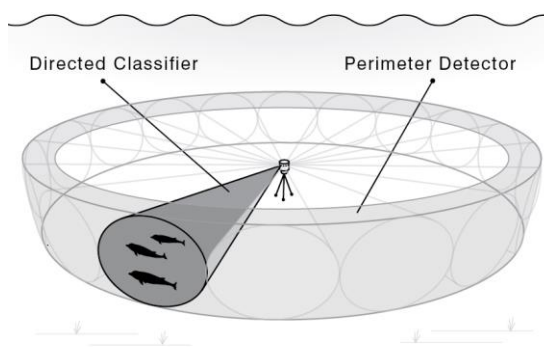


Long-Range Target Detection and Classification System for Environmental Monitoring at MHK Sites

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Description - BioSonics and team members are proposing to develop and deliver a practical, unobtrusive, robust and cost effective long range (200 – 300 meters) active acoustic monitoring system to automatically assess marine life behavior at potential or operational MHK sites. The proposed system includes a Perimeter Detector, that will automatically detect and geolocate targets at ranges of 200-300 meters. The system will include a Directed Classifier that will be automatically aimed at detected target to track the target's position in three dimensions. This tracking capability allows automated measurement of the target's behavior (i.e., speed, direction and tortuosity), a strong indicator of target classification. Acoustic signatures from tracked targets will be analyzed to provide additional target classification information. Low band width, real-time reports will be automatically generated and transmitted to project operators, including target location, depth, behavior and classification.



Objectives - The project team will improve upon the existing baseline technology which is currently in operation in automated underwater threat detection applications at US Navy sites. Targeted improvements include performance optimization for MHK project monitoring and overall cost reductions. Active acoustic technology is the most effective way to assess marine life behavior at range, but existing technology has shown limitations in usefulness in the MHK monitoring applications as there may be potential behavioral changes of detected animals (specifically marine mammals) due to their ability to “hear” the monitoring system. The project team will implement new shaped pulse and Chirp capabilities to suppress off-frequency sound energy within the hearing range of marine mammals while increasing the overall detection range.

Potential Impact - MHK developers, regulators and the public need to understand how candidate MHK devices affect the behavior of fish, marine mammals and other marine organisms for project permitting. The long range target detection and classification system proposed by the project team will help answer this key question with scientific accuracy and at a low cost. This technology will move the MHK industry forward.