INTRODUCTION

- Glacier Bay National Park (Fig.1), as a Marine Protected Area (MPA), is phasing out commercial fishing of Pacific halibut (*Hippoglossus stenolepis*) within the park. The species continues to be commercially harvested outside of the bay.
- Conservation of local fish populations within an MPA can be impaired when fish exit the refuge into an active fishery.
- Movements of halibut within, and possibly out of, Glacier Bay are poorly understood.
- Fish movement was studied using two types of tags: Pop-up satellite tags were used to examine seasonal movements and acoustic tags were used to examine short-term, fine scale movements.
- This study focuses on the summer movements of these double-tagged fish.

RESULTS

- All 15 fish were observed at least once during the tracking period.
- The number of observations per fish during the 2-month period ranged from 1 to 20.
- Horizontal displacements from the release locations in the first 48 hrs after tagging ranged from 214 m to 746 m.
- All of the fish were observed in shallow water (<100 m) close to their release locations (Fig. 2).
- Thirteen fish occupied relatively small, overlapping home ranges (Fig. 4). Two fish were not observed enough times to infer a home range.

DISCUSSION

- There was no evidence that any of the tagged fish left Glacier Bay during the summer.
- Short term movements described active fish that often traveled up to 1 km during the day but occupied relatively small home ranges over the course of the summer feeding season.
- All of the home ranges were located wholly within the park and far from its boundary, therefore, movement out of the MPA by these halibut is unlikely during the summer.

CONCLUSION

- The site fidelity of these fish during the summer, when commercial fishing occurs outside of the bay, suggests that MPA status will likely result in lower fishing mortality for Glacier Bay fish. Over time, this can result in greater stock density and larger fish size. Winter departures from the MPA, if they occur, probably would not expose the fish to significant harvest pressure because the commercial season is closed from November to March. Data provided this summer by the satellite tags will help characterize winter activity and its impact on the Glacier Bay Pacific halibut stock.

ACKNOWLEDGEMENTS

The authors wish to thank the University of Alaska Fairbanks office of Undergraduate Research and Scholarly Activity (URSA) for funding; the National Park Service and the residents of Gustavus, Alaska for logistical support; and members of the tagging and tracking crews for their skill, enthusiasm, and hard work.