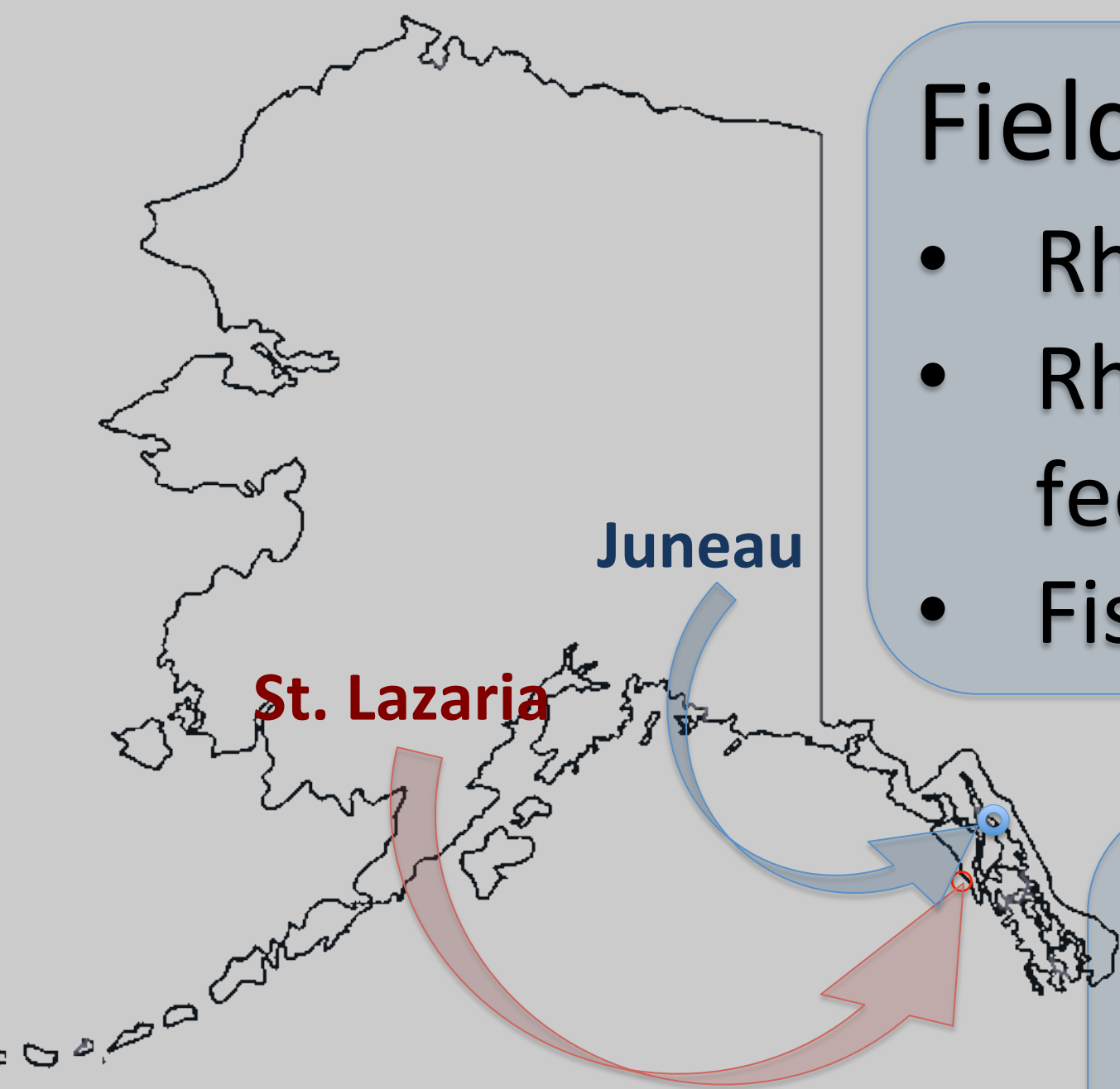


# Nutritional Content of Rhinoceros Auklet (*Cerorhinca monocerata*) Bill Loads

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Rhinoceros auklets bring back a variety of forage fish to feed their offspring. May of these prey items were brought back in pieces, either heads or bodies. The objectives of this study was to determine the species distribution in the bill loads, as well as any other patterns arising from bill load compositions.

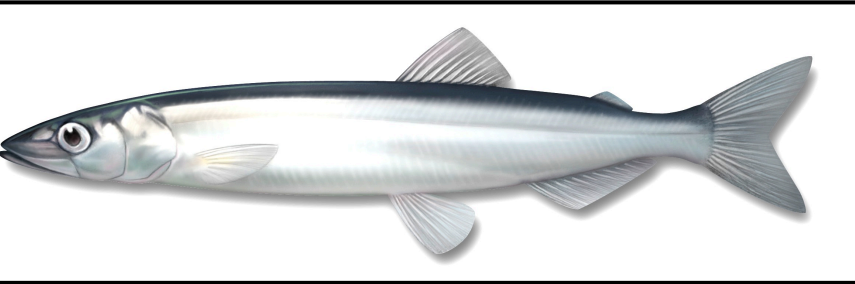


## Field Collection (St. Lazaria):

- Rhinoceros auklets have barbs in their bills, allowing them to ‘hook’ and carry multiple fish.
- Rhinoceros auklet adults were netted at St. Lazaria, AK as they returned to their nests to feed their offspring.
- Fish were removed from the bills and bagged individually.

## In-Lab Processing (Juneau):

- All the fish in the bill loads were individually identified, measured and weighed.
- Fish contained in the bill loads that were not whole, had their entire length estimated to be included in the length distribution.
- All fish were then dried, and ground into a homogenate for analysis.



capelin (*Mallotus villosus*)



greenling (*Hexagrammos spp.*)



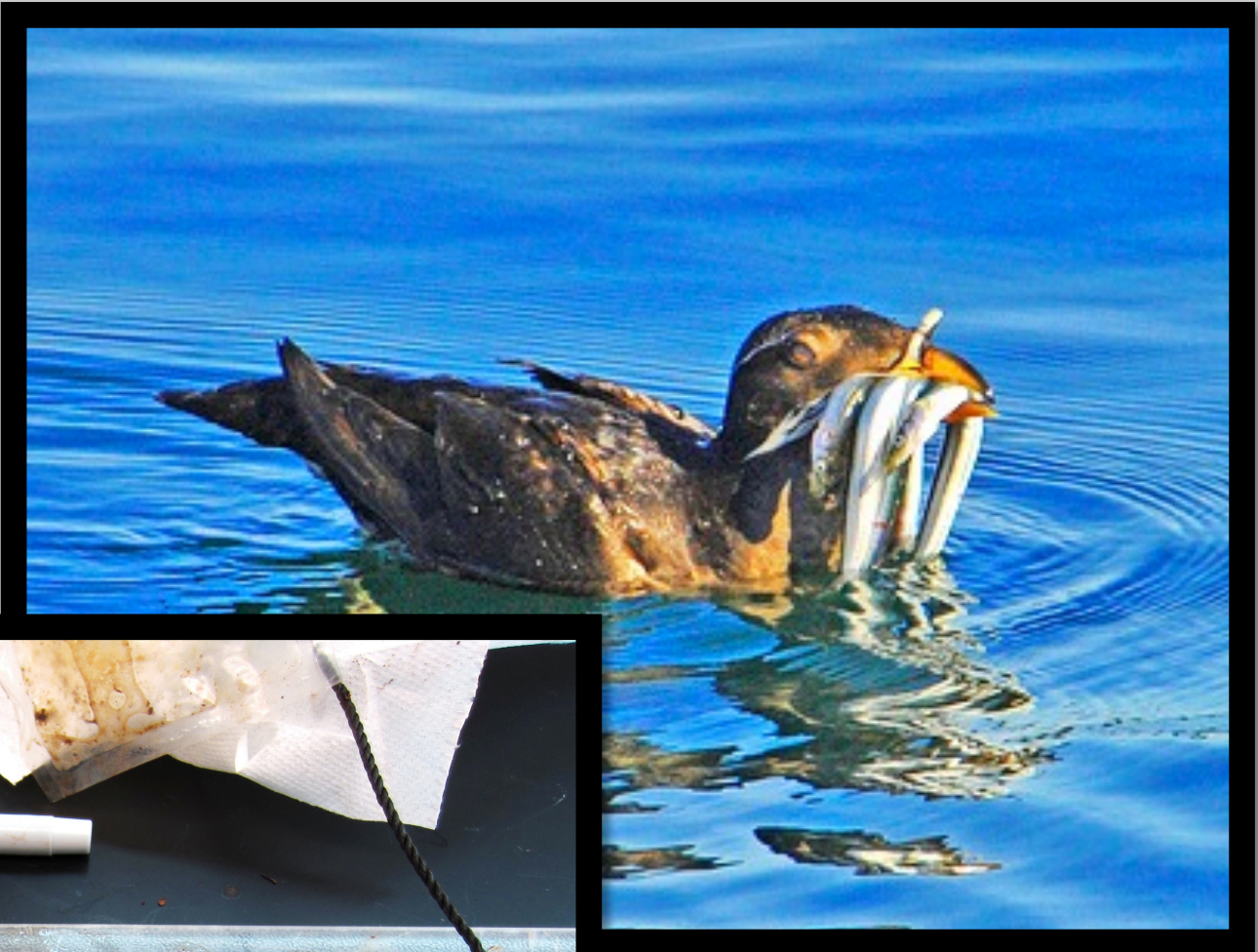
Pacific herring (*Clupea pallasii*)



Pacific sand lance (*Ammodytes hexapterus*)

## Analysis:

- Each homogenate was analyzed for:
  - Lipids, by chemical extraction.
  - Protein, using a TruSpec CHN determinator.
  - Mineral content, using ion chromatography.
  - Calories calculated using a bomb calorimeter.

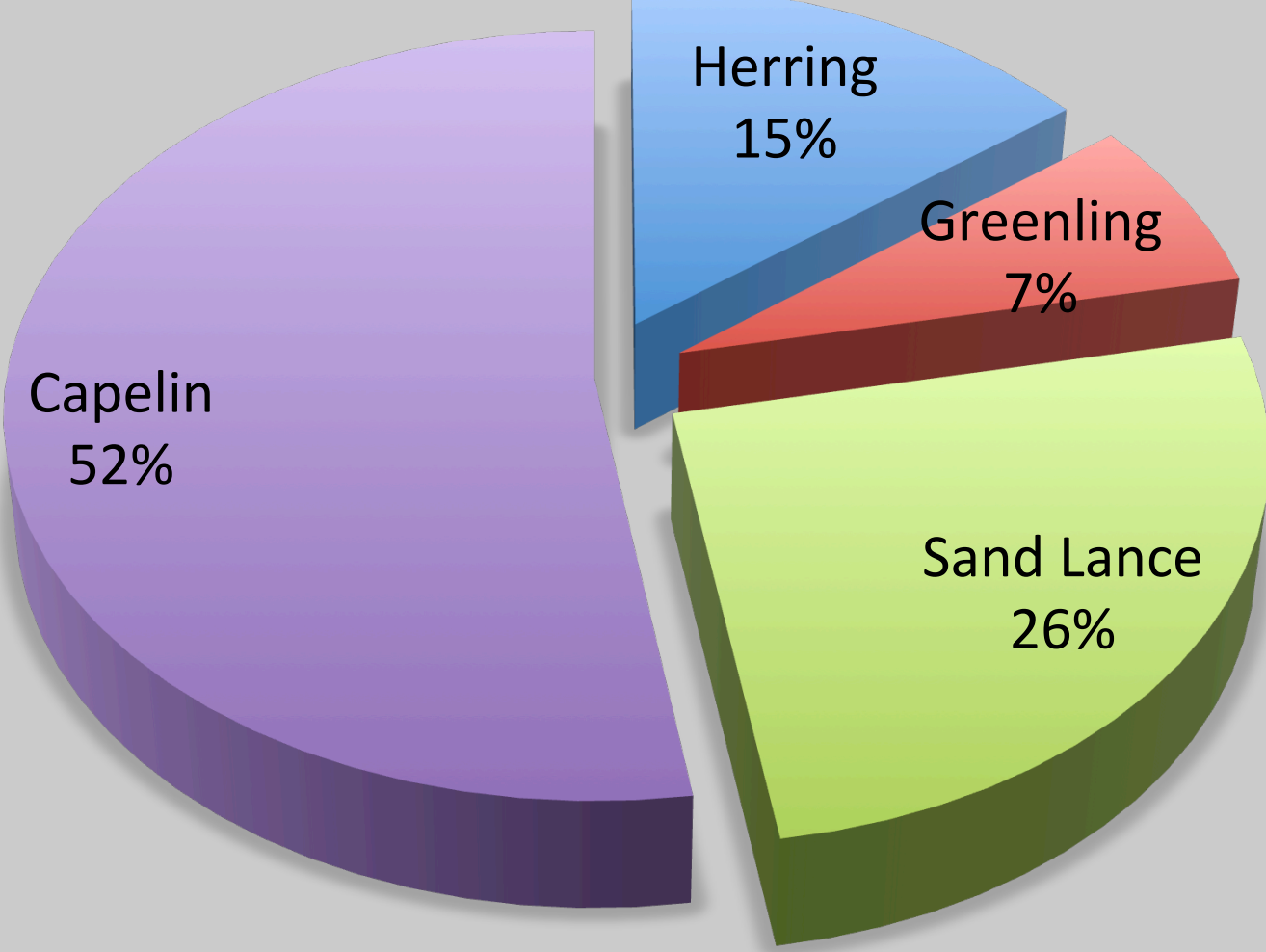


St. Lazaria island nesting site

## Results:

- Average bill load size: 4.61 fish
- Average bill load weight: 32.14g
- 82% of bill loads contained only one species
- 22% of all fish in the bill loads were severed into two parts
  - (26% capelin, 11% greenling, 39% herring, 6% sand lance)
- The species found within the bill loads were capelin, greenling, Pacific herring, and Pacific sand lance.
- There was no relationship showing that the birds preferentially severed any of the fish.
  - However, analysis showed that fish had a greater probability of being severed, the longer and heavier they were.
- Length distribution of the prey also showed no pattern.
- The birds do not choose each prey species at equal rates. However, without a priori information on abundance and availability of the prey, no pattern can be assumed.

## Bill load composition



## Discussion:

- Even without the data on the nutritional content of the fish heads vs the bodies, we know that the auklets do not sever the prey on purpose.
- Future studies which include data on the natural abundance of the prey in the wild may give insight into the patterns associated with the prey chosen by auklets.

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