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Passive Acoustic Detection and Monitoring of Schools of Herring

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Passive acoustic detection and monitoring of various marine fishes has recently received much attention in the literature. It has been recognized that passive acoustic techniques have the potential to complement traditional active acoustic surveys and to significantly increase their overall efficiency, if the acoustic signatures of the considered species are well understood. In this paper, the potential of passive acoustic techniques is explored for the specific case of Pacific herring (Clupea palassii). It is demonstrated that schools of herring can acoustically be detected by observing the sound of coordinated bubble release, triggered, e.g., by predator activity. This sound not only has identifiable features that can be exploited for determining the presence or absence by simple means, but could also carry abundance and size information. Work supported by ONR and the NMFS via the PWSSC.