

**ATLANTIS**  
RESOURCES

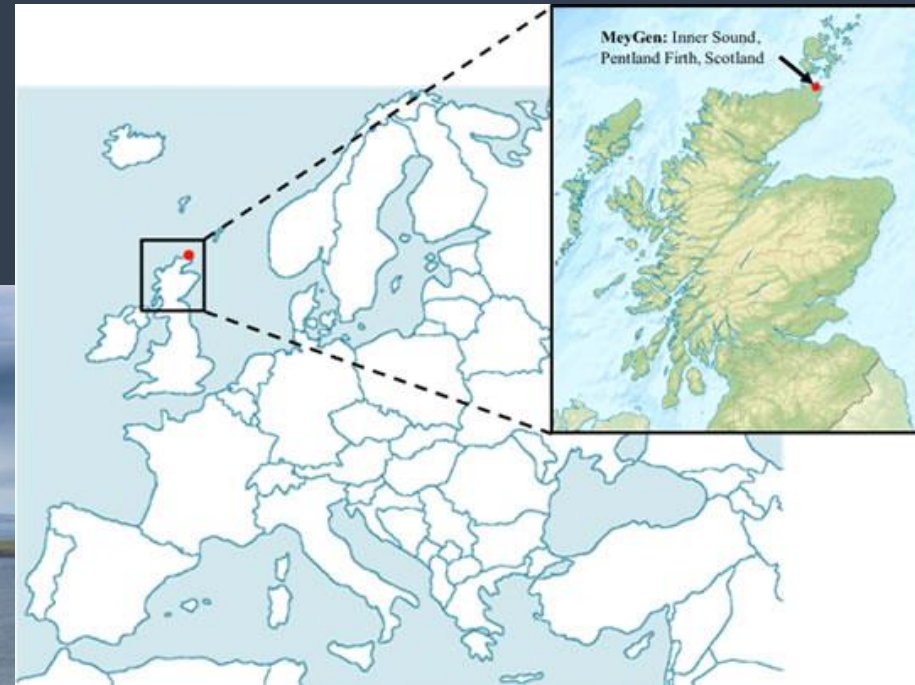
February 2016



# Agenda

- Meygen 1a – Progress, consent and monitoring
- Strangford – Lessons learned
- EIA and Habitats directive
- Future

# MeyGen Tidal Energy Project Phase 1a



# Project Consent

- Section 36 Consent for Phase 1 (86MW)
  - Phased development
  - Condition 2 of S.36 limits first phase to maximum of 6 turbines based on potential risk to Harbour seal population
  - Project Environmental Monitoring Programme required to improve understanding of key environmental sensitivities (release future development)
- Advisory Group (AG) set up to consult and approve monitoring programme
  - Membership includes, MSLOT, MSS, SNH and The Crown Estate

# Project Consents - Monitoring

- Initial process with AG of identifying priorities for monitoring
  - Does not burden the 1<sup>st</sup> project with monitoring all potential impacts
  - Focussing on the key issues that will move development forward
  - Achievable targets – site / project / monitoring technology
- Priority for Phase 1a monitoring
  - Collision risk with Harbour seals
    - Provide data on behavioural response to operating turbines
    - Provide empirical encounter, evasion and collision data
- Potential to gather data on other receptors
  - Atlantic salmon
  - Other pinnipeds / cetaceans
  - Diving birds

# Technology Available

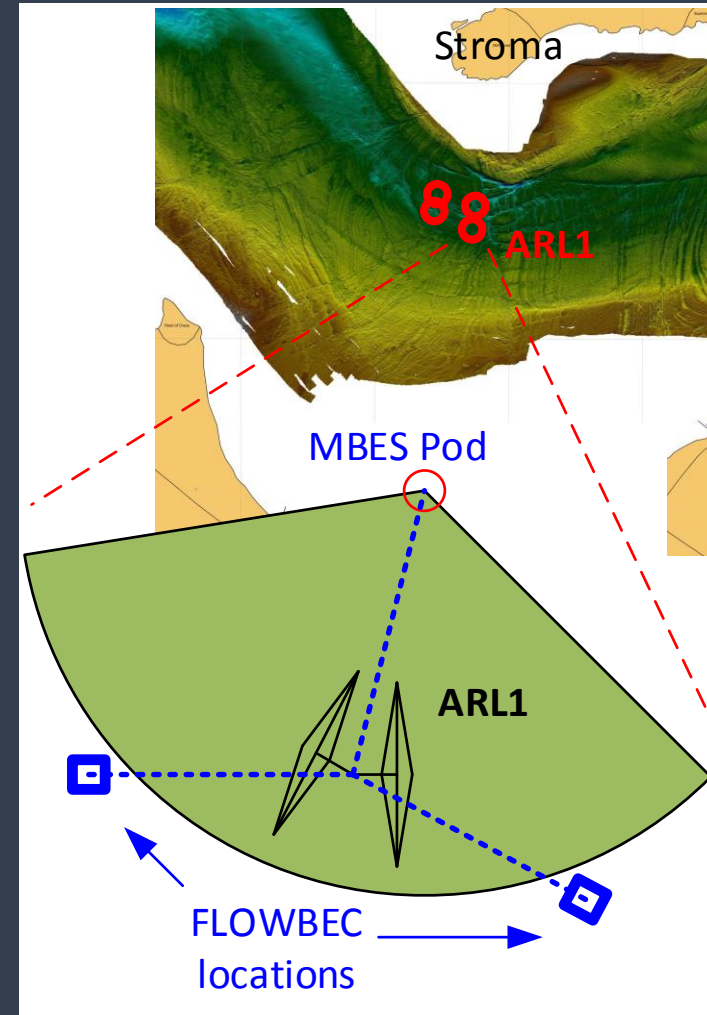
Technology	Capabilities	Limitations
Active acoustics (AAM)	High temporal/spatial resolution Tracks all targets in swath	Any audibility of sensors Inability for collision or not
Passive acoustics (PAM)	High temporal/spatial resolution Ambient noise Species ID – to some extent	Only tagged / vocalising animals Inability for collision or not
Conventional imagery (stills / video)	Collision detection Species ID	Visibility Any effect of artificial lighting (if used)
Tags (various)	With some tags, high temporal/spatial resolution Species ID	Sample size/effort
Turbine/blade: strain, pressure, accelerometers	Collision detection	Unproven Species ID

- Proposed to integrate complementary sensors to combine scales and capabilities, while mitigating limitations to some extent
- Data volumes are not considered here as algorithms for triggering / detection / data-reduction are assumed inherent to each sensor.

# Subsea Monitoring Proposal

- **Monitoring focused on turbine ARL1**
- **On turbine:**
  - PAM array, cameras, blade instrumentation
- **MBES pod:**
  - Dual horizontal multibeam sonars
  - ADCP
- **Mobile vertical-swath FLOWBEC:**
  - Upstream and downstream (wake)
  - Full water column CRM
  - MBES, EK60, ADV, ADCP, Fluorometer

PAM, Gemini and turbine base cameras in conjunction with Scottish Government Demonstration Strategy Project (McConnell, Hastie, Gillespie, Sparling)



# SeaGen Removal Shutdown Mitigation & HRA





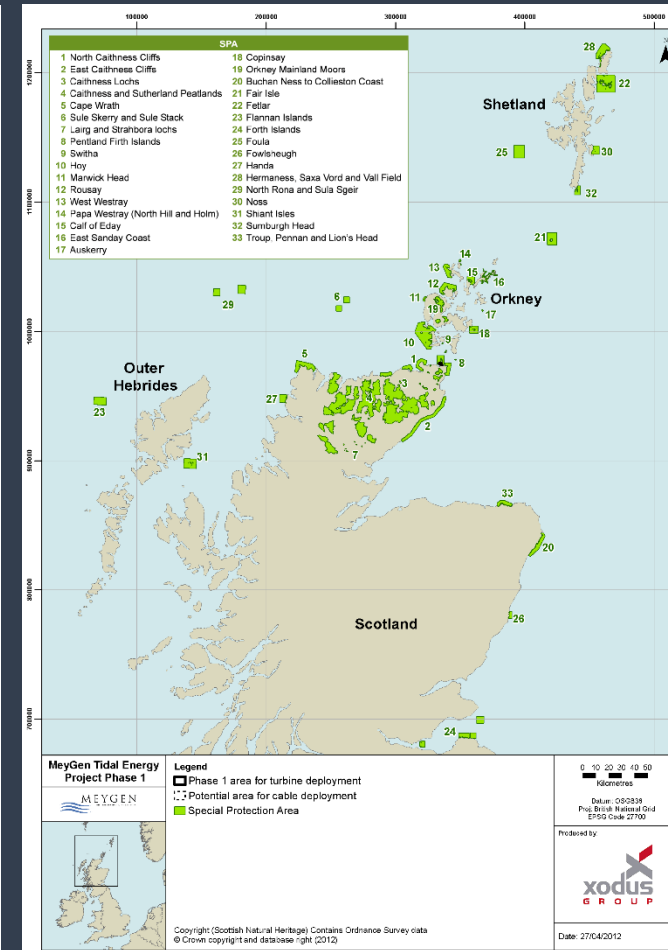
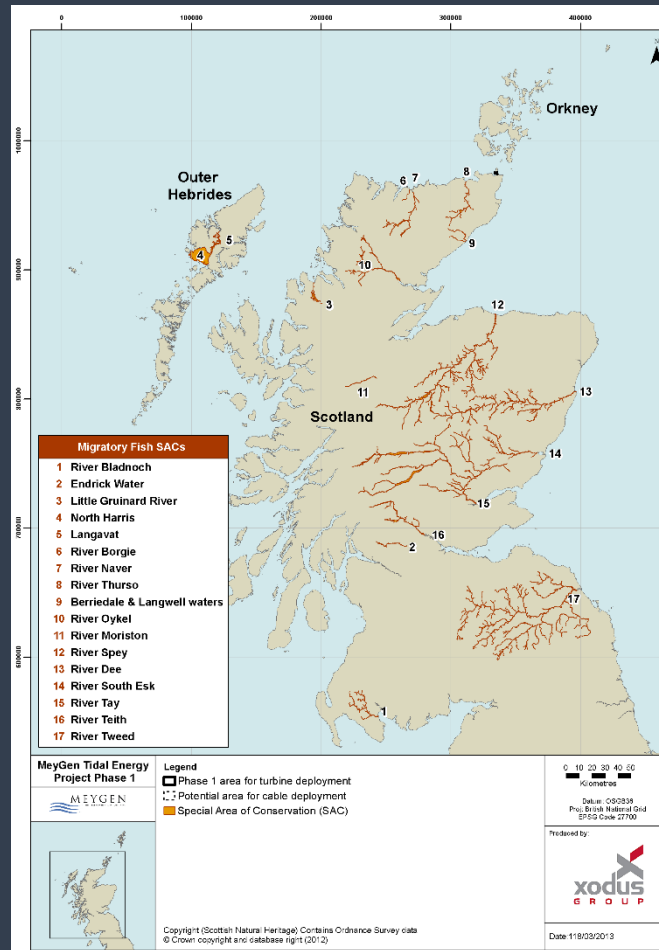
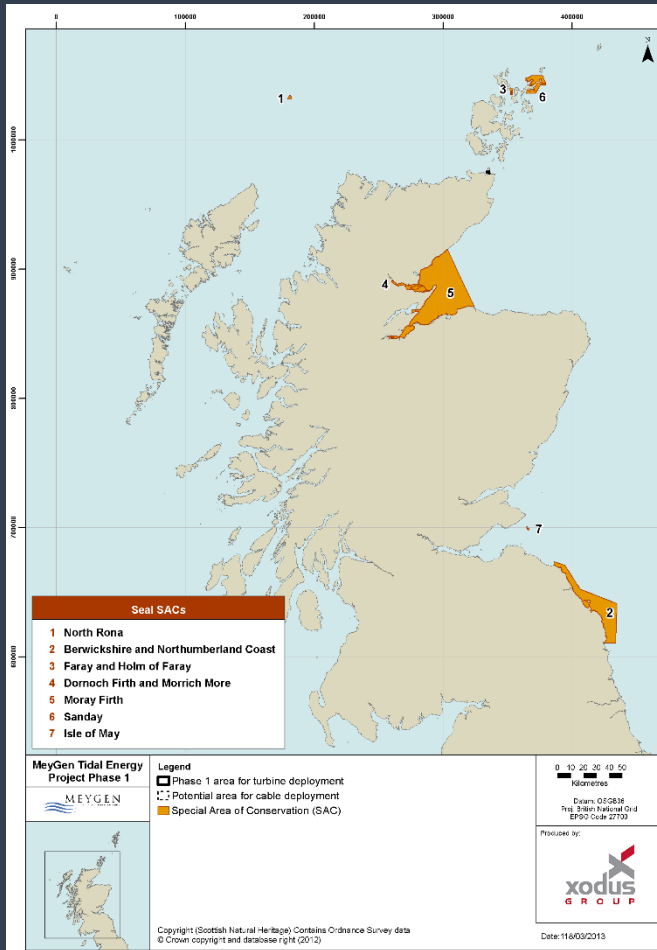
# Removal Shutdown Mitigation

- SeaGen is operated under Marine Licence granted by Department of Environment Northern Ireland, The Marine Licence required that the device was shutdown by teams of remote active sonar operator(s) on 24/7 rotation that would view screen and shut down SeaGen when a “target” marine mammal was observed in proximity to the operating turbine.
- The adaptive management approach to SeaGen operation led to a reduction in shutdown distance from 200m, 50m then 30m
- MCT wished to proceed to continuous operation in order to acquire near field behaviour data of marine mammals around an operational turbine and refine the precautionary 50% avoidance behaviour used with CRM for Strangford
- Unmitigated operation would require the installation of Active Sonar technology that could “see” in realtime
- HRA was conducted to support continuous operation for a trial period

# Habitats and Birds Regulations

- Requirement for project or plan to prove:
  1. It will not have Likely Significant Effects (LSE) on the Qualifying Interests of the site; and
  2. It will not have an adverse impact on the site integrity based on the conservation objectives of that site
- Onerous task for novel technology / small projects.
- Wide ranging protected species (Atlantic salmon) means multiple sites must be considered
  - MeyGen - 17 SACs for Atlantis Salmon
  - Furthest SAC >400km from site
- Lack of information regarding marine distribution / behaviour of Atlantic salmon therefore difficult to disprove LSE.
- Species / Population under pressure by existing (potentially unregulated) anthropogenic activities, however highly regulated marine renewables are those burdened with challenge of meeting Habitat Regulation requirements.

# SPAs/SACs included in HRA



# Environmental Impact Assessment Directive

- EIAs should be proportionate to the size and nature of the development
  - Lack of effective EIA scoping leaves novel technology / small projects with disproportionately large EIAs
  - Regulators / Stakeholders can be unwilling to scope out minor potential impacts as they follow EIA regulations
  - Early identification of key sensitivities and potential impacts would reduce the burden on small developers / emerging industry
    - Effective scoping will focus the baseline survey on the key receptors and impacts
      - More powerful data for the EIA reduces the requirements further through the process
      - Reduces up front costs for small projects
  - Lessons learned from similar marine projects should be more readily used to help scoping
    - E.g. oil and gas / offshore wind - impacts of structures on benthic habitats

## For the Future

- EIA process utilise data acquired from monitoring at tidal sites to inform marine mammal collision risk modelling , this is the area of highest uncertainty for tidal devices.
- Utilise data and lessons learnt from collaborative projects eg; ORJIP
- Marine Scotland have been supportive of Deploy & Monitor, Northern Ireland and Welsh Regulators have been more conservative, requiring shutdown mitigation as the back stop.
- Diving birds are presently identified as a collision risk receptors, the impact upon diving birds to be reviewed especially as tidal technologies are deployed in deeper locations.
- Pre and Post installation monitoring is expensive and can only answer limited questions, it is important for regulators to request data that will provide insight into the consenting conditions relevant to the specific project as opposed to trying to answer wider learning queries related to tidal energy
- Potential for delay due to challenge can be fatal