

Distribution and identification of fish of conservation importance using hydroacoustics

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Rationale

Marine renewable energy developments have potential impacts on fish, including fish of conservation and economic importance and fish that are the food source for species of conservation importance (marine mammals, fish eating birds). Uncertainty over these impacts can lead to delay and increased survey costs. Populations of rare fish may also be susceptible to significant impact with standard, net based survey techniques.

Hydroacoustics have been used for pelagic fisheries to identify commercially important fish but are not yet routinely applied to conservation situations where target fish are present in much lower abundance. The SEACAMS2 wide band echo sounder and multibeam will make the identification of low abundance fish species a possibility.

Tidal Lagoon Power will potentially impact on migratory salmonids and clupeids including shad, herring and sprat, food fish for overwintering great crested grebes. The salmonids may be present in areas that are inaccessible to net techniques and shad are likely to be killed by most netting techniques. Development of this hydroacoustic identification technique will allow all these species to be rapidly surveyed showing whether their distribution will likely lead to a negative impact with the lagoon.

Outcomes

- Survey and analysis protocols for **identification of fish conservation importance**.
- **Seasonal distribution of fish** in western Swansea Bay (including depth distributions).
- Potential to add on acoustic ground discrimination **analysis and study of fish behaviour in flow** and provide signposts to studies on their reaction to turbine and sluice operation.

