

DERELICT FISHING GEAR: A BUOY ISLAND MAP

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INTRODUCTION

I am engaged in an ongoing study of drift patterns of lobster buoys and other marine flotsam in order to determine the distribution and origin of marine debris in the Acadia region. During the summer of 2011, 1517 buoys were photographed and documented on Great Duck Island (GDI). These buoys have subsequently been mapped based on likely points of origin according to ownership patterns.

METHODS

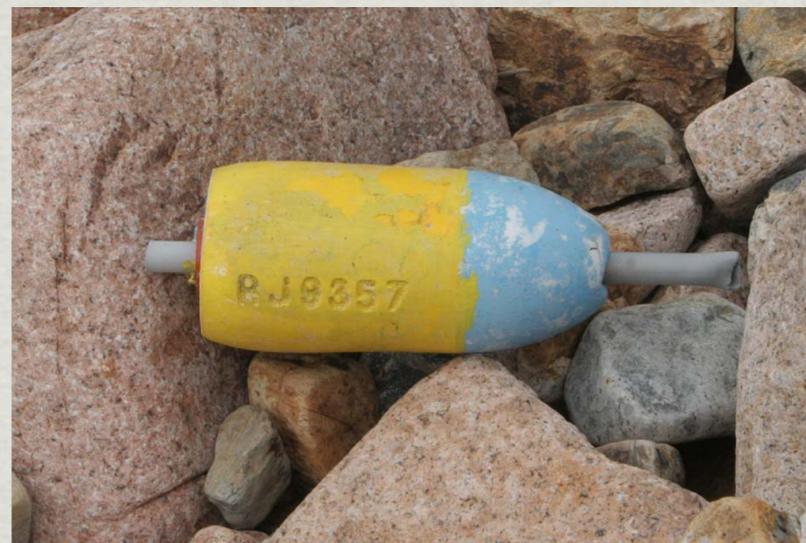
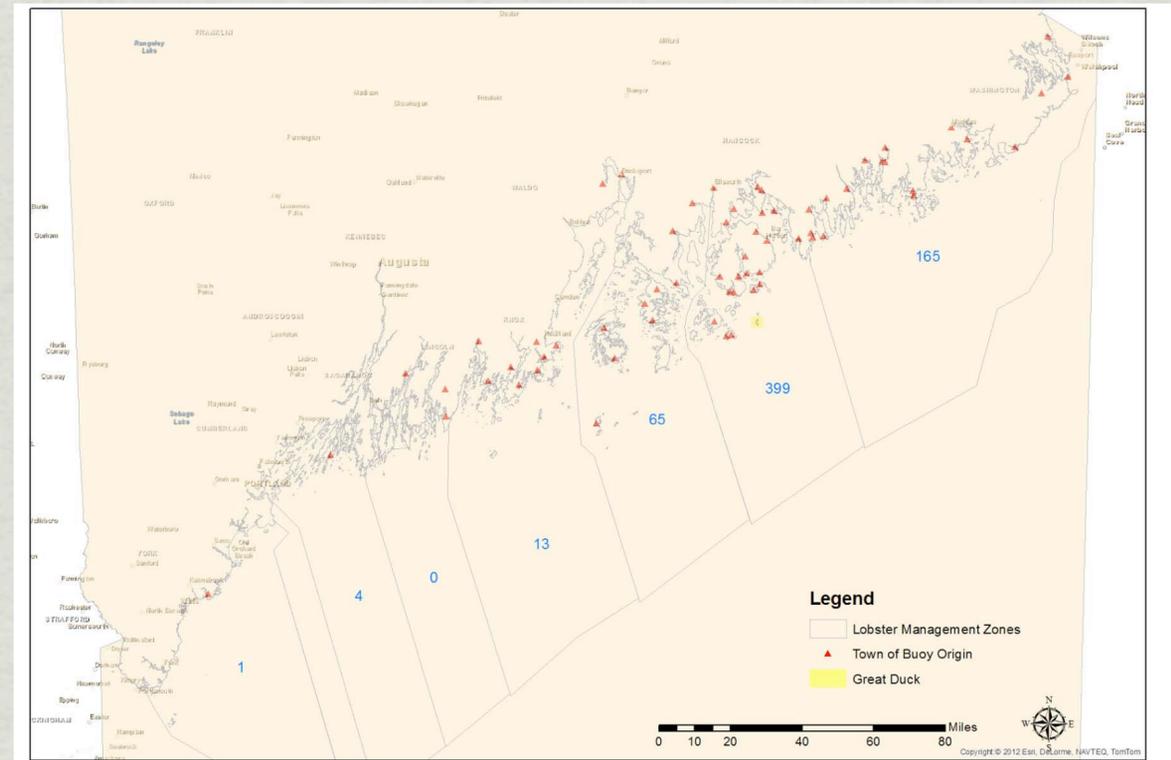
The rocky shoreline of GDI was surveyed for derelict lobster buoys from 6/19/11 to 8/4/11. Each buoy was documented by location, section, Maine state catalogue number, photo identification number, collection date, buoy identification number, physical description, and material. Photographs of all collected buoys were taken for ease of future identification, as each buoy contains distinctive markings best described through photography.

A database of 2011 Lobstering Licenseholders from the Maine Office of Licensing and Registration was used to match buoys to 2011 licenseholders. These matches were based on several factors including inscribed initials, lobstering license number, and buoy colors.

RESULTS

Out of the 1517 documented buoys, 640 were matched (42.65%) and 870 remain unidentified (57.35%). The matched buoys came from the following Lobstering Management Zones: 165 from Zone A (25.50%), 399 from Zone B (59.37%), 65 from Zone C (00.10%), 13 from Zone D (00.02%), 4 from Zone F (00.01%), and 1 from Zone G (00.0001%). Town of origin for each buoy was assumed to be that on the licenseholder's address. The matched buoys came from 65 different towns across the coast of Maine, ranging from as far south as Kennebunkport and as far north as Perry and Lubec.

MAP OF THE MAINE COASTLINE; WITH BUOY ORIGIN BY TOWN AND FISHING ZONE



ABOVE: an example of an identifiable lobster buoy with clearly defined initials, registration number, and colors.

UPPER RIGHT: Hundreds of buoys cover the shoreline of GDI.

RIGHT: examples of unidentifiable buoys with illegible and/or missing registration numbers.



DISCUSSION

The highest quantity of matched buoys comes from the fishing zones closest to GDI. However, the total quantity of matched buoys comes from a surprising range of towns and lobster management zones across the state. This may indicate a large mixing of currents within the Gulf of Maine. The provided GIS map illustrates this breadth by marking each town of origin and fishing zone. The blue numbers on the map list the quantity of buoys sourced from each fishing zone.

A bigger question is why weren't 870 of GDI's lobster buoys identified and matched to lobster licenseholders? Many of these buoys had significant wear or damage to license numbers which made them illegible or incomplete, and many were missing their license numbers entirely. Some buoys had clearly inscribed license numbers which were not listed in the 2011 database. These buoys may be from lobstermen who were registered in previous years, or may belong to fishermen in other states. In a handful of cases, the initials on some buoys did not match the current licenseholder's name. This may indicate a recycling of license numbers by the Department of Marine Resources. Although the number is still in use, the original owner remains unidentified.

The study of these lobster buoys acts in some way as a proxy study for other floating materials in the Gulf of Maine. Better knowledge of debris transport could assist in the planning of resources to environmental disasters such as oil spills, or it may help predict movement patterns in phytoplankton or other organisms powered by gulf currents.

ACKNOWLEDGEMENTS

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