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ENVIRONMENTAL ISSUES ENCOUNTERED IN DEVELOPING THE SWANSEA BAY TIDAL LAGOON PROJECT

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TIDAL LAGOON SWANSEA BAY



KEY AREAS FOR IMPACT ASSESSMENT

- Coastal processes – location specific modelling
- Fish – data gaps
- Benthic ecology – communities affected
- Marine mammals – interactions?
- Overwintering birds
- Adaptive Environmental Management Plan (AEMP)
- Monitoring and Mitigation/offsetting measures –
Honeycomb Worm Strategy - Sabellaria approaches



COLLISION RISK OF FISH WITH TURBINES

- Key consideration in consenting process
- Population/stock implications.
- **Encounter rate + Injury rate**



COLLISION RISK OF FISH WITH TURBINES

Testing Alternative Methods - Draw Zone approach

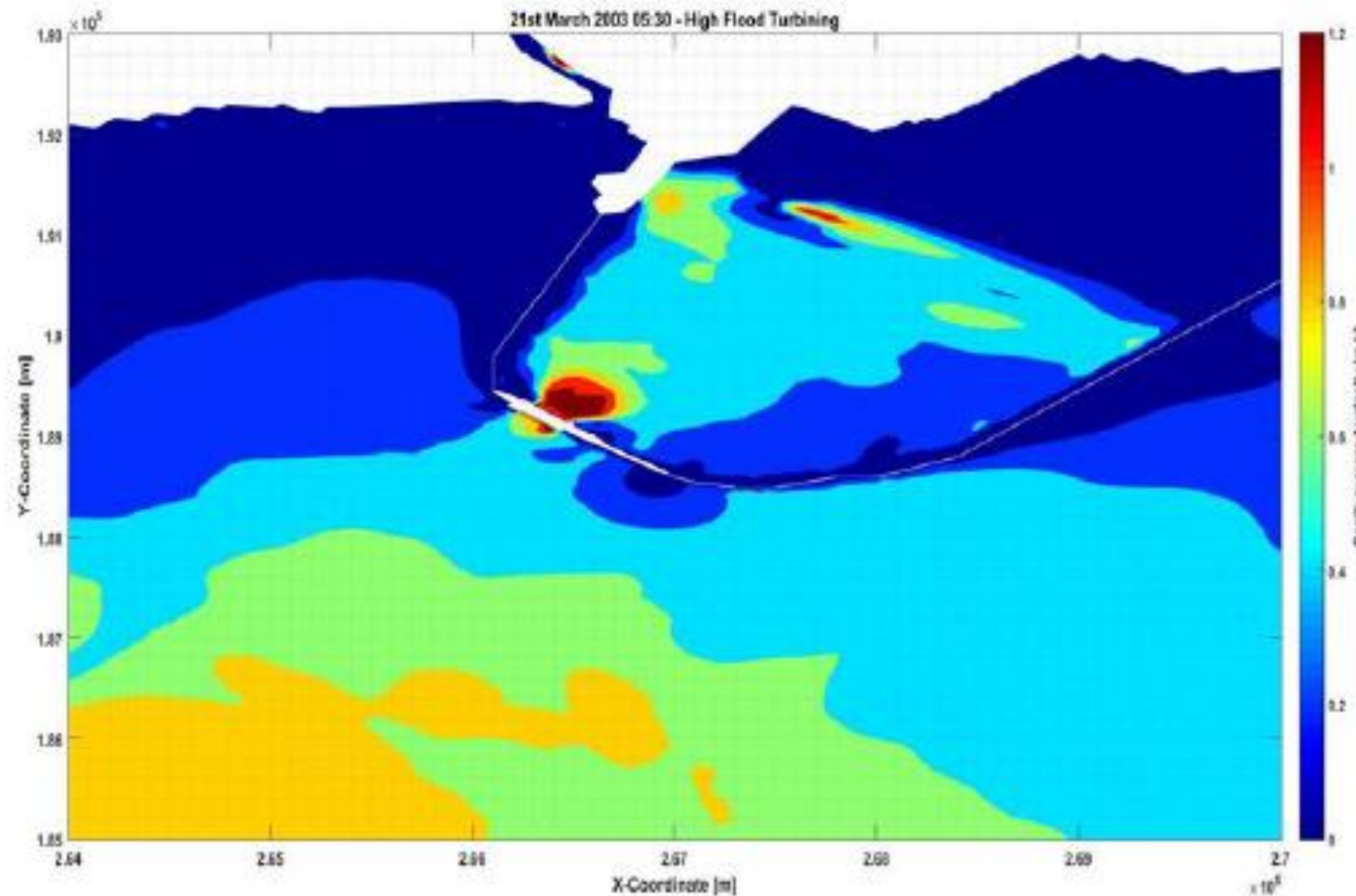


Figure 1: Close up of contours showing flow speeds around the turbine house during peak flow flood generation when water is passing through the turbines



GAPS IN KNOWLEDGE – POPULATIONS

Populations

- What are species population sizes?
- How can we measure/model them?
- What information is required?
- What proportions may interact with a scheme?
- Future populations over 120 year project lifetime?
- What level of impact is considered acceptable?



GAPS IN KNOWLEDGE – CONSERVATION IMPACT

Conservation impact assessments

- What is the current status?
- What level of loss impacts status & how can it be assessed?
- How can we judge impact on site integrity, GES?



GAPS IN KNOWLEDGE – BEHAVIOUR

What is the behaviour of fish in the environment of the scheme?

- Swimming speeds & behaviours
- Migratory routes – salmon, sea trout, eel, lamprey
- Mode of migration i.e. directional, searching, trail following
- Residence times
- Homing/straying



GAPS IN KNOWLEDGE – INTERACTIONS & AVOIDANCE

How will fish interact with a scheme?

- Will they display avoidance behaviour?
- What level of avoidance will they display & what will it be associated with?
 - Flows
 - Noise & vibration
 - Visual
- Once in the lagoon what is their fate?
- Implications for impounded waterbodies

What are the impacts if fish pass through the turbines?

- Injury/mortality rates
- Modelling

