke — 21 boats made up of 42 commercial fishers picked up 2,243 crab pots. In District 2 — which spans from Ocracoke to Emerald Isle— 9 boats made up of 18 commercial fishers removed 766 crab pots. The N.C. Marine Patrol removed 119 pots in District 3, from Cape Carteret to the South Carolina line.

The watermen crews that set out to use side scan sonar to identify submerged pots successfully retrieved 74 crab pots.

Three volunteer cleanups were held to expand the reach and involvement toward marine debris removal efforts in the surrounding community. Over the course of three separate events in the Manteo and Wanchese areas, 35 people contributed a total of 99.25 volunteer hours, and removed nearly 75 bags of debris (trash and recycling). These land-based efforts canvassed nearly 10 miles of area and brought greater impact and awareness and a heightened sense of community involvement to this project.

Bycatch Encountered –Of the 3,009 retrieved, 508, or 17%, were considered “partial pots,” consisting of only one or all of the following: buoy, line or pot iron. These categories of partial pots were removed from bycatch analysis. In total, 2,501 whole, or intact, crab pots were retrieved and used for bycatch characterization.

Out of the 2,501 intact pots retrieved, 1,345 (54%) were entirely free of bycatch. Within the remaining 1,156 pots, a total of 2,940 blue crabs and 575 finfish were captured as a product of ghost fishing (Figure 2). A total of 812 blue crabs were dead, versus 140 dead finfish; combined 27% of all the bycatch was dead (n=3,515). A total of 2,128 blue crabs and 435 finfish were released alive; combined 73% of all bycatch was released alive. (Figure 2).

Data collected revealed that of the 2,111 completely whole pots, 1,530 (72%) could be reused. The term “reused” is defined here as any pot that is in good condition and able to “fish, as is” for another season or more. Watermen also had the option of recording additional observations. Other species not officially tracked, but observed by some as bycatch included stone crabs and oysters. There was no evidence of sea turtles or diamondback terrapins in any retrieved pots.

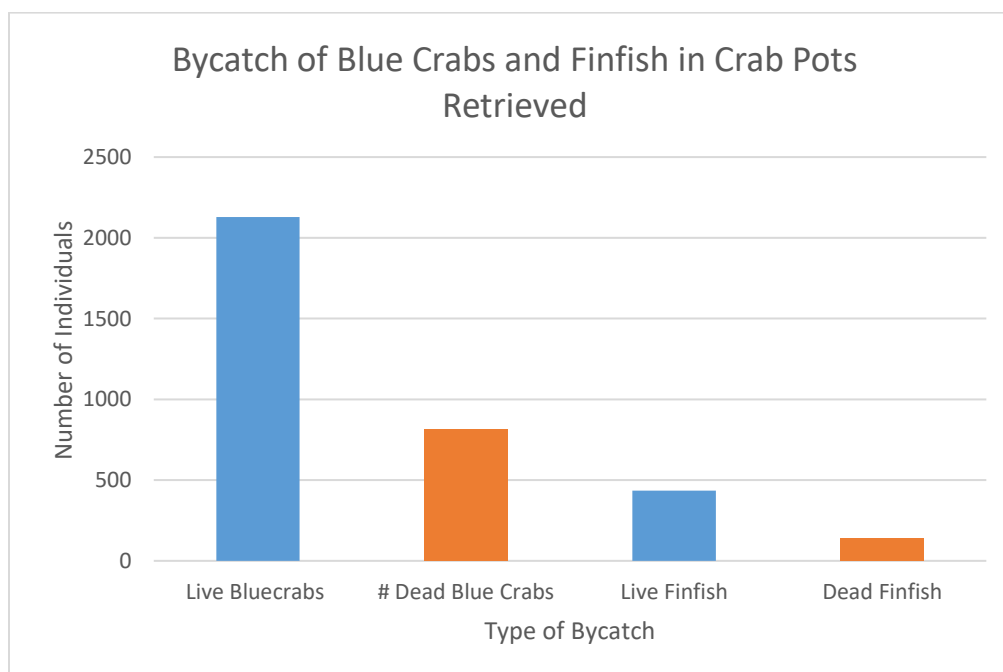


Figure 2. Breakdown of bycatch observed in intact crab pots retrieved.

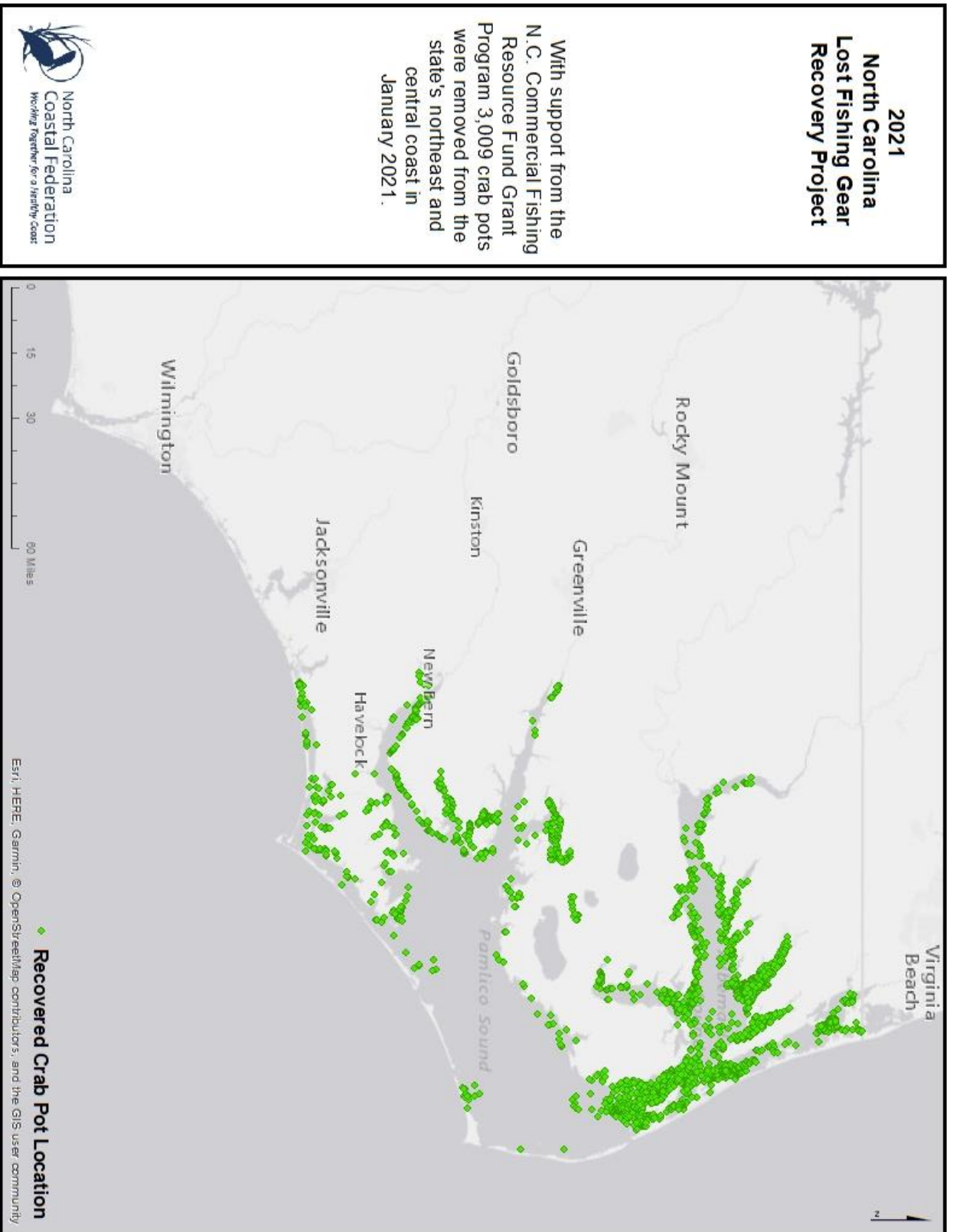
Conclusions

Fishing Gear Recovery -The partnerships between the N.C. Coastal Federation, N.C. Marine Patrol, N.C. Division of Marine Fisheries, Dare County Public Works and commercial watermen and women have resulted in another successful Lost Fishing Gear Recovery Project statewide. The partnerships have grown and adapted over the past seven years, even among changes to staff involved and revisions to fishery management policies. In fact, the amendment to the Blue Crab Fishery Management Plan that revised the closed season, from January 1-31 was advantageous to implementing the fishing gear removal project. This allowed the contracted crews a larger window of availability to choose the best weather conditions. This is a benefit to better visibility and retrieval and eliminated the pressure of completing the work in the shortest time frame possible, as in years' past. Funding from the N.C. Commercial Fishing License Fund proved a good fit to continue these project efforts that improve habitat, water quality and coastal economies.

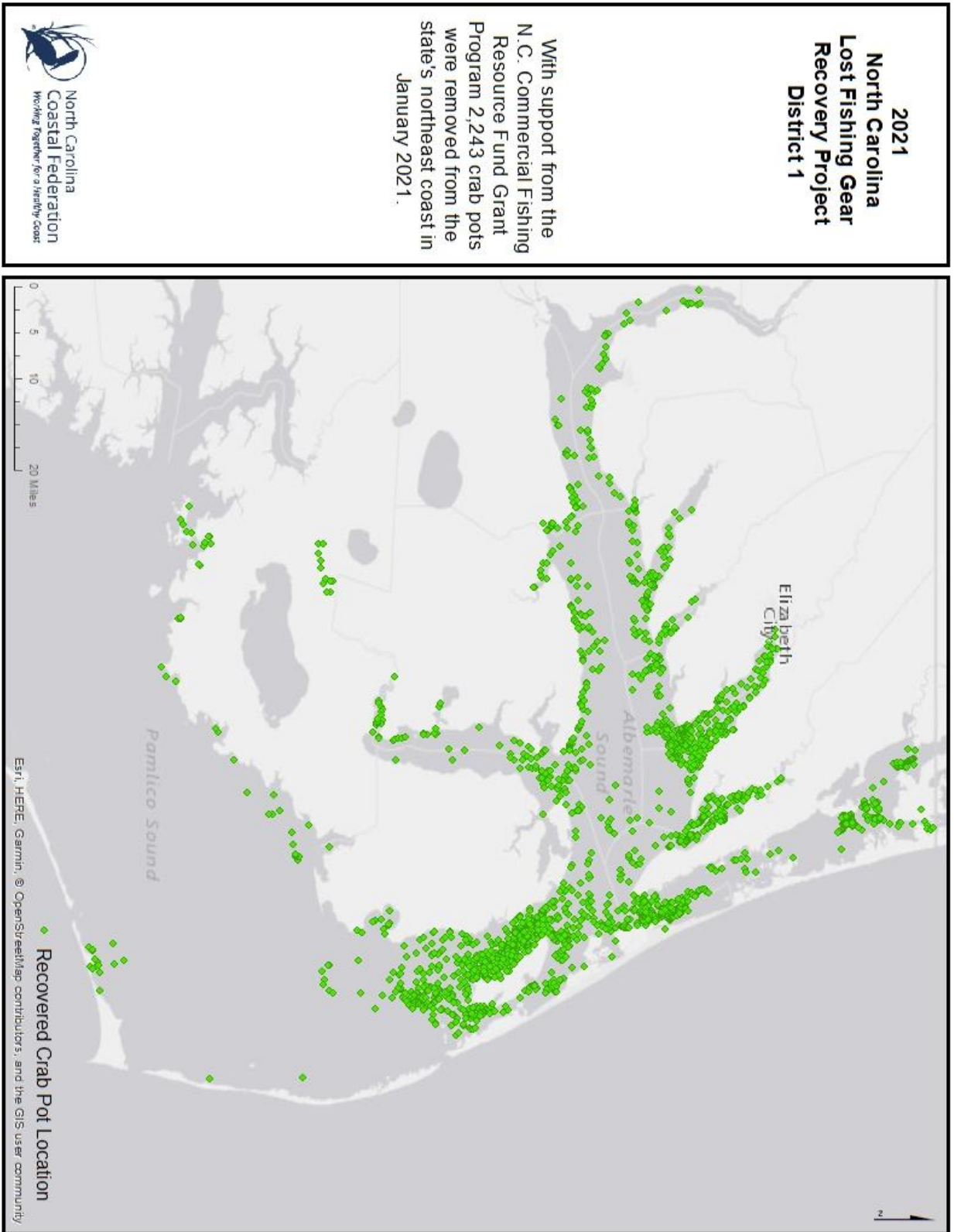
This project is part of the federation's effort to ensure a North Carolina coast that is free of marine debris. Establishing an annual paid program for marine debris removal, including crab pots, is a key objective of the [North Carolina Marine Debris Action Plan](#). For more information about this work, and other current and recent marine debris projects visit nccoast.org/marinedebris.

Recommendations for Future work – The efforts to return the lost pots to the rightful owners was successful for a second time in NCMP District 1. The whole pots, in good condition, recovered from the Albemarle and Pamlico Sound areas, were sorted, stored securely and made available for the rightful property owners to reclaim by appointment. The commercial fishers that picked up their gear all expressed sincere thanks and appreciation for the overall cleanup project and for being able to re-claim their property. More than 500 crab pots were returned to their rightful owners through this process. A recommendation to improve these efforts would be to establish that an owner relinquishes rights to any recovered gear that is left unclaimed. This would enable the gear to change ownership and could possibly be marked with a tag to designate it as such. This would ensure an increased amount of gear in good condition getting put back into the industry. At the end of the claiming period, a couple hundred useable pots were sent to the scrap yard, that could have been put back to work with new owners, if permitted. With just over 70% of the whole pots being deemed reusable this past year, this is a great opportunity to add even more value to the project.

Appendix A. Map of Pots Collected by contracted crews



Appendix B. Map of Pots Collected in District 1



Appendix C. Map of Pots Collected in District 2

