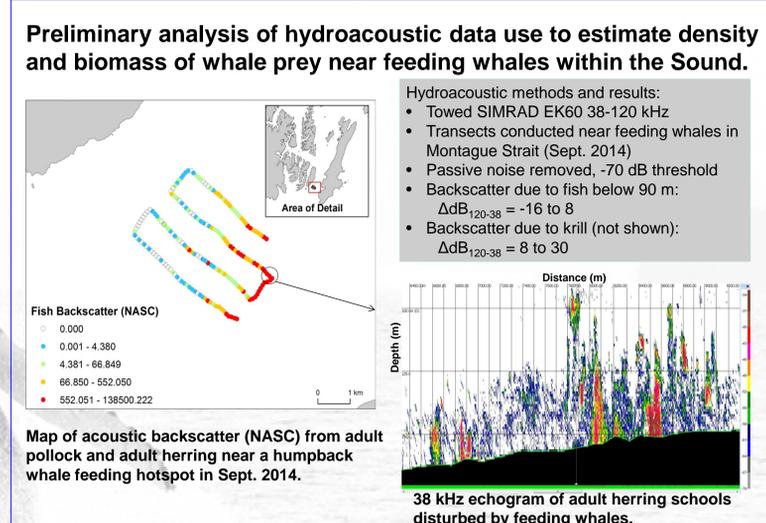
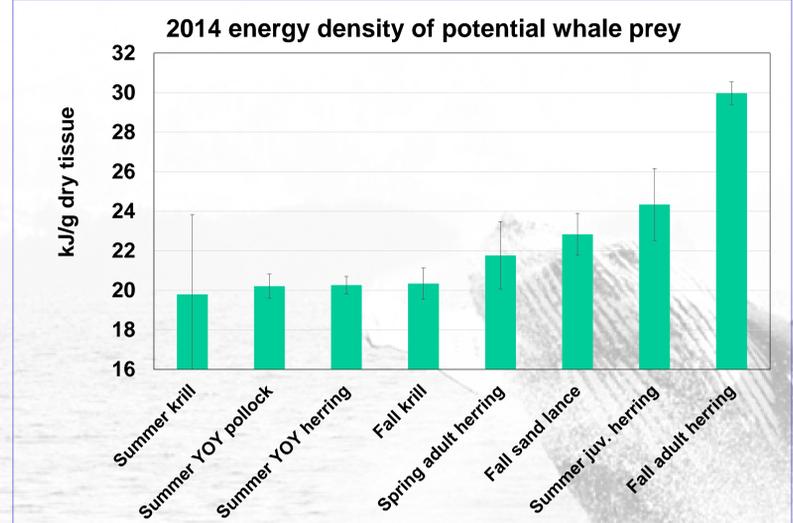


- Herring movements in PWS are not well understood
- Humpback whales prey heavily on herring in PWS
- Whale observations were used to track herring movement
- Humpbacks are good indicators of subsurface productivity
- Significant energy transfer takes place during fall and winter between trophic levels
- Herring displayed some spatial and temporal shifts in their movements

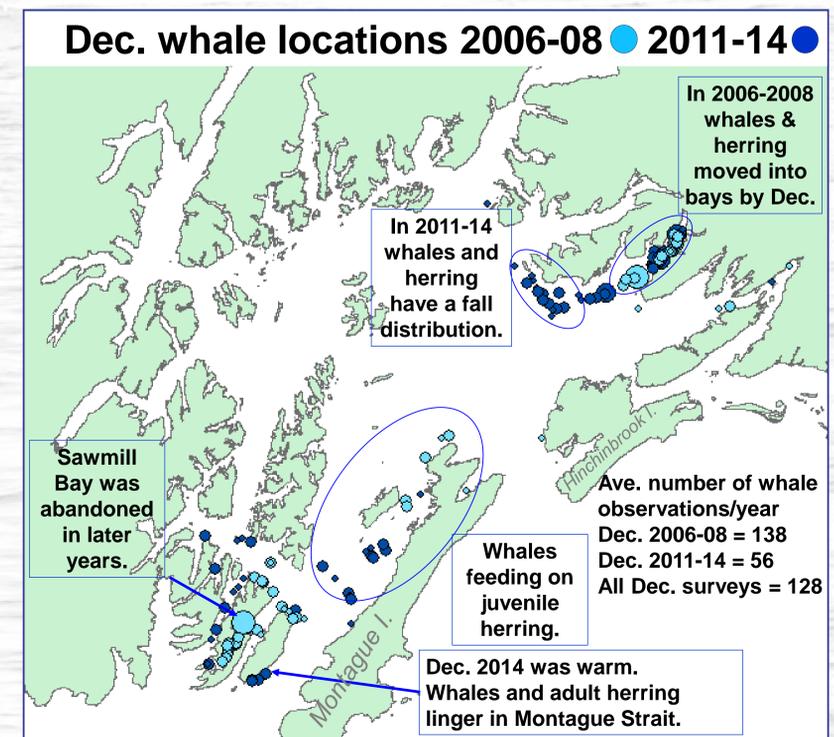
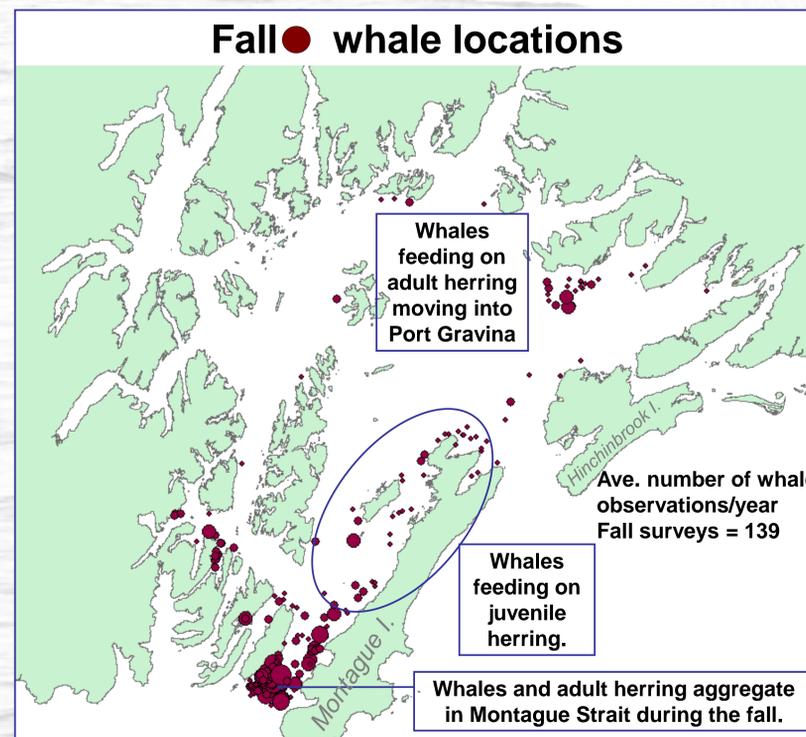
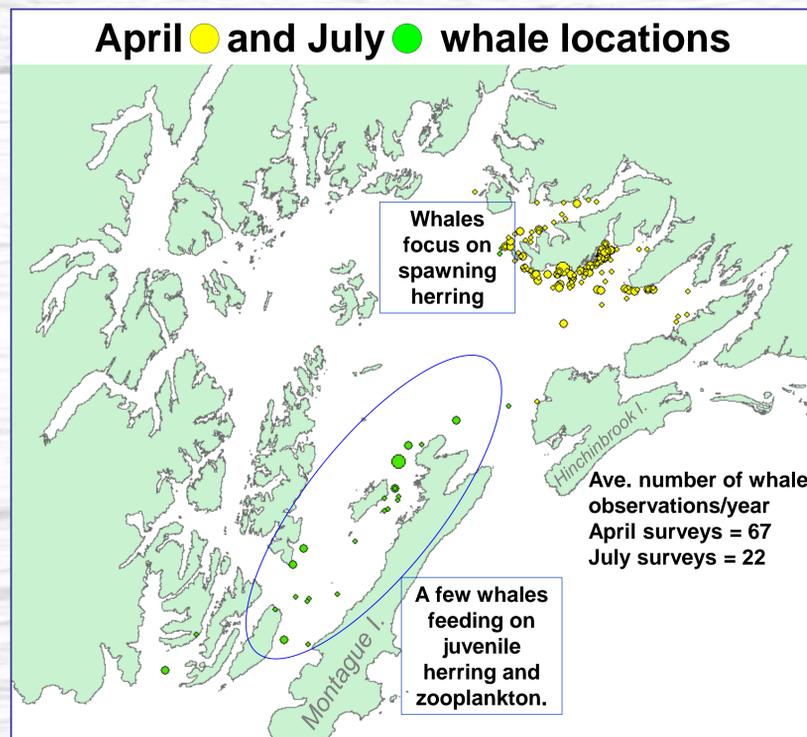


**Methods:**

- whale locations mapped during 22 (5 - 7 day) seasonal surveys (2006 - 2014)
- collected prey items near feeding whales (2006 - 2014)
- hydroacoustics used to estimate prey density (July & Sept 2014)



## Seasonal Changes in Humpback Whale Distribution 2006 - 2014



During the spring whales target shoals of spawning herring in the eastern Sound. Both whale and adult herring numbers drop during the summer herring presumably leave PWS.

During the fall, adult herring return to PWS via Montague Strait and head to overwintering grounds. Whales intercept returning herring.

While generally stable in timing and location, in 2011-2014 herring overwintering schools were more dispersed than in 2006-08, possibly due to predation pressure or oceanographic changes.

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