

[132] Using an Airborne Imaging Spectrometer to Detect and Assess Inshore Schools of Pre-Spawning Pacific Herring (*Clupea pallasii*)

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While multispectral digital imagery is commonly used to assess and classify coastal marine habitats, we used a push-broom spectrographic imager to assess fish directly. We acquired spectral signatures of herring schools and adjacent shallow habitats and determined that multispectral frequency bands could easily discriminate nearshore herring schools from background habitat much better than existing aerial observations. In addition, the digitally enumerated surface areas removed the subjectivity of human observers. Although the spatial resolution of satellite multispectral images approaches that of the important large herring schools, we used an airborne instrument to fly under the frequent cloud cover which would often preclude acquiring satellite imagery during the brief inshore spawning period. The digital images allow us to examine and classify school shapes, which could resolve overlaps in run-timing that are a problem with the current aerial survey estimator. Wide, shallow depth profiles adjacent to many herring spawning areas constrain school depth variability and keep the upper layer of the schools visible. However, variable packing density remains a problem. We generalize our findings to contend that species color adapted to a pelagic environment should be detectable in the green band if part of their life history brings them into shallow nearshore waters.

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SYMPOSIUM

Fishery Assessment Using Remote Sensing Technologies

1:20 pm – 5:00 pm (Monday August 24th, 1998)

Room: Sheraton Grand Ballroom

Organized by Fritz Funk and Brian Nakashima

Moderated by Fritz Funk and Brian Nakashima

- 1:20 [131] An Evaluation of the Potential Use of Airborne Lidar for Inventorying Epipelagic Fish Schools
John R. Hunter* and James H. Churnside
- 1:40 [132] Using an Airborne Imaging Spectrometer to Detect and Assess Inshore Schools of Pre-Spawning Pacific Herring (*Clupea pallasii*)
Fritz Funk* and Gary A. Borstad
- 2:00 [133] The Potential Role of Spaceborne Synthetic Aperture Radar Observations in Fisheries Management
P.Clemente-Colón*, W. Pichel and K.Friedman
- 2:20 [134] Testing the Feasibility of Using an Underwater Laser Line Scanning System for Marine Fishery and Habitat Assessment
Robert S. Otto*
- 2:40 [135] Modeling Properties of Airborne Lidar Surveys for Epipelagic Fish
Nancy C.H. Lo*, John R. Hunter and James H. Churnside
- 3:00 BREAK**
- 3:20 [136] Assessing Capelin (*Mallotus villosus*) Stocks Using Data from Aerial Surveys
Brian S. Nakashima* and Gary A. Borstad
- 3:40 [137] Recent Investigations with Airborne Lidars for Fish Detection and Assessment
Charles W. Oliver* and Elizabeth Edwards
- 4:00 [138] Progress in the Development of Aerial Surveys and Direct Photographic Assessment of N. Atlantic Bluefin Tuna
Molly E. Lutcavage* and Jennifer Goldstein
- 4:20 [139] Calibrating and Improving the Utility of Aerial Surveys via the Use of CASI, Videography, and Acoustics
E. D. Brown*, G.A. Borstad, Kevin D. E. Stokesbury and B.L. Norcross