

Population identity and occupancy characteristics of humpback whales (*Megaptera novaeangliae*) in the New York Bight apex

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INTRODUCTION

- Humpback whale sightings have been increasing in the New York City area (Brown et al. 2018).
- Gotham Whale began opportunistically documenting humpback whales in this area in 2011, and currently manages the New York City Humpback Whale Catalog.



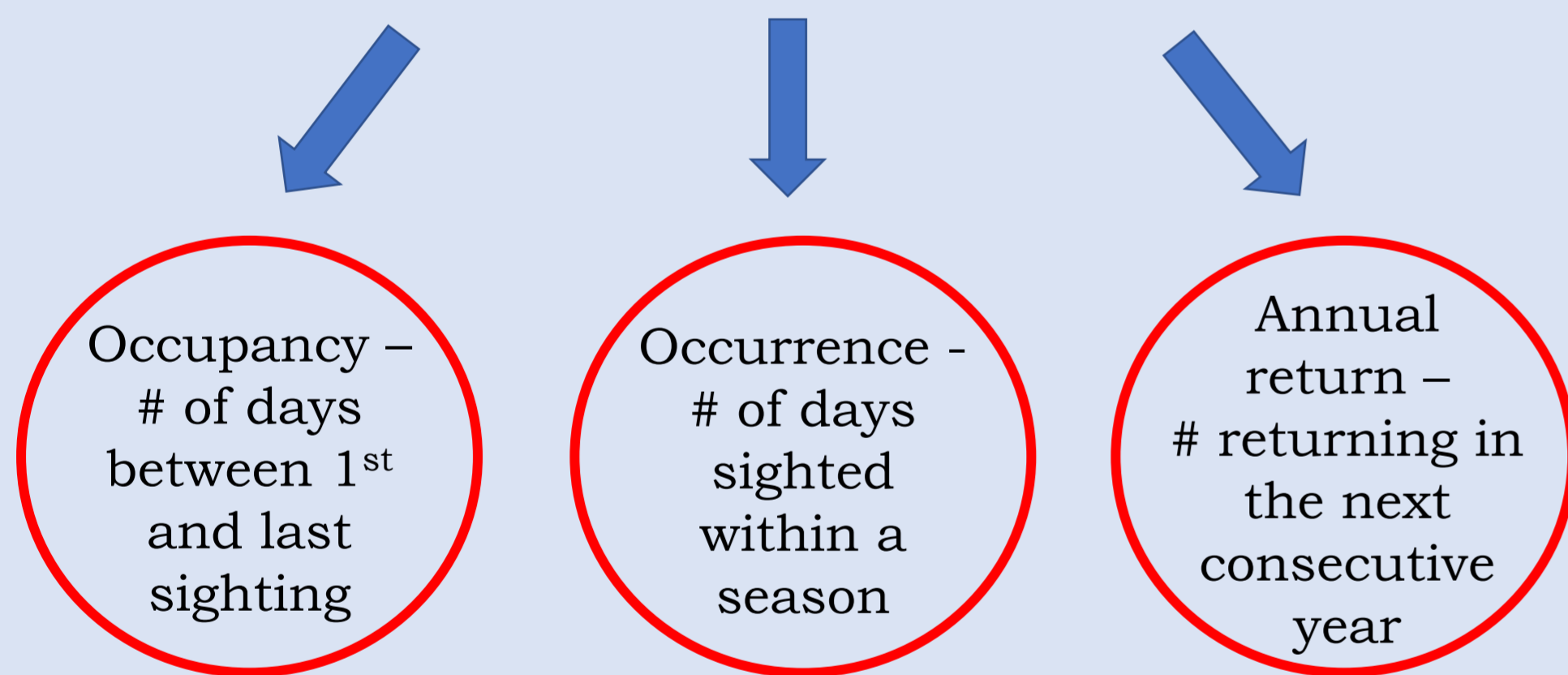
OBJECTIVE

- To study the sighting patterns of individual humpback whales in the New York City Humpback Whale Catalog, including their exchange between the New York Bight apex (NYBA) and other areas of the North Atlantic.

METHODS

Occupancy Characteristics

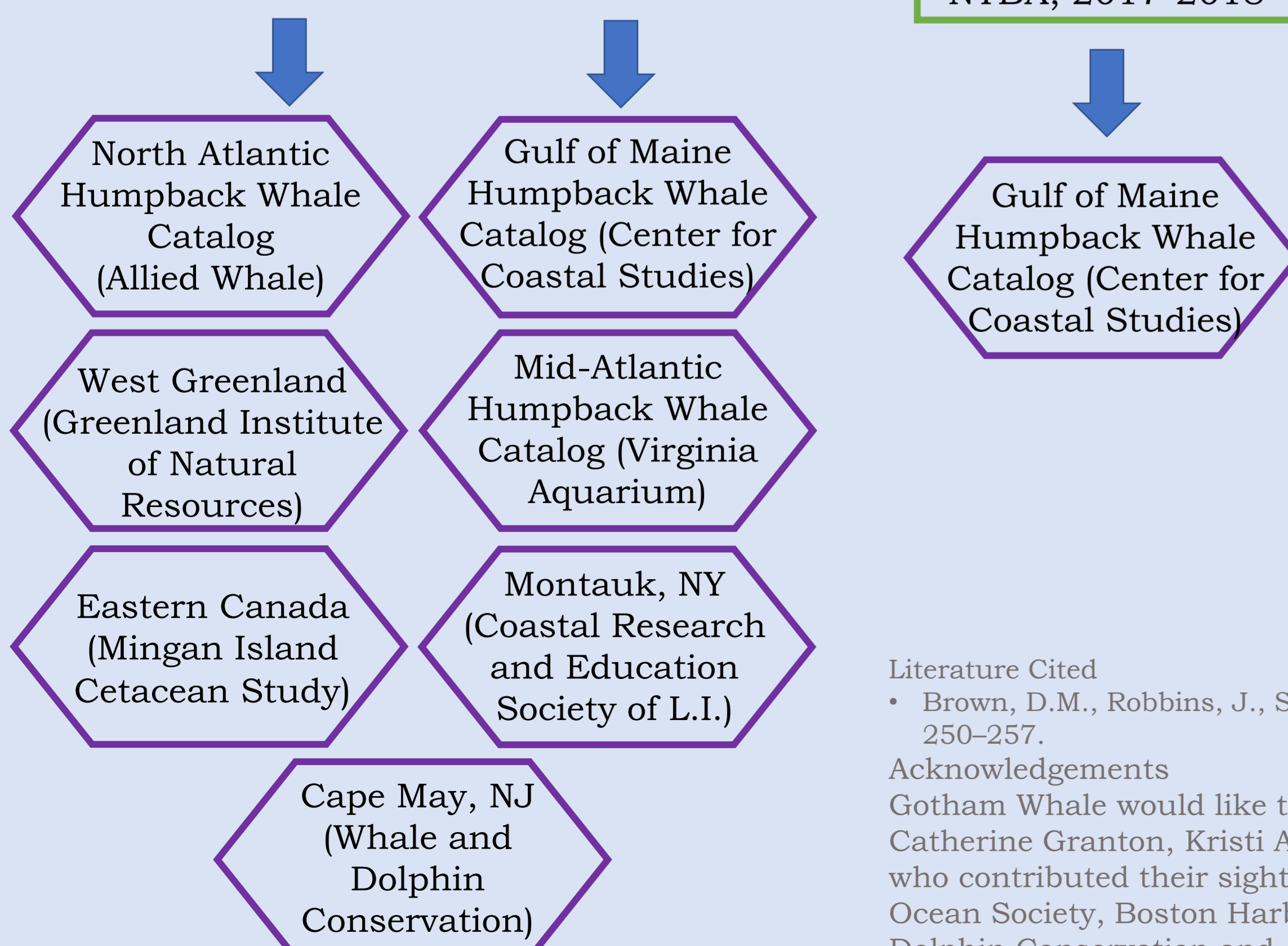
Sighting histories of 100 whales from the NYBA, 2012-2018



Population Identity

Photographic matching of 50 whales from the NYBA, 2012-2016

Additional 50 whales from the NYBA, 2017-2018



RESULTS

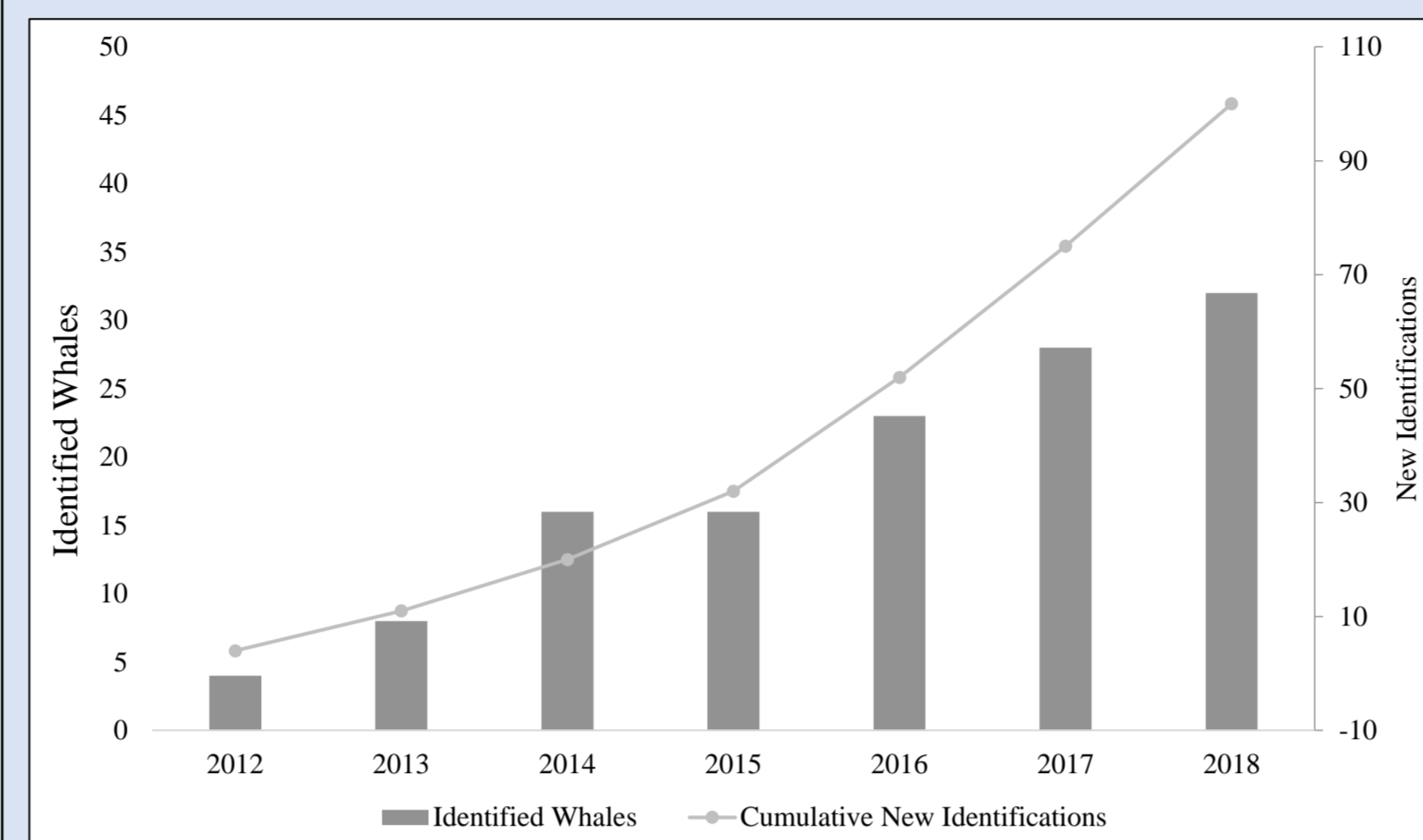


Fig. 1. The annual frequency of identified humpback whales, compared to the cumulative number of new identifications

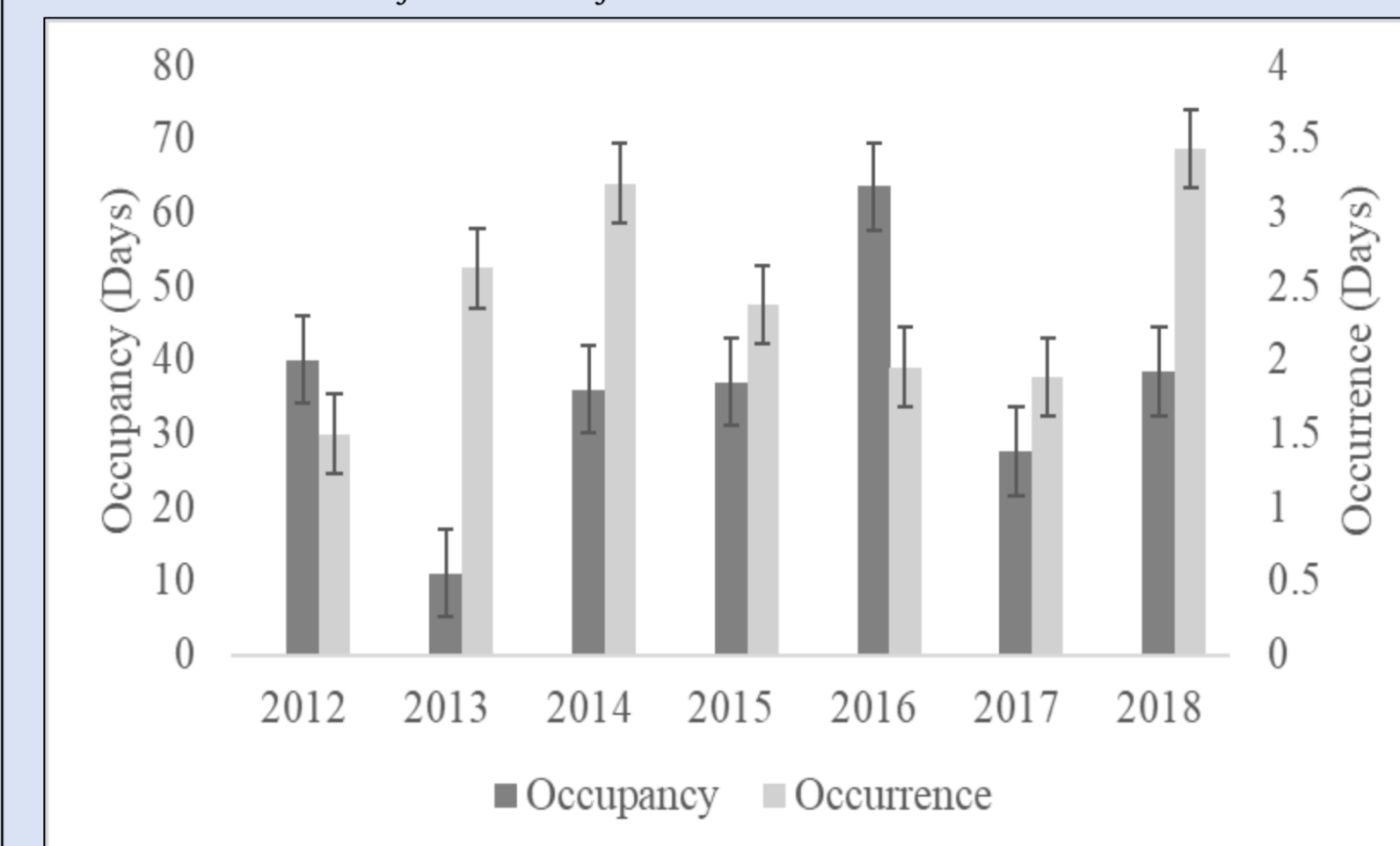


Fig. 2. Mean annual occupancy and occurrence for humpback whales in the New York Bight apex, 2012-2018.

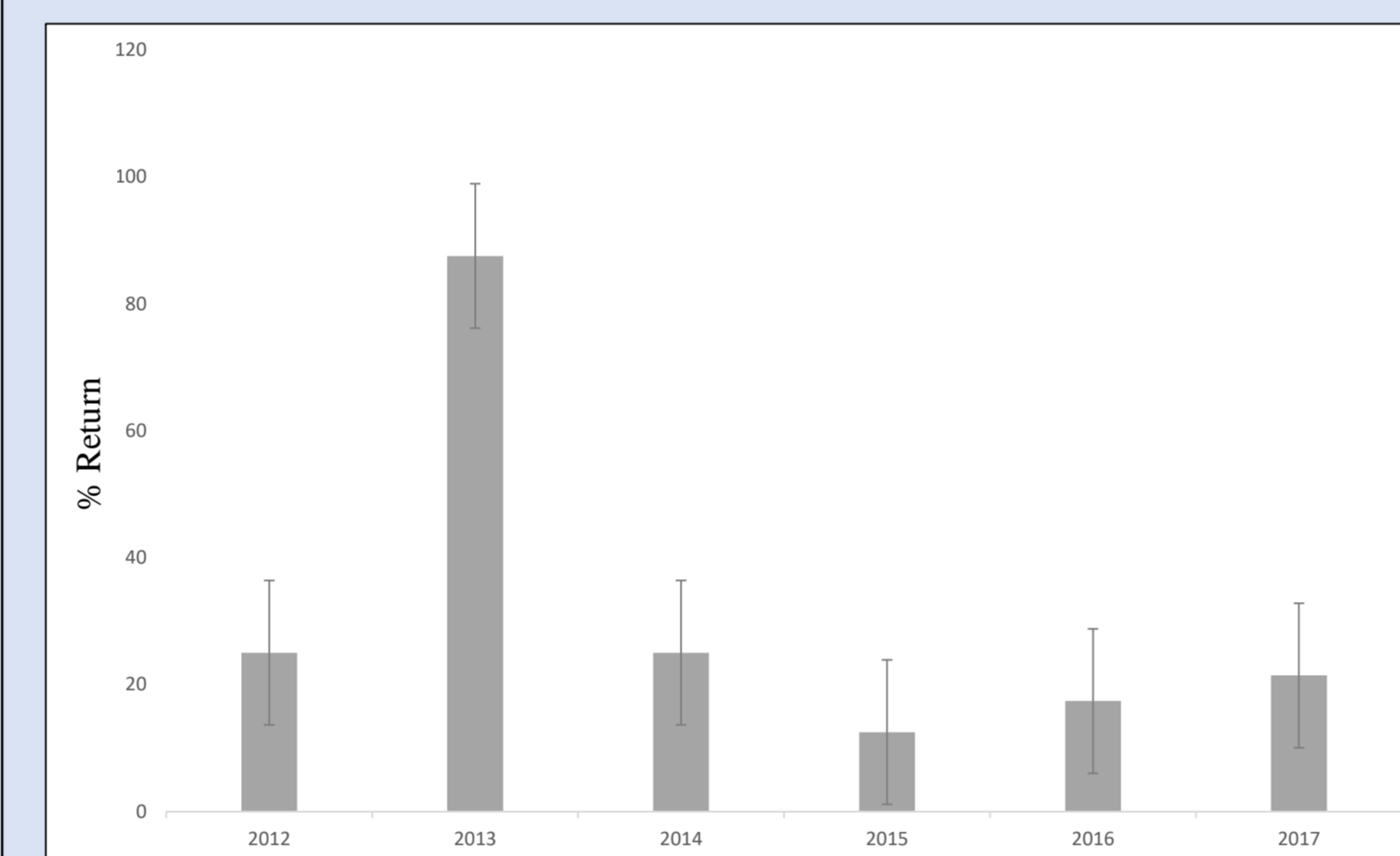


Fig. 3. Mean annual return for humpback whales in the New York Bight apex, 2012-2018.

- The majority of whales were seen in the NYBA during summer (64.4%), followed by fall (20.8%), and spring (14.8%).
- Mean occurrence was 2.5 days, mean occupancy was 37.2 days, and mean rate of annual return was 30.9% (Fig. 1, 2, and 3).
- Outside of the greater New York Bight, humpback whales in this study exhibited the greatest exchange with the closest primary feeding ground, the Gulf of Maine. (Fig. 4).
- There were within-year sightings between the NYBA and both Montauk, NY and Cape May, NJ.
- 15 individuals were known or suspected juveniles and 2 were adult females, one of which was accompanied by her first calf.

DISCUSSION

- The NYBA may be an area of increasing use by juvenile humpback whales, notably those with histories in the Gulf of Maine.
- Individuals were seen at a variety of sites within the New York Bight, suggesting that they likely utilize the entire area, and may exhibit residency during spring, summer, and fall.
- Extended residency in this area has the potential to increase individual overlap with human activities, possibly leading to a greater risk of human-caused injury and mortality.

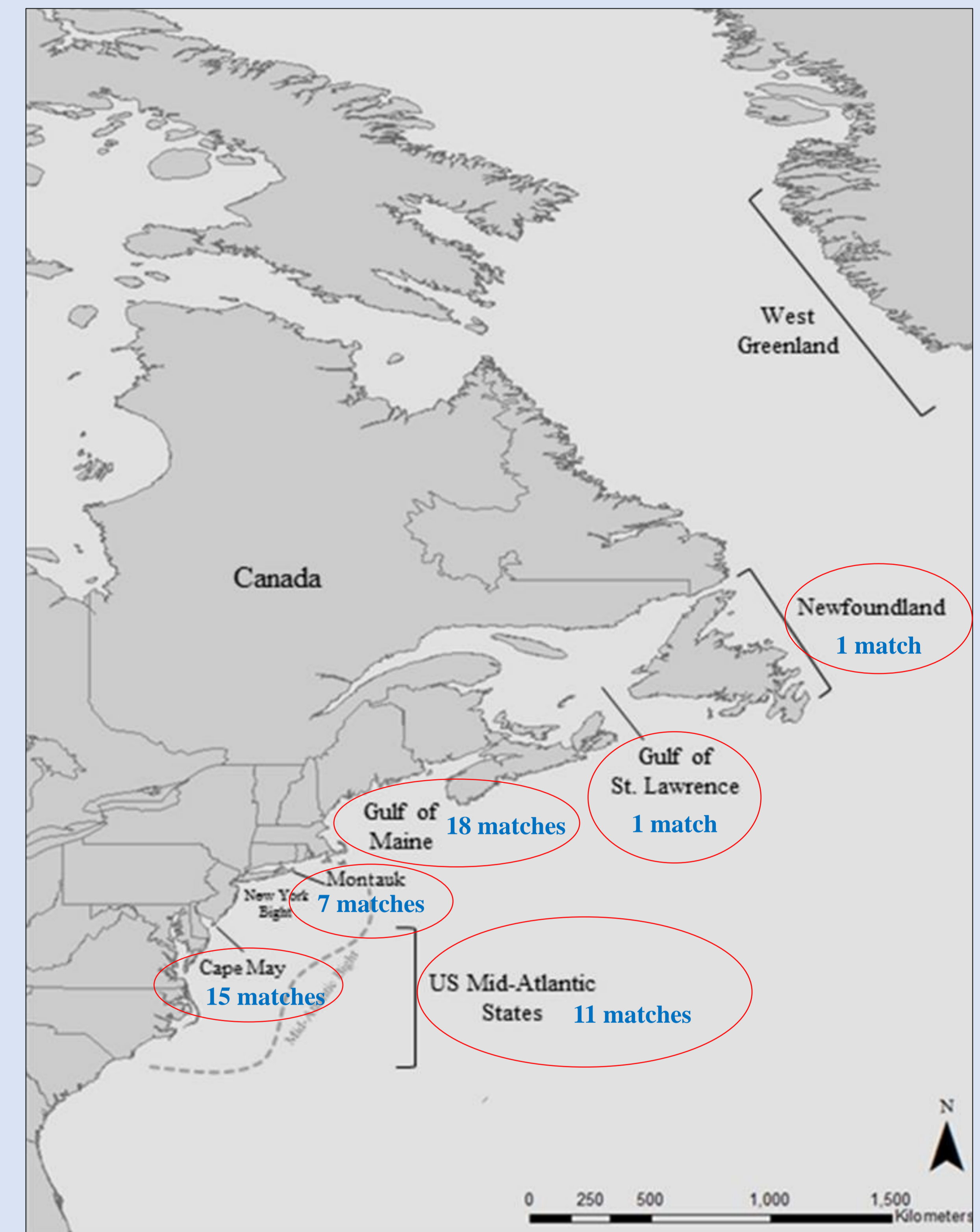


Fig. 4. Map of regional areas referenced in this study, and photographic matching results.

Literature Cited

Brown, D.M., Robbins, J., Sieswerda, P.L., Schoelkopf, R., and Parsons, E.C.M. 2018. Humpback whale (*Megaptera novaeangliae*) sightings in the New York-New Jersey harbor estuary. *Marine Mammal Science*. 34: 250-257.

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