Suite of Fish and Wildlife Tracking Technologies

The Technology Transfer Process

- In 2017, PNNL was selected to participate in DOE's Energy I-Corps, a specialized training curriculum that accelerates the transfer of clean energy technologies from national laboratories to the commercial marketplace.

- The team conducted more than 75 customer discovery interviews with regulatory agencies, tag vendors, research organizations, environmental consultants, and energy developers which allowed them to hone the technologies to industry demands.

- The transfer of PNNL's suite of technologies aligns with ATS's mission that the company has prioritized for 35 years: providing high-quality, reliable animal tracking and monitoring products to researchers and managers in ecology and biology.

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Just Keep Swimming Towards a More Environmentally Friendly Future

The challenge: Across the United States, there are more than 2,400 hydropower dams and 52,000 utility-scale wind turbines on land and offshore, and a need to protect the fish and animals that interact with them.

The solution: a suite of technologies developed by PNNL provide dam and turbine operators with critical information on the physical stressors encountered by fish, bats, birds, and other species that interact with these structures.

Meeting the previously unmet demand for smaller batteries, tags, and longer-lasting devices capable of precise data collection, PNNL has created a licensed suite of tracking and sensing devices and customizable software

- **The Injectable Acoustic Tag** allows fish to heal quickly after being injected and creates billions of unique identifiers for each animal being tracked.

- **The JSATS Decoder** is a software application that detects signals from the receivers and decodes them so that they are applied to individual fish. A centralized database can be accessed remotely, which is a benefit in field locations.

- **The Sensor Fish** is an autonomous body double used to collect data on the physical stressors that fish experience during downstream passage at hydraulic structures. The device has multiple sensors, which take more than 2,000 measurements per second.

- **The Radio-Frequency (RF) Tag** is used where acoustic systems are not practical or recommended and is especially useful for tagging terrestrial animals.

- **Software Analytics** are used to collect and analyze the data necessary to learn more about specific fish behavior and the ecosystems they inhabit.

- **The Hydropower Biological Evaluation tool** evaluates the physical and biological performance of hydro-turbines nationwide where fish passage is a regulatory concern.

- **The 3-D Localization tool** maps the locations of individual tagged fish as they move through an area. It's used to assess the effectiveness of dam-passage design alternatives and to support wave energy assessments.

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