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Estimating recreational harvest of surf smelt *Hypomesus pretiosus* via a combined access point and roving creel count design

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ESTIMATING RECREATIONAL HARVEST OF SURF SMELT *HYPOMESUS PRETIOSUS* VIA A COMBINED ACCESS POINT AND ROVING CREEL COUNT DESIGN



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Current Recreational Smelt Management in Washington

- ▣ Passive management

- ▣ Puget Sound Fishing Regulations:
 - Year-round, no min. size. Daily limit 10 lbs, jig gear open 7 days per week, dipnets open 8:00am Fridays through 8:00am Wednesdays, closed in Hood Canal

- ▣ Assume recreational catch equals commercial catch (~100,000 lbs. per year)
 - Only past estimates at 'hot spots'

Smelt Management Difficulties

- ▣ No recreational license required
 - No post-season phone survey, like other recreational fisheries
- ▣ Seasonal, localized peaks in effort
- ▣ Focused around high evening tides (+7.0 ft)
- ▣ Use private and public shoreline
 - Traditional access point surveys inadequate

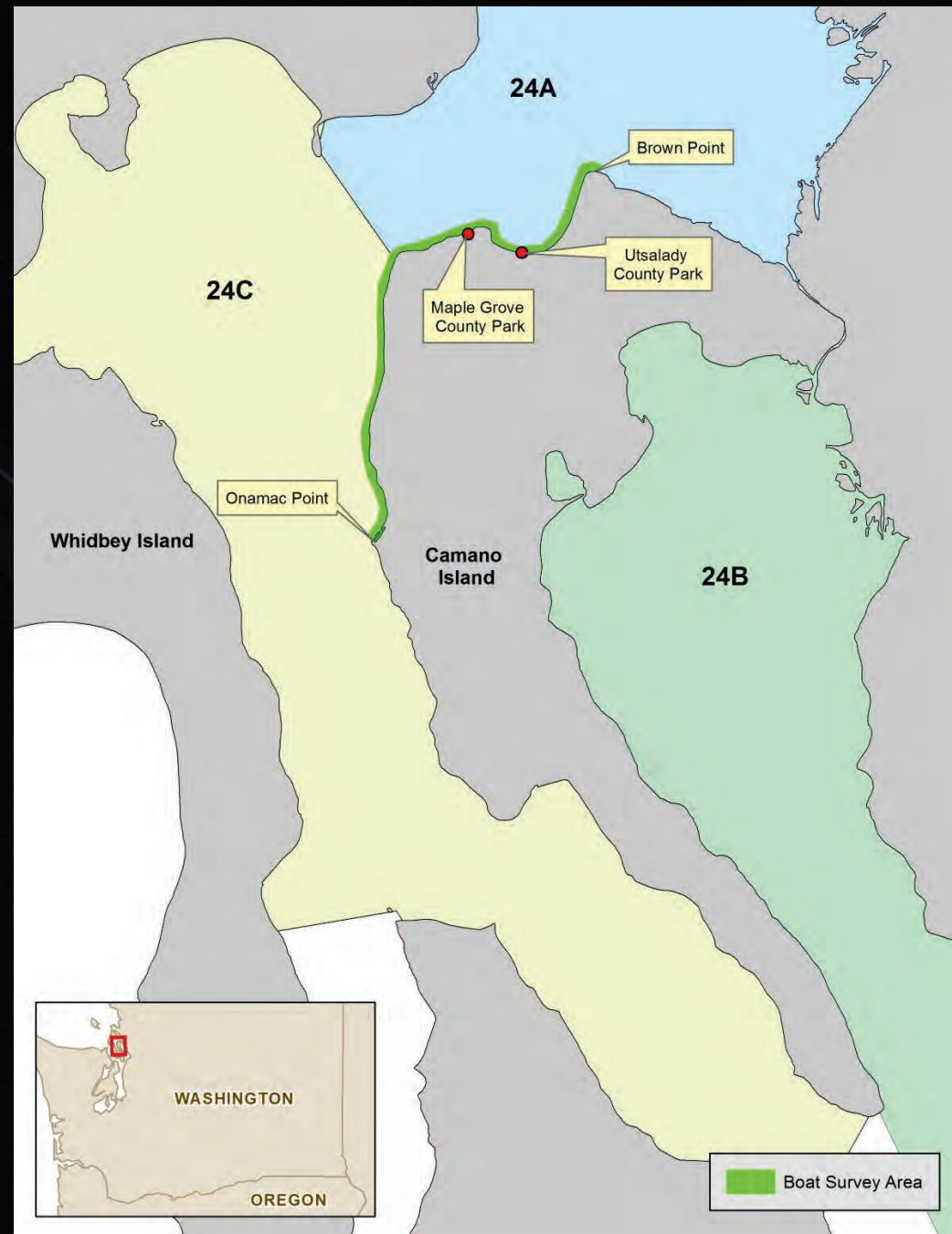
Targeted Anglers

We dealt with dipnetters, not jiggers



Study Area: NW Camano Island

- ▣ Public access sites:
 - Maple Grove and Utsalady County Parks
- ▣ Private access area:
 - Between Onamac and Brown Points
- ▣ Why this area?
 - 87% of state-wide commercial effort
 - Popular for recreational harvest
 - Recent conflicts between home owners and anglers



Two-pronged Approach

- ▣ Interviews at public sites
 - Randomly selected high tides during open periods
 - Effort evenly split between the two sites
- ▣ Interviews at private sites
 - One weekday and one weekend survey per week
 - Two counts per survey
 - ▣ At high tide, 1-2 hours after high tide



Data Collected

- ▣ Total weight or count of Smelt
 - When possible, 30 smelt were sampled for length and weight per day
- ▣ Start/Stop time
- ▣ Weather
- ▣ By-catch

Results: Public Site Interviews

- ▣ 97 surveys from July – October 2012
- ▣ 636 anglers interviewed
 - 2/3 of anglers were successful
- ▣ Nearly 3 times more anglers at Utsulady
- ▣ Total observed catch- 1,792 lbs
 - 62% from Utsulady, 38% from Maple Grove
- ▣ Avg. harvest per angler not equal
 - 2.0 lbs at Utsulady 3.8 pounds at Maple Grove

Results: Public Site Interviews (Continued)

- ▣ Most total anglers, first week of August
- ▣ Utsulady's highest catch avg- Sept. 10th-16th
- ▣ Maple Grove's highest catch avg- Aug. 13th-19th
- ▣ Total expanded harvest -- 3,654 lbs
- ▣ 54 over-limits were observed (over 10 lbs)

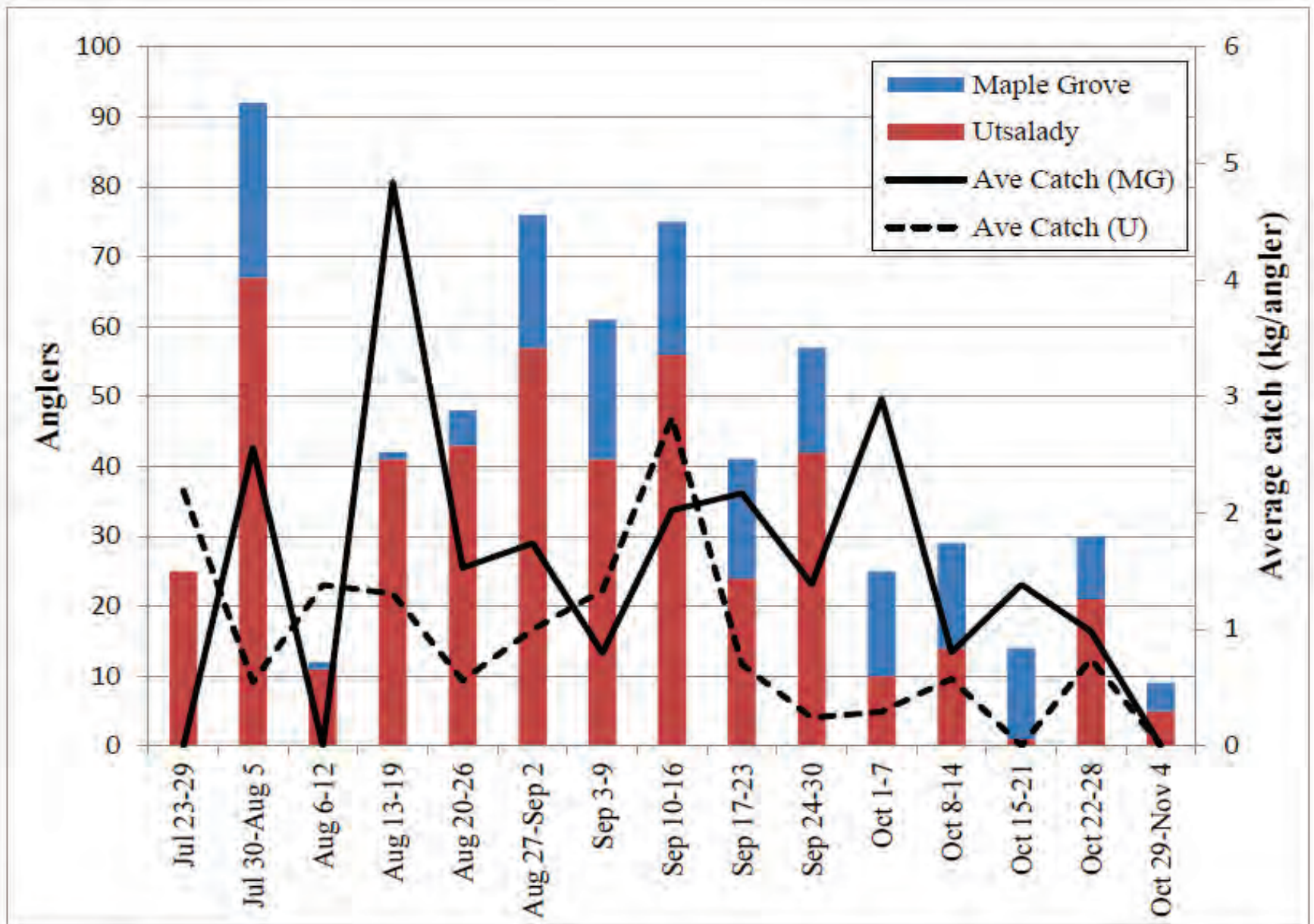


Figure 3. Effort and catch data summarized by week from samples at public access sites. Fishing effort was typically higher at Utsalady Park and daily average catch was often higher at Maple Grove Park. Note: sampling ended October 30th so the final week was partially sampled.

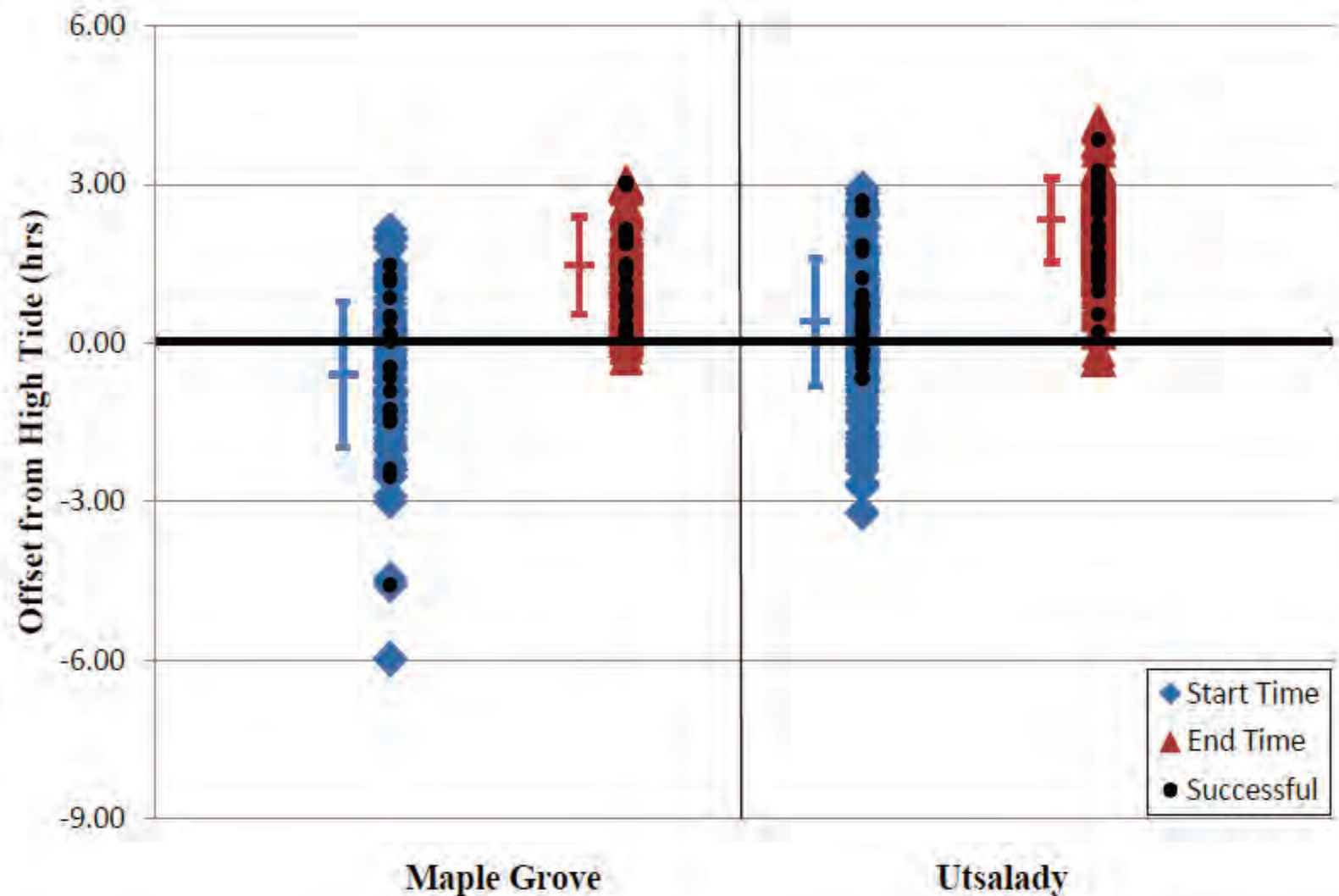


Figure 4. Fishing start and end times on a per-trip basis standardized to high tide (dark horizontal line) by public access site. Short bars to the left of each stacked series indicate the site-specific mean and error bars indicate one standard deviation. Black dots represent successful trips.

Private Effort

- ▣ 21 surveys
- ▣ 46 anglers contacted
- ▣ Anglers averaged 1.25 lbs, max 8.25 lbs
- ▣ 61 lbs were observed, expanded 765 lbs



Discussion

- ▣ Total expanded catch of 4,491 lbs July-Oct.
 - Assuming no night-time fishing (never observed fishing past 10PM)

- ▣ Valid estimates of harvest and effort were produced
 - 25 other known potential 'high-use' surf smelt fishing sites in Puget Sound. Sound-wide estimates possible.

- ▣ 200 miles of shoreline of Puget Sound have been documented with surf smelt spawn

- ▣ Jigging surf smelt also adds to total catch

Conclusions

- ▣ Puget Sound recreational catch could exceed 100,000 lbs
 - $4,400 * 25 = 110,000$, plus jigging, plus private areas not near access points
- ▣ Washington's Forage Fish Management Plan advocates conservative resource management
- ▣ Modification of fishery may be warranted
- ▣ Regulation changes currently being considered by Fish and Wildlife Commission

Acknowledgements

- ▣ We thank the SeaDoc Society for generously providing funding to support this pilot study
- ▣ Henry Cheng, formerly of WDFW, developed the statistical design
- ▣ Loren Phillips spent many hours interviewing anglers, come rain or shine