Background

- More than one million boating licenses are issued each year in Florida (Sobin and Tucker, 2008)
- Interactions with vessels can pose a threat to marine megafauna, many of whom are threatened with extinction (Erbe et al., 2019; Fuentes et al., 2021)
- Little is known about the spatial overlap between marine megafauna and vessels in coastal urbanized waterways in Florida
- In order to inform conservation and management vessel characteristics need be assessed

Figure 1. Sea turtle with lethal injuries due to vessel strike (Photo: FSU MTRECG)

Study Aim

1.) Examine characteristics of vessels to inform conservation and management.

Methods

- We selected three locations on Florida's Gulf Coast which have high frequency of marine turtle strandings due to vessel strikes
- Using the Distance Sampling Method (distancesampling.org) we designed systematic transects which encompassed an area of 200 m in each direction
- We recorded boat type, engine type, and activities of boaters while performing vessel based transects
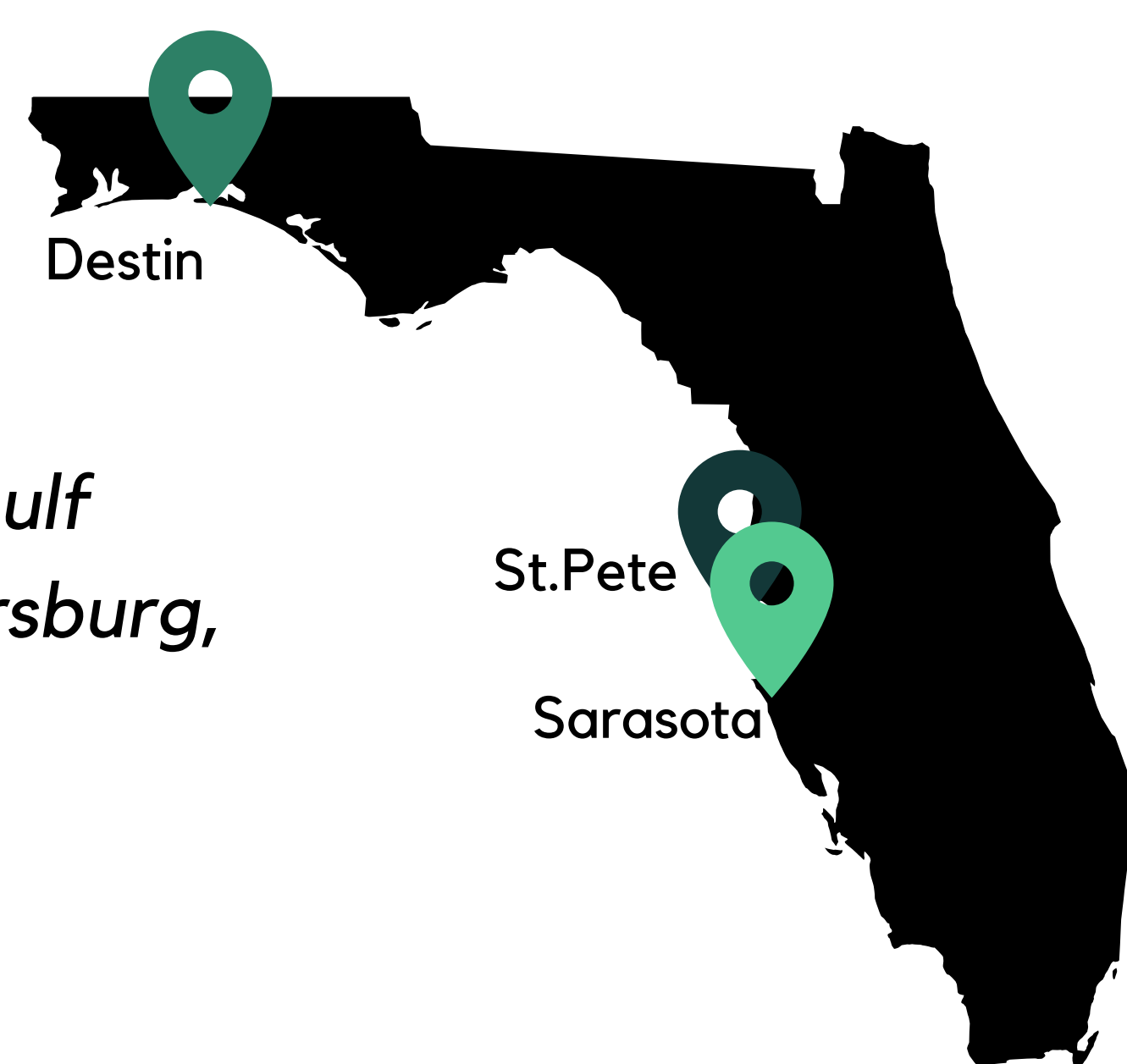- Preliminary data was visualized in the ggplot2 package RStudio (Wickham, 2016)

Figure 2. Three study locations on Florida's Gulf Coast: Destin, St. Petersburg, and Sarasota

A preliminary Examination of Vessel Characteristics to Inform Conservation of Marine Megafauna at Three Locations on Florida's Gulf Coast

Marley Hoffman, Julia Saltzman, Mariana M.P.B. Fuentes
Florida State University, Department of Earth, Ocean, and Atmospheric Sciences
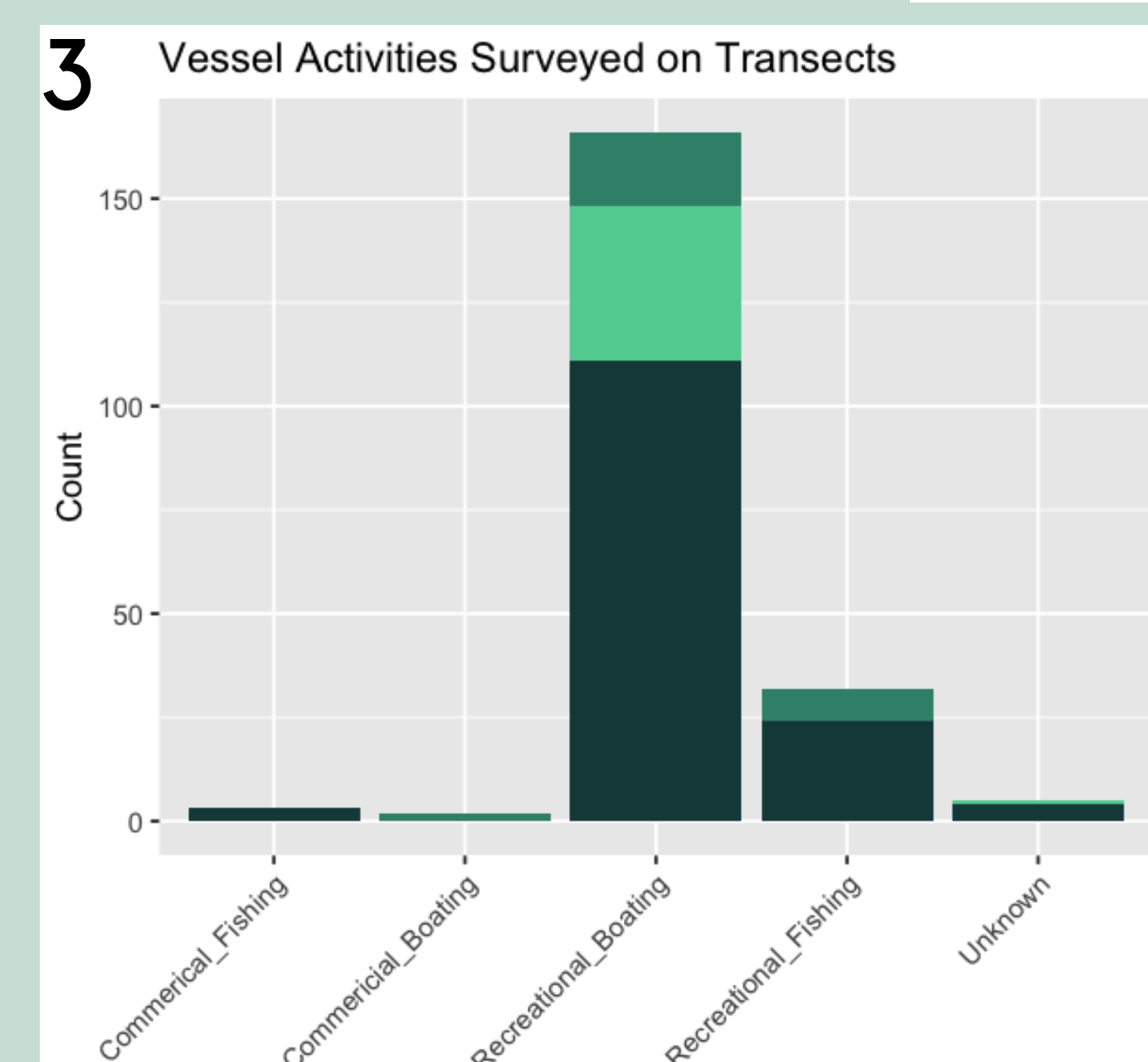MarineTurtleResearch.com

Results

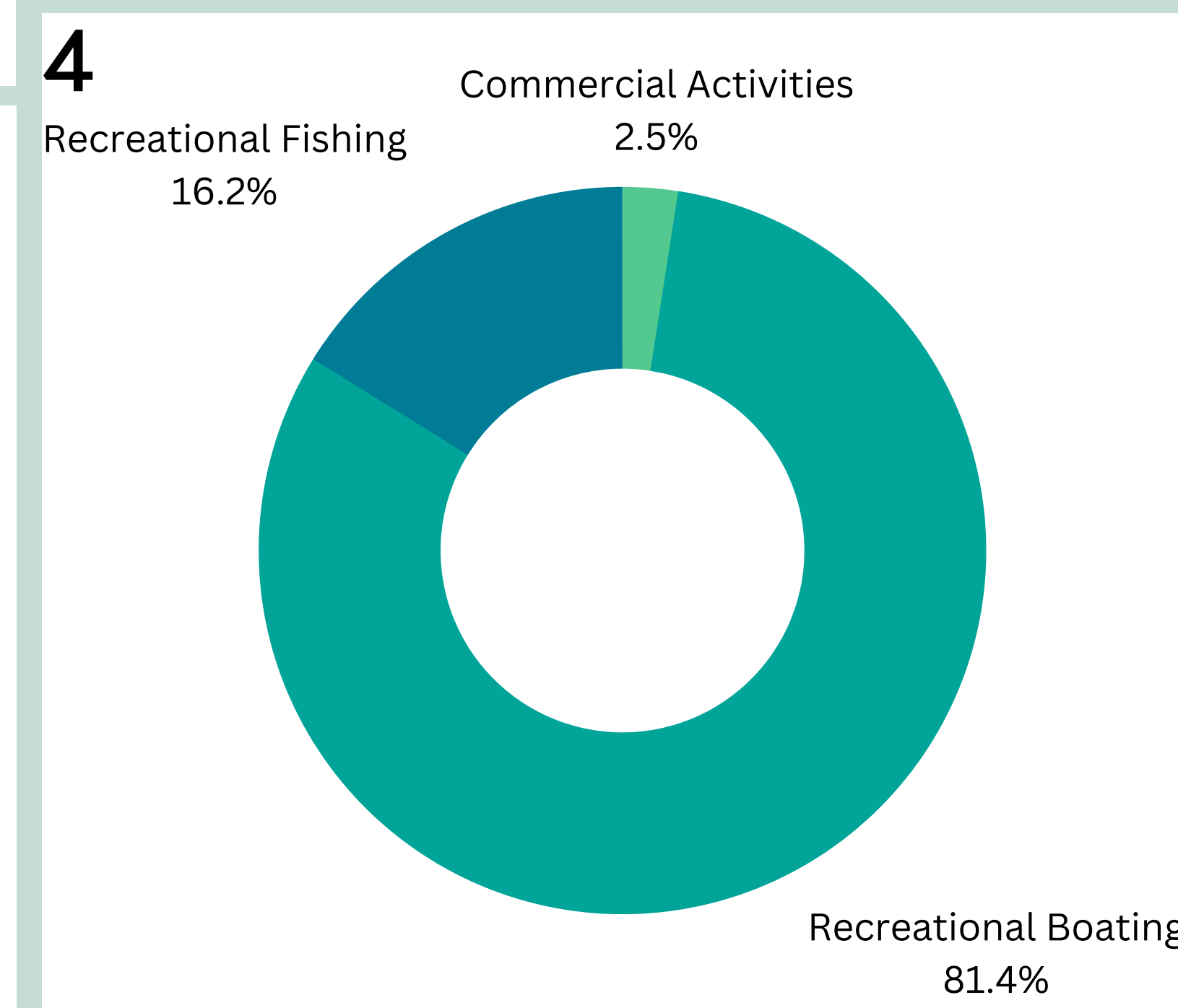*Figure 3. Vessel Activities colored by location*

Figure 4. Proportions of activities of boaters. Commercial activities are combined
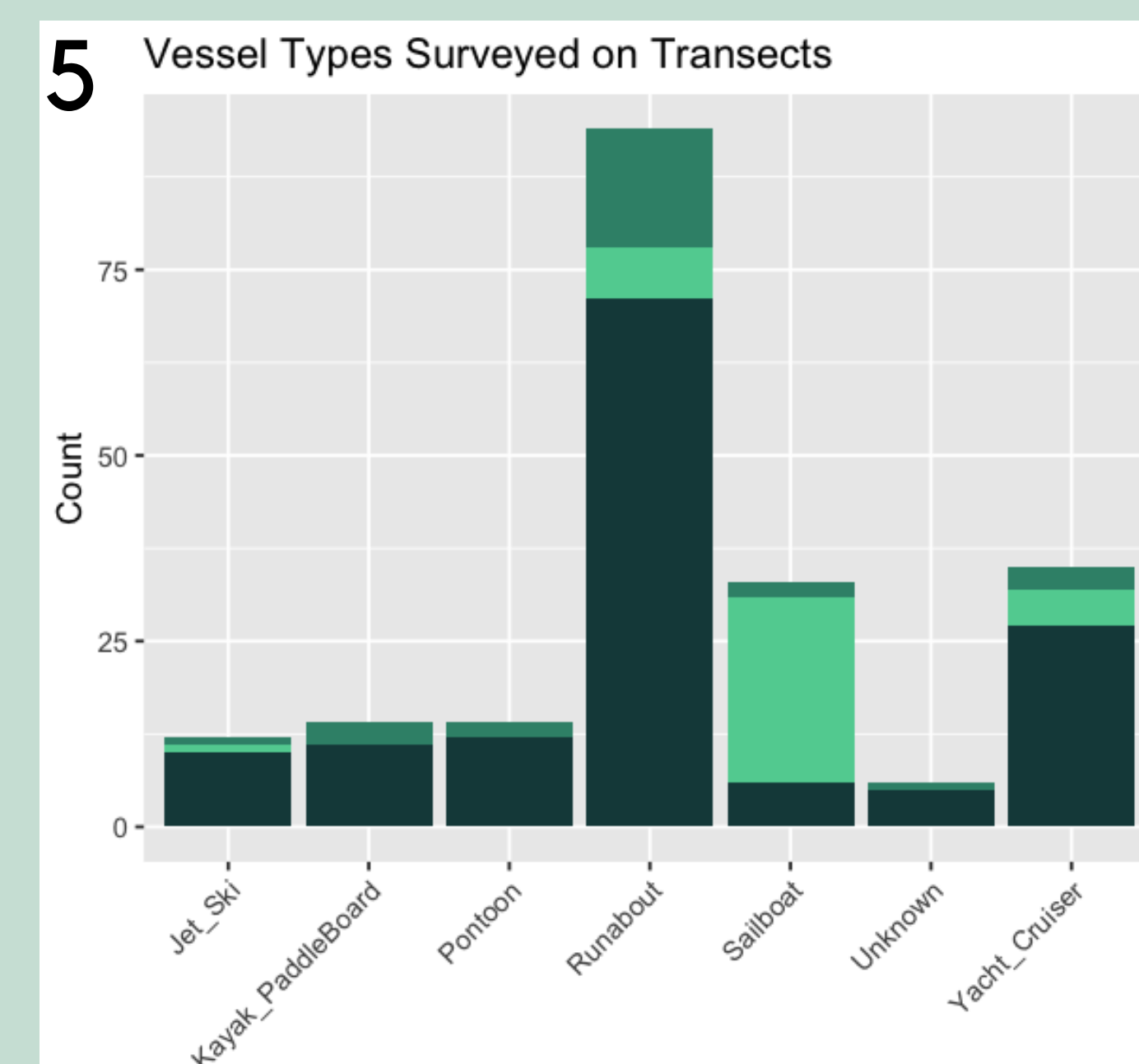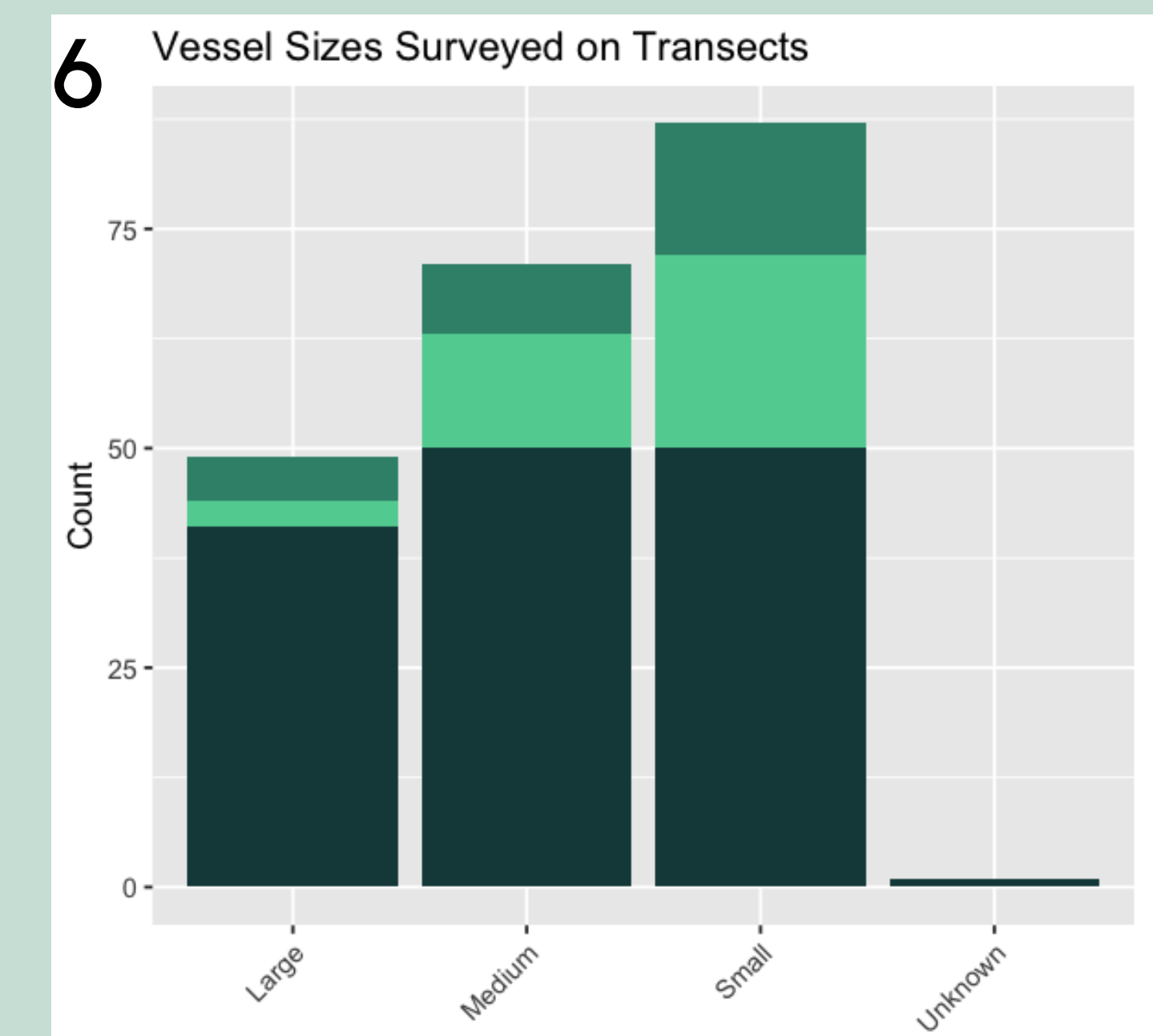

Figure 4. Vessel Types colored by location

Figure 5. Vessel Sizes colored by location

Vessel Activities: Our findings show that a vast majority of boaters seen were recreational boaters. This means that boaters were seen with no evidence of fishing, and were often diving, swimming, or conducting other leisurely activities. We also observed recreational fishing relatively-frequently.

Vessel Sizes: Although boats of all sizes were recorded, our largest group across all of our study sites were small boats. Boats were classified by estimated length: small (<6 m), medium (6-12 m), and large (>12 m).
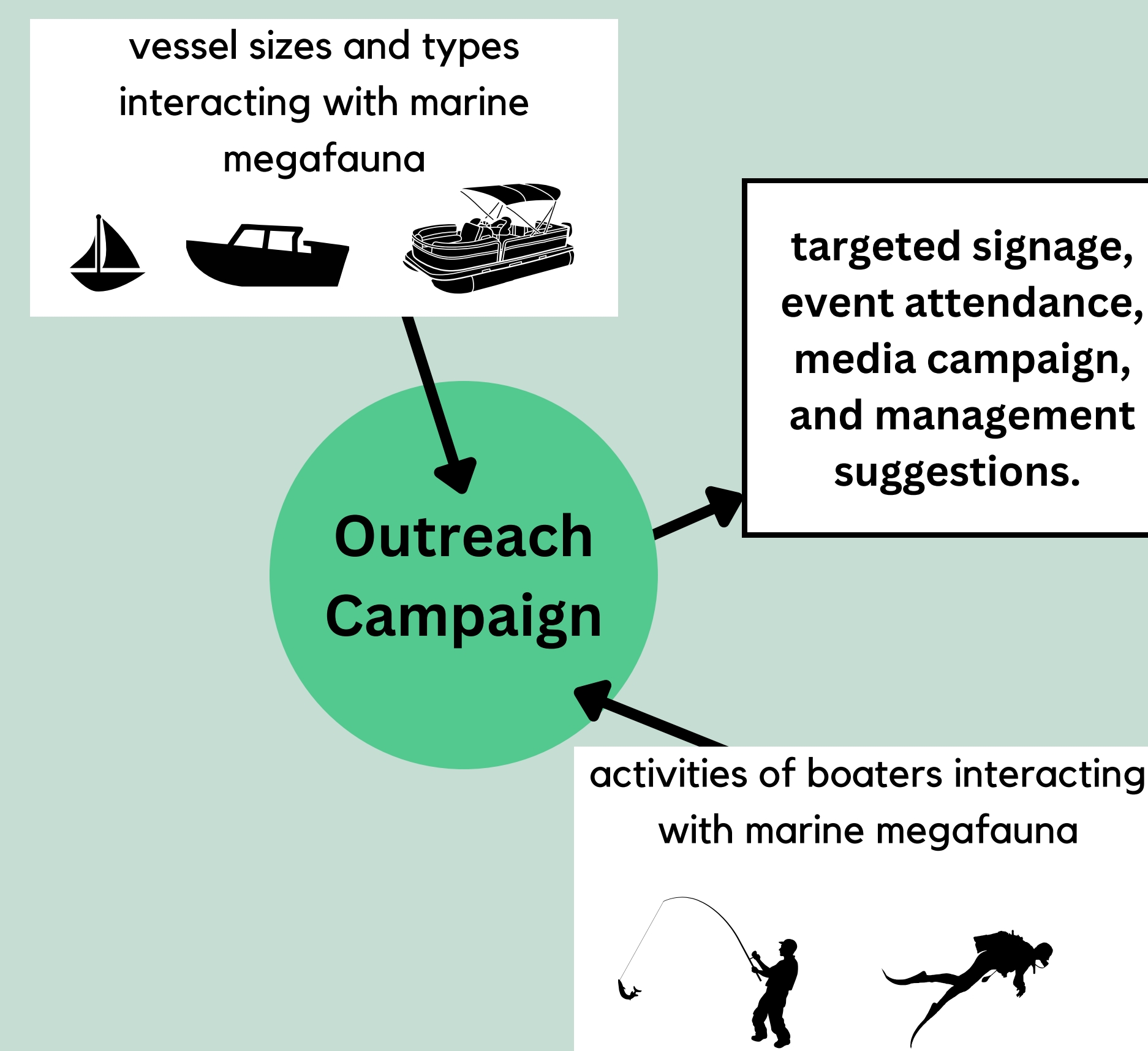
Vessel types: Across all three of our study locations runabout boats were most commonly seen. The term "runabouts" describes a vast majority of boats with main characteristics being that they are powerboats and they are relatively small in size.

Conclusions

- This method may be effective at surveying not only species but vessels and their characteristics
- Across all locations most common vessel type was the runabout boat, which almost always have outboard engines
- Majority of activities were recreational, rather than commercial

NEXT STEPS...

- Analysis of spatial and temporal distribution of marine megafauna can be referenced to determine potential hotspots for vessel-marine megafauna interactions

vessel sizes and types interacting with marine megafauna

Outreach Campaign

targeted signage, event attendance, media campaign, and management suggestions.

activities of boaters interacting with marine megafauna

Scan for References