

# Pilot investigation into the age structure of market squid, *Doryteuthis opalescens*, in the Gulf of Alaska



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## Introduction and Species Description

- Market squid have been observed nearshore and offshore in Southeast Alaska from 2015-2017.
- They tend to forage and feed offshore, migrating inshore to reproduce (Zeidberg and Hamner 2002)
- They have high metabolic rates and their life cycle range is between 4-9 months (Jackson and Domeier 2003)
- Most biological information is known from studies about the California commercial fishery (Dorval et al. 2013)
- Little data has been collected for market squid in Southeast Alaska (Wing and Mercer 1990)

## Objective

To acquire and quantify length, weight, sex, and age data on market squid from the Gulf of Alaska and identify trends consistent with inshore and offshore positions.



Figure 1. Market squid aggregation spawning

## Methods

- Squid were opportunistically collected in 2017:
  - March and May, Sitka Sound, dock side jig fishing
  - July, Gulf of Alaska, Alaska Fisheries Science Center GOA offshore benthic trawl (offshore = > 100 m from shore)
- Squid measurements were based on dorsal mantle length (DML) and total weight. Sex was classified as male, female, or immature based on gonad formation.
- Age data is being collected through statolith microstructure analysis.

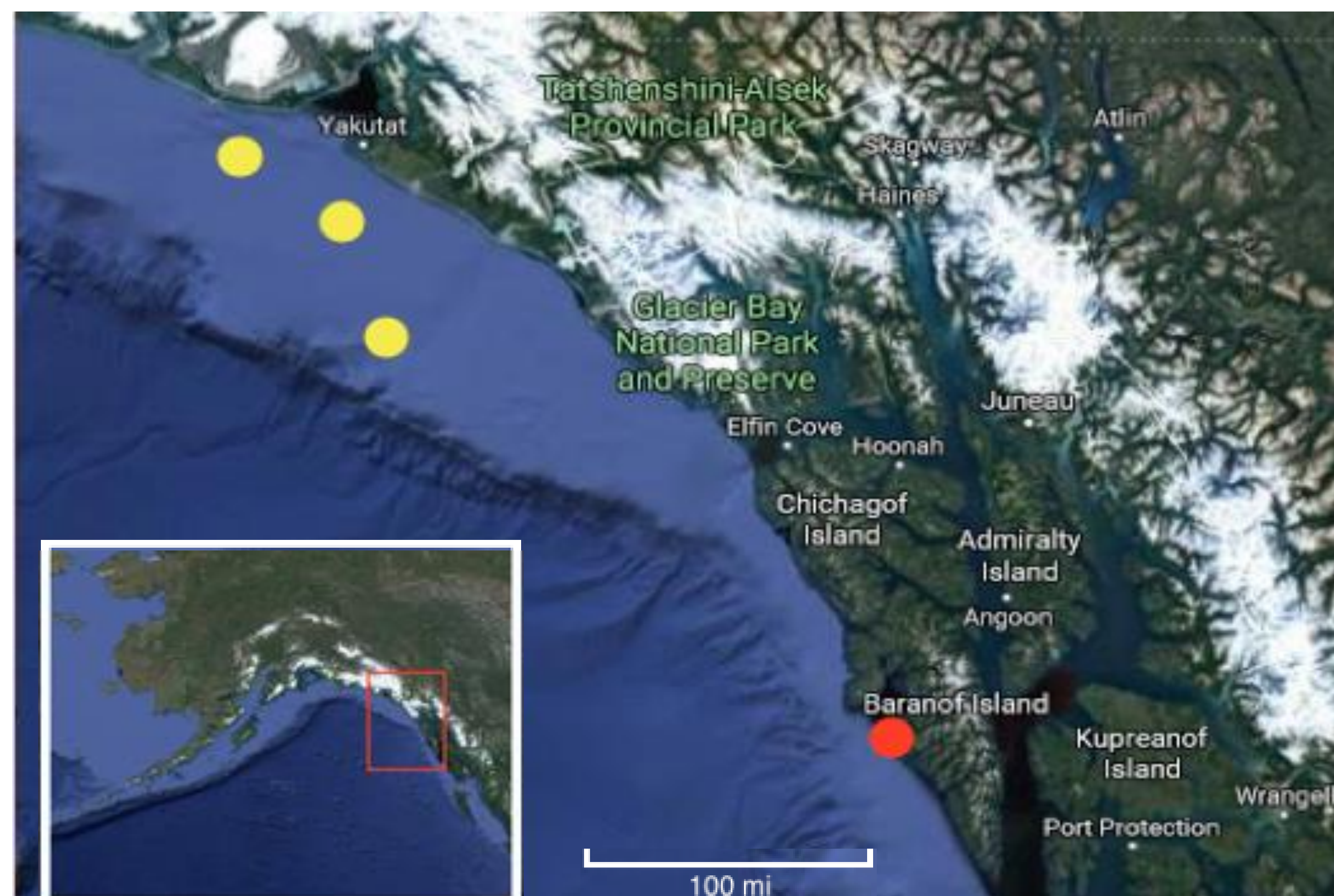


Figure 2. Squid sampling locations. Red = squid collected dock side via jig-fishing. Yellow=squid collected offshore (>100 m from the shoreline) from a benthic trawl.

## Results

- Squid from Sitka sound were larger those collected offshore. Sitka mean DML =  $134.4 \pm 14.83$ ; GOA mean DML =  $60.0 \pm 10.65$ .
- Squid were similar in size to those reported in California. (Jackson and Domeier 2003)
- Aging process is underway and is in the verification stage.

## Results

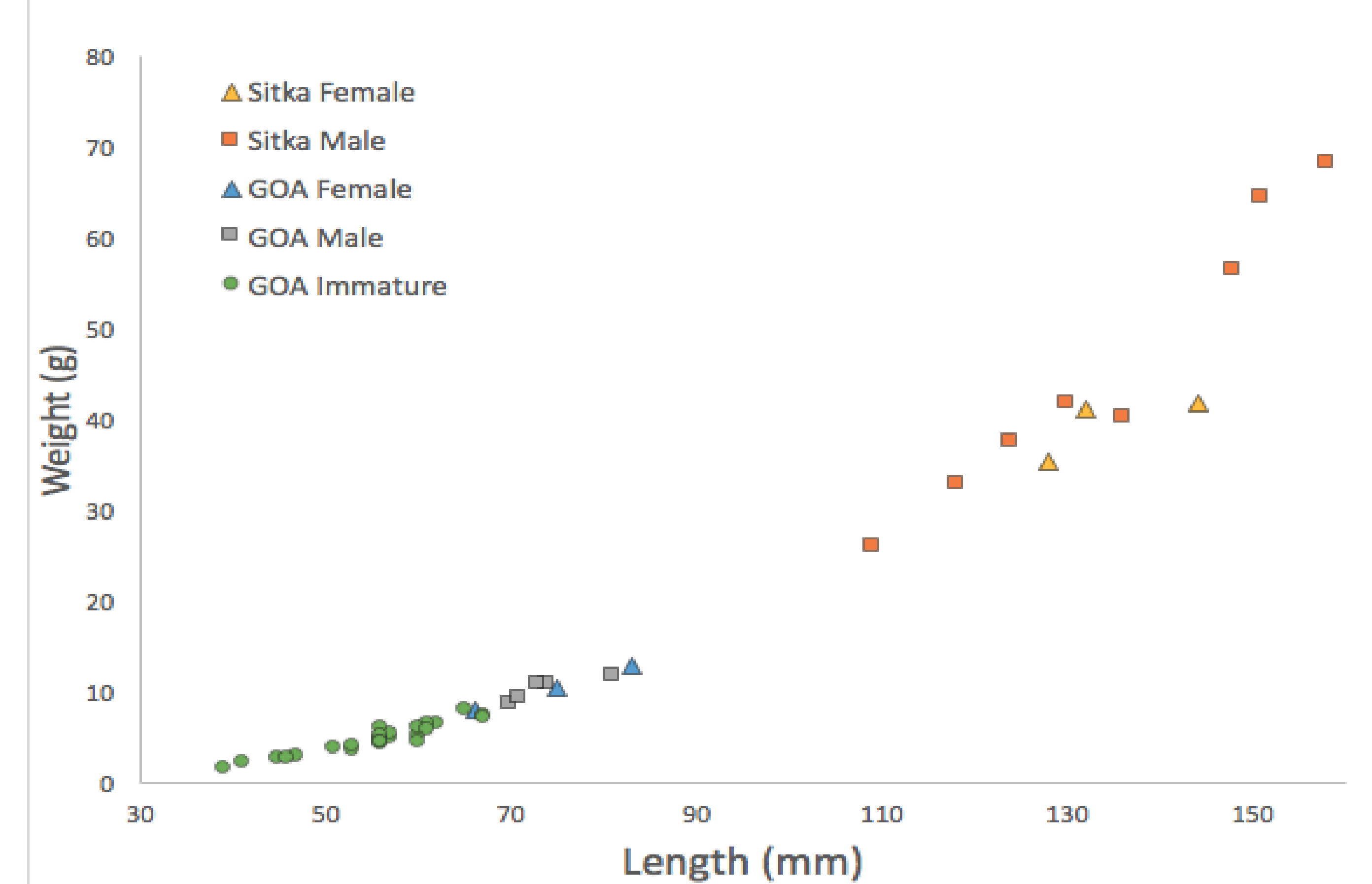


Figure 4. Length to mass of collected market squid. Colors indicate collection area (warm = Sitka, cool = GOA). Shape = sex (square = male, triangle = female, circle = unidentified)

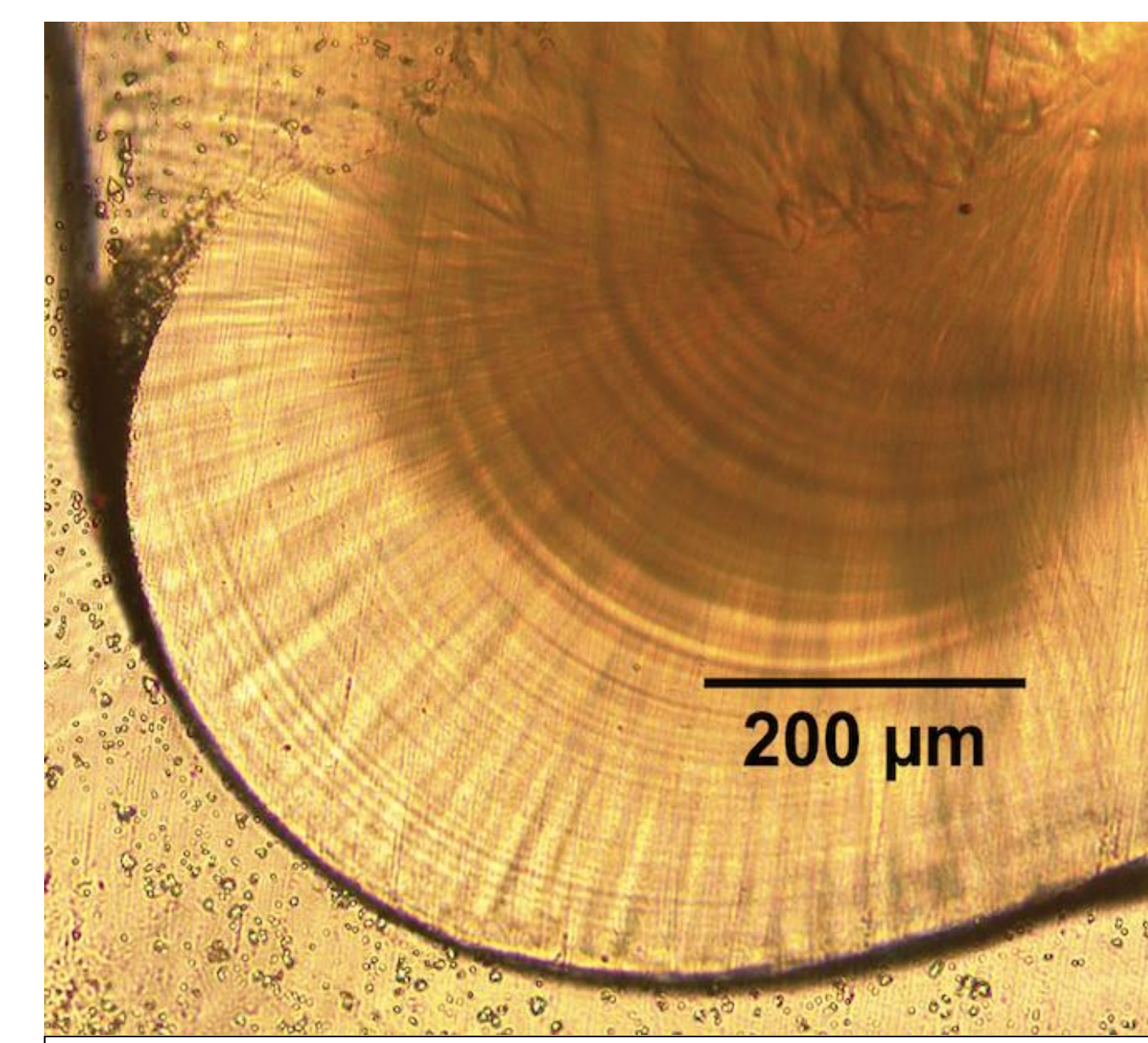


Figure 5. Squid statolith microstructure. Each ring represents one day of growth.

## Next Steps

- Age statoliths for all remaining collected squid
- Collect samples from incoming observations.
- Summarize ocean conditions for collection areas.

## Acknowledgements

- URECA
- 2017 Alaska Fisheries Science Center Ecosystem Monitoring and Assessment GOA benthic trawl survey
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## References

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