Evaluation of a single-beam sonar system to map seagrass in Puget Sound

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PURPOSE

1. Develop and evaluate techniques for mapping seagrass using a single-beam sonar system.
2. Apply acoustic methods to map seagrass and compare distributions at two sites in Puget Sound.

EQUIPMENT

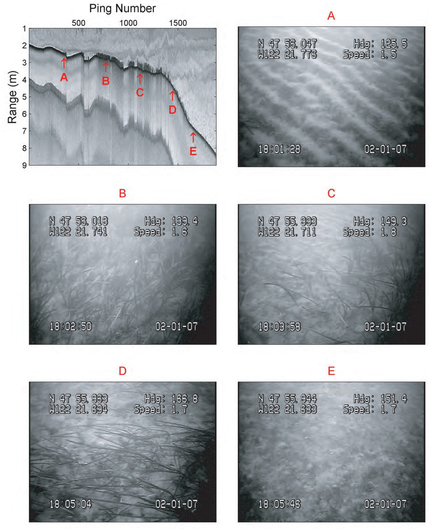
Sonar

Biosonics 420 kHz echosounder and Trimble RTK-GPS

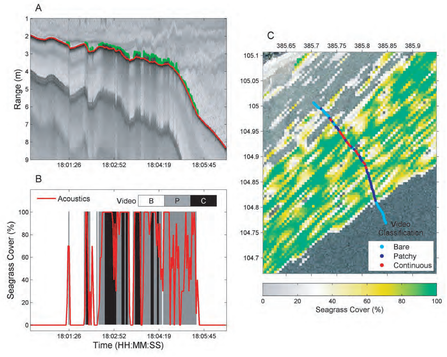
Underwater Video

ACOUSTIC AND UNDERWATER VIDEO COMPARISON

Sonar and underwater video data were collected simultaneously to evaluate the accuracy of the acoustic system.

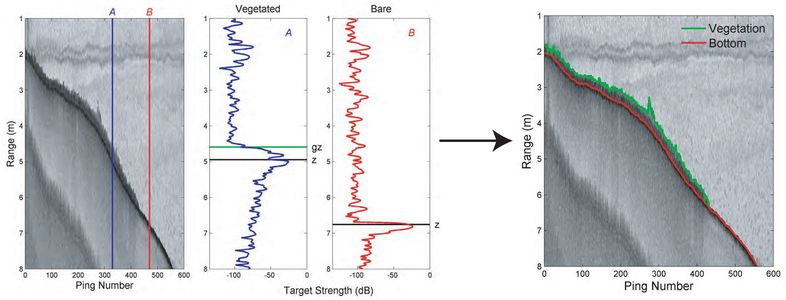


Acoustics can provide information about seagrass habitat characteristics such as plant height and percent cover.

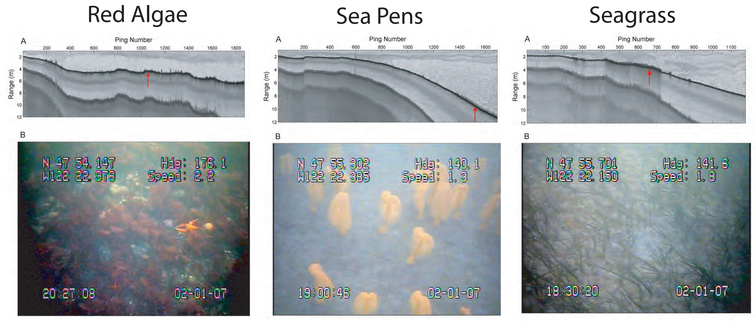


Sonar is highly accurate for determining seagrass presence or absence. In patchy areas, our comparison between the two techniques is confounded by imprecise co location of the two instruments.

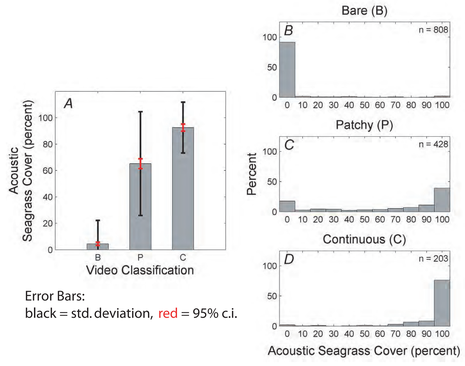
ACOUSTIC METHODS



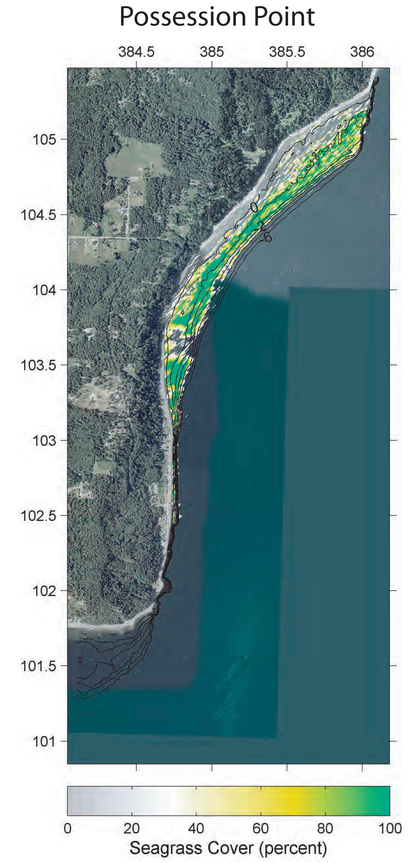
Acoustic detection of seagrass is based on distinct differences in backscatter between vegetated and unvegetated (bare) surfaces.

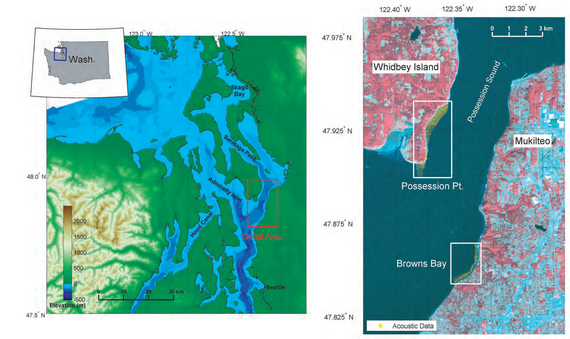


Three habitats with distinct acoustic signatures were identified using underwater video at the study sites. Subjective decision making was used during acoustic data processing to acurately distinguish seagrass from other habitat types.

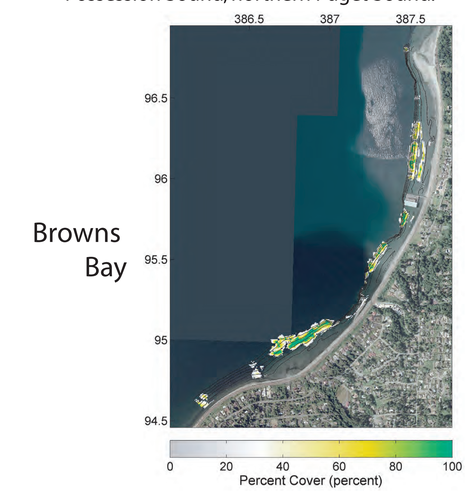


POSSESSION POINT AND BROWNS BAY

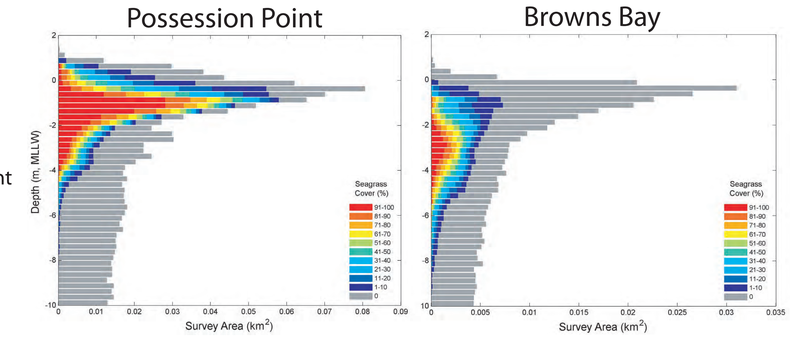




The two study sites are located on either side of Possession Sound, northern Puget Sound.



Both areal coverage and depth distribution differ between Possession Point and Browns Bay.



SUMMARY

Seagrass can be mapped accurately with single-beam sonar in conjunction with some ground-truth information. The sonar technique is also capable of measuring attributes such as percent cover and plant height.

THANKS!

Marty Liedtke, Collin Smith (USGS, BRD), and Andrew Schwartz (Wash. Ecology).