

Reports

2020

Targeted “Hotspot” Removal of Derelict Blue Crab Traps (VA, MD)

Kirk J. Havens
Virginia Institute of Marine Science

Donna Marie Bilkovic

David Stanhope
Virginia Institute of Marine Science

Kory Angstadt
Virginia Institute of Marine Science

Andrew M. Scheld
Virginia Institute of Marine Science

Follow this and additional works at: <https://scholarworks.wm.edu/reports>



Part of the [Aquaculture and Fisheries Commons](#), and the [Marine Biology Commons](#)

Recommended Citation

Havens, K. J., Bilkovic, D., Stanhope, D., Angstadt, K., & Scheld, A. M. (2020) Targeted “Hotspot” Removal of Derelict Blue Crab Traps (VA, MD). Virginia Institute of Marine Science, William & Mary. <https://doi.org/10.25773/pdsg-2987>

This Report is brought to you for free and open access by W&M ScholarWorks. It has been accepted for inclusion in Reports by an authorized administrator of W&M ScholarWorks. For more information, please contact scholarworks@wm.edu.



Final Programmatic Report Narrative

Targeted “Hotspot” Removal of Derelict Blue Crab Traps (VA, MD) #66383

1. Summary of Accomplishments

In the winter of 2019/2020, five commercial watermen spent a cumulative total of 120 removal days on the water and collected 971 derelict blue crab traps which contained 985 blue crabs, 239 fish (oyster toad fish, black sea bass, flounder, pig fish, striped bass, speckled trout, perch, butterfish), 31 diamond back terrapin (a listed “species of concern”), and one duck. A majority of the traps removed were metal as opposed to vinyl coated (83% and 17%, respectively). Bycatch was present in 43% (346) of metal traps and 44% (72) of vinyl coated traps removed. On average, the instantaneous capture rates were similar for both trap types with an average of 1.0 crab captured per trap and 0.25 fish captured per trap. In addition, 10 abandoned eel traps were removed which contained 2 blue crabs, 3 fish, and 1 eel.

Project Activities & Outcomes

Five commercial watermen removed 971 (buoyed and unbuoyed) blue crab traps from five ‘hotspot’ locations in the Virginia portion of the Chesapeake Bay and the Potomac River (Figure 1, Table 1). Removal methodology followed previous removal efforts (Havens et al. 2011) with some watermen scanning for derelict traps on one day and removing identified derelict traps on subsequent days and some watermen scanning and removing on the same day. Overall, 418 (43%) of the removed traps contained bycatch with bycatch percentage varying by region (Figure 2). This project was the first to target the Potomac River where 386 traps were removed containing 290 blue crabs and 96 fish (Table 2). Bycatch recorded in the derelict blue crab traps included 7 fish species, diamond back terrapin, and a duck (Table 3). Approximately 5% of recovered blue crab traps had oyster growth. Of the bycatch recorded in the derelict blue crab traps, 31% of blue crabs, 8% of fish, and 97% of terrapin were reported as dead.

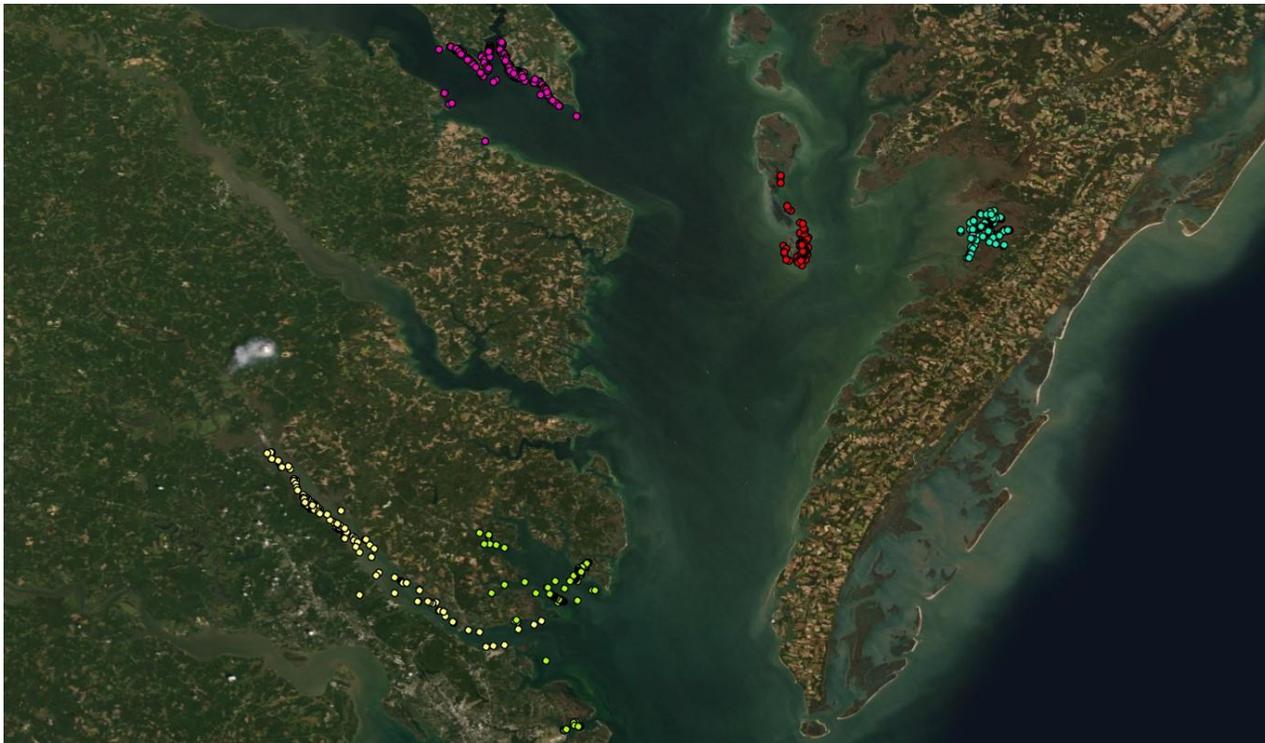


Figure 1. Location of 2019/2020 derelict trap removals in targeted “hotspots” within the Chesapeake Bay, Virginia and locations for present proposal removals (Potomac River, Mobjack Bay, Lower York River, Eastern Shore, Tangier Island).

Location	# of buoyed traps	# of unbuoyed traps	# of removal days
Potomac River	58	328	30
Tangier Island	0	123	27
Eastern Shore	167	38	28
Lower York River	111	21	17
Mobjack Bay	118	7	18
TOTALS	454	517	120

Table 1. Number of buoyed and unbuoyed traps removed by region.

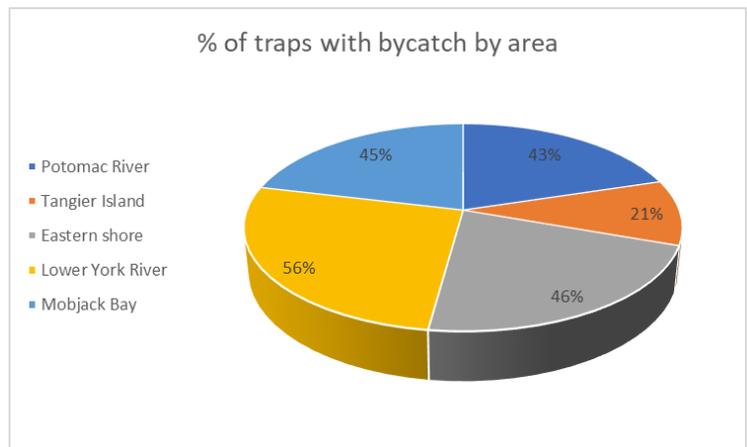


Figure 2. Percent of removed traps with bycatch by area.

Location	# of metal traps	# of vinyl coated traps	Total # of traps	# of blue crabs	Mean blue crab catch per trap	# of fish	Mean fish catch per trap
Potomac River	359	27	386	290	0.75	96	0.25
Tangier Island	71	52	123	62	0.50	0	0.00
Eastern Shore	187	18	205	239	1.17	37	0.18
Lower York River	110	22	132	251	1.90	104	0.79
Mobjack Bay	81	44	125	143	1.14	2	0.02
TOTALS	808	163	971	985	1.01	239	0.25

Table 2. Derelict blue crab traps by type (metal vs vinyl coated) with associated bycatch removed by location.

Total Blue crab	987	31% dead
Males	514	32% dead
Females	473	30% dead
Black Sea Bass	2	
Butterfish	1	
Eel	1	
Flounder	6	
Oyster Toad Fish	100	
Perch	120	
Pigfish	4	
Speckled Trout	1	
Striped Bass	8	
Sea Duck	1	
Terrapin	31	

Table 3. Bycatch species reported in derelict traps (includes derelict eel traps).

Outcomes

A total of 1,079 items were removed during the project period (Table 4). The project targeted areas of high commercial crabbing activity (hotspots) for derelict trap removal. Removal of derelict traps has been shown to provide a positive impact on subsequent commercial harvest of blue crabs (Scheld et al. 2016; DelBene et al. 2019). The project documented bycatch by trap type (metal vs vinyl coated) with both types continuing to persist and capture crabs and fish after being lost.

Items Removed	
Crab traps (intact)	942
Crab traps (partial, wire only)	29
Total crab traps	971
Frame only	98
Eel traps	10
Total items removed	1079

Table 4. Items removed during project period.

The continued capture of blue crabs and terrapin throughout the winter suggests that warming bay waters and ‘false spring’ events may contribute to increased bycatch. Terrapins were reported in derelict traps from December to February (12/17/2019 Eastern Shore, 1/02/2020 Eastern Shore, 1/22/2020 Mobjack Bay, and 2/10/2020 Potomac River). Twenty six (26) diamond back terrapin were found in metal traps and 5 diamond back terrapin were found in vinyl-coated traps.

In addition, targeted removals can help further validate and refine the spatially explicit estimates of derelict trap densities and help guide management efforts.

References

Bilkovic, D.M., H.C. Slacum Jr., K.J. Havens, D. Zaveta, C.F. Jeffrey, A.M. Scheld, D. Stanhope, K. Angstadt, J.D. Evans. 2016. Ecological and Economic Effects of Derelict Fishing Gear in the Chesapeake Bay. 2015/2016 Final Assessment Report. Prepared for Marine Debris Program, Office of Response and Restoration, National Oceanic and Atmospheric Administration.

DelBene, J.A., D.M. Bilkovic, A.M. Scheld. 2019. Examining derelict pot impacts on harvest in a commercial blue crab *Callinectes sapidus* fishery. Mar. Pollut. Bull. 139: 150-156.

Havens, K.J., D. Bilkovic, D. Stanhope, and K. Angstadt. 2011. Fishery Failure, Unemployed Commercial Fishers, and Lost Blue Crab Pots: An Unexpected Success Story. *Environmental Science and Policy* 14(4): 445-450.

Scheld, A.M., D.M. Bilkovic, K.J. Havens. 2016. The dilemma of derelict gear. *Sci. Rep.* 6 19671.

Lessons Learned

- The annual input of derelict crab traps continues at a rate predicted in Bilkovic et al. 2016.
- Derelict traps continue to persist (both vinyl-coated and metal) and continue to entrap and kill crabs, fish, and other animals.
- Warming Bay waters may be exacerbating derelict crab trap impacts on bycatch particularly blue crabs and terrapin which may be becoming more active in winter months and encountering derelict traps during the blue crab fishery closed season.

Dissemination

The location and bycatch of the derelict pots has been added to the online interactive map for public viewing

<http://cmap2.vims.edu/MarineDebris/MarineDebris.html>

Information gathered by the commercial watermen has been provided to the Virginia Marine Resources Commission and the Potomac River Fisheries Commission, the regulatory agencies tasked with overseeing the commercial blue crab fishery in Virginia and the Potomac River.

Information regarding the capture of diamond back terrapin and the issue of ‘false spring’ warming waters has been provided to the National Fish & Wildlife Foundation, the Virginia Coastal Zone Management Program, the NOAA Marine Debris Program, and the Virginia Marine Resources Commission. The Virginia Marine Resources Commission is investigating options to reduce terrapin bycatch.

Project Documents

1. Photo of black sea bass in derelict trap
2. Photo of blue crabs in derelict trap
3. Photo of blue crabs in derelict trap
4. Photo of duck found in derelict trap
5. Photo of perch and blue crabs in derelict trap
6. Photo of oyster toadfish in derelict trap
7. Photo of striped bass in derelict trap
8. Photo of diamond back terrapins in derelict trap

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as “PROTECTED” and provide an explanation and complete citation to the statutory or regulatory source for such protection.*

The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government or the National Fish and Wildlife Foundation and its funding sources. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government, or the National Fish and Wildlife Foundation or its funding sources.

