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NOAA FISHERIES
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Alaska Fisheries Science Center

2023 AFSC Seminar Series

Keith Fuller, Alaska Pacific University, FAST Lab

Tuesday, March 28th @ 10 am Pacific

The use of machine learning and electronic monitoring in Pacific sleeper shark population assessment

Electronic Monitoring (EM) technology has found extensive applications in the field of fishery sciences. While on-vessel video recording does allow for fleet coverage beyond what on-board observers could reasonably provide, the amount of data generated from these videos requires significant investment and time to review and disseminate. This has prompted exploration into machine learning technology as a tool to review EM data more quickly and accurately for fisheries assessments. The Pacific sleeper shark (*Somniosus pacificus*) are data-limited in Alaskan waters and may greatly benefit from increased EM coverage and improved, efficient processing. To test the utility of machine learning technology in the identification of *S. pacificus* from EM video data, we examined the accuracy of sleeper shark detection, tracking, and classification of a series of custom machine learning algorithms. Results suggest that machine learning has the potential to significantly increase EM processing capability with minimal loss of accuracy for *S. pacificus* and may strengthen our understanding of the *S. pacificus* population status throughout Alaskan waters. Our current work also looks to develop an algorithm capable of estimating the size of sharks caught by EM equipped vessels without the need for a physical in situ measurement.

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