

## Meeting Actions

<b>Project Name</b>	FLOWW
<b>Name of Meeting</b>	<b>Minutes of Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW)</b>
<b>Meeting Venue</b>	Board Room at The Crown Estate's offices 1 St James's Market, London, SW1Y 4AH.
<b>Date &amp; Time of Meeting</b>	10.30am on Thursday 5 <sup>th</sup> July 2018

<b>Chair of the Meeting</b>	Colin Warwick (CW) (Chair)
<b>Names of the Attendees</b>	<ul style="list-style-type: none"> <li>▪ Harriet Nicholls (HN)</li> <li>▪ Bruce Buchanan (BB)</li> <li>▪ Graham Farrant (GF)</li> <li>▪ Matthew Frow (MF)</li> <li>▪ Hywel Roberts (HR)</li> <li>▪ Caitlin Long (CL)</li> <li>▪ Dale Rodmell (DR)</li> <li>▪ Merlin Jackson (MJ)</li> <li>▪ Ellie Noble (EN)</li> <li>▪ Femke de Boer (FdB)</li> <li>▪ Harry Wick (HW)</li> <li>▪ Iain Maddox (IM)</li> <li>▪ Fiona Nimmo (FN)</li> <li>▪ Fiona Birch (FB)</li> <li>▪ Jonathan Keer (JK)</li> <li>▪ Malcolm Morrison (MM)</li> </ul> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <ul style="list-style-type: none"> <li>▪ Hannah Mary Goodlad (HMG)</li> <li>▪ Colin McAllister (CM)</li> <li>▪ Chris Jenner (CJ)</li> <li>▪ Steve Dawe (SD)</li> <li>▪ Ian Rowe (IR)</li> </ul> </div> <div> <p><i>Equinor Interns:</i></p> <p><i>Mona Martinsen (MoM)</i></p> <p><i>Matthew Smith (MS)</i></p> <p><i>TCE interns:</i></p> <p><i>Rachel Taylor (RT)</i></p> <p><i>Raphael Mayaud (RM)</i></p> <p><i>Adam Rhodes (AR)</i></p> </div> </div>
<b>Dial in</b>	<ul style="list-style-type: none"> <li>▪ <i>Peter Moore (PM)</i></li> <li>▪ <i>Simon Matson (SM)</i></li> <li>▪ <i>David Bale (DB)</i></li> </ul>

Item	Notes	Action	Due Date
1.0	<p><b>WELCOME AND INTRODUCTION</b></p> <p>The Chair welcomed everyone and round-table introductions were given.</p> <p>The new secretariat team from Brown and May Marine, Fiona Birch (FB) and Jonathan Keer (JK), were introduced.</p> <p>Presentation on North Sea Energy Lab not taking place due to speaker illness.</p> <p><b>ACTION:</b> JK/FB to reschedule North Sea Energy Lab presentation for next FLOWW meeting.</p>	JK/FB	Next FLOWW meeting
2.0	<p><b>The effects of temporary exclusion of activity due to wind farm construction on a lobster (<i>Homarus gammarus</i>) fishery suggests a potential management approach (50 mins)</b></p> <p>- Hywel Roberts (Ørsted) and Mike Roach (Holderness Fishing Industry Group - HFIG)</p> <ul style="list-style-type: none"> <li>– Westernmost Rough wind farm situated in a high value area for lobster and crab potting (15% of UK shellfish). Collaborative offshore research initiative undertaken between HFIG and Ørsted to address fishermen's concerns.</li> </ul>		

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	<ul style="list-style-type: none"> <li>Conducted BACI surveys of lobster abundance within and outside of wind farm site, to investigate the effects of wind farm closure on lobster stocks.</li> </ul> <p><b>Key findings</b></p> <ul style="list-style-type: none"> <li>Closing the site immediately removed fishing mortality.</li> <li>Absence of fishing pressure increased biomass and quality of lobsters.</li> <li>Reopening the area saw a rapid increase in fishing mortality and CPUE reduced significantly. Economic return quickly returned to reflect control area.</li> </ul> <p><b>Potential Implications:</b></p> <ul style="list-style-type: none"> <li>Findings support rotational harvest for lobsters.</li> <li>Potential for wind farm sites to be used as quasi-no take zones during construction?</li> <li>Potential to link up with MCZ's?</li> <li>Optimum closure period needs to be assessed to maximise ecological benefit. Possible support for rotational closures.</li> <li>Needs support from industry.</li> <li>Not all fishers may benefit from closure.</li> </ul>		
3.0	<p><b>Floating Wind – Lessons learnt from Hywind project</b></p> <p><b>Early engagement (50 mins)</b></p> <p>- Hannah Mary Goodlad (Equinor)</p> <ul style="list-style-type: none"> <li>Hywind Scotland is the World's first floating wind farm (5 turbines, 6 MW each, located 25km offshore off Peterhead, powering 22,000 homes).</li> <li>Designed using oil and gas technology.</li> <li>Requires deep water, making Scotland an ideal location further offshore. However Hywind not an ideal site. Not suitable for England's shallow continental shelf.</li> <li>Floating turbines are 50% more expensive than stationary ones, but Equinor are working to reduce the cost in the supply chain.</li> <li>Three options for floating foundations: Spar-Bouy, Spar-Submersible and Tension Leg Platform. Tension leg platform most favourable amongst fishing industry because it has smallest footprint but most expensive option for developers.</li> <li>Hywind turbines use 'spar-buoy' foundations: three point anchor system ballasted with steel and water. Rotating blades balance turbine mast to ensure stability. Array cables float between turbines and are each 800m in length.</li> <li>Benthic ROV and scour monitoring surveys in Hywind site are planned for August 2018. Possible topic for a future FLOWW meeting.</li> <li>Floating structures create dead space in the wind farm. Fishermen avoid fishing in site due to high snagging risk. Equinor interested in utilising dead space and interested to hear ideas for its use from FLOWW group. Discussions followed (see below).</li> </ul> <p><b>ACTION:</b> JK/FB to follow up Hywind survey findings as potential topic for a future FLOWW meeting.</p>	JK/FB	Future FLOWW meeting

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	<b>Discussion</b> <ul style="list-style-type: none"> <li>– Situate floating wind farms in areas rarely targeted by fishermen.</li> <li>– Discussions between fishing industry, MMO, TCE and Marine Scotland are key to identify and delineate commercially important fishing areas unsuitable for floating wind.</li> <li>– Move floating wind further offshore away from fishing activity, but this would create conflicts with shipping, telecommunications etc.</li> <li>– Although costly, use of tension leg platform foundations would eliminate dead space between turbines.</li> <li>– Deep, offshore waters appropriate for floating wind is often unsuitable and/or inconvenient for aquaculture.</li> <li>– Opportunity to create artificial reefs or use site as a centre for long term ecological spill-over effects. Equinor could establish measures to enhance this process.</li> <li>– Widely felt that fishing cannot coexist with floating wind farms, which ultimately need to be closed areas.</li> <li>– FLOWW Group suggested as a forum to solve conflicts between floating wind and fisheries.</li> <li>– Marine Scotland currently working on the multi-use of wind farms. FLOWW members to contact Marine Scotland if interested.</li> </ul>		
4.0	<b>The Crown Estate Offshore Wind update (30 mins)</b> <i>- Ben Barton (The Crown Estate)</i> <ul style="list-style-type: none"> <li>– UK operational offshore wind energy capacity is now 7.8GW.</li> <li>– UK on track to achieve 10GW capacity by 2020 and 30GW by 2030.</li> <li>– Construction activity continues for Round 3.</li> <li>– Blyth demonstration site to be decommissioned during 2018, representing the UK's first offshore wind farm decommission.</li> <li>– Other wind farms looking at life extension with new technology.</li> <li>– Offshore wind extensions 2017 – 8 applications for up to 3GW of new capacity. Application assessments underway. Successful applications could be converted to option agreements in summer 2019, subject to HRA.</li> <li>– Potential new (Round 4) leasing (England only). Information day on 25<sup>th</sup> July 2018 with potential market participants. Wider stakeholder engagement in the autumn. Site selection has not yet been determined. Consultation will help to inform this.</li> <li>– TCE Scotland have recently released new lease areas of search to encourage a new generation of offshore wind in Scotland. Requesting feedback from stakeholders and developers by 31st August 2018.</li> </ul> <p><b>ACTION:</b> FLOWW members to register for Round 4 leasing updates here: <a href="http://www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/energy/offshore-wind-potential-new-leasing/">http://www.thecrownestate.co.uk/en-gb/what-we-do/on-the-seabed/energy/offshore-wind-potential-new-leasing/</a></p>	FLOWW members	Ongoing
5.0	<b>Rock Protection/Placement (30 mins)</b> <i>- Matt Frow (Kingfisher) and Hywel Roberts (Ørsted)</i> <p>Discussion point – Does the fishing industry regard rock placement as a hazard? Should rock placements be marked on Kingfisher plotter data/charts (FishSAFE/ORCA)?</p> <ul style="list-style-type: none"> <li>– Fishing industry felt that as long as rock berms consist of a small rock type and are graded 1:3, rock placement is generally not regarded as a hazard, however, this depends on the fishery.</li> </ul>		

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	<ul style="list-style-type: none"> <li>– If communications are clear between the developer and fishing industry, mutual understanding of rock protection areas is achievable.</li> <li>– Knowing locations of rock placement would be helpful to fishermen. Rock placement is not currently charted on KIS-ORCA.</li> <li>– Currently, there is no standard approach for dealing with rock protection and this tends to be dealt with on a case by case basis.</li> <li>– In terms of licencing, there are no regulations on the size and grade of rock, as this is assessed on a case by case basis, based on habitat type.</li> <li>– Rock placement along offshore cables should be marked on admiralty charts because this represents a permanent change in the seabed from its original condition. Sea users would be safer if rock placement were chartered.</li> <li>– Kingfisher to consider this and assess whether charting areas of rock placement could be feasible.</li> </ul> <p><b>ACTION:</b> ESCA and kingfisher to meet and discuss marking rock placement activities.</p>	SD/MF	Before next FLOWW meeting
6.0	<p><b>FLOWW Updates (30 mins)</b> - Harriet Nicholls (<i>The Crown Estate</i>)</p> <p><b><u>Best Practice Guidelines liaison update</u></b></p> <ul style="list-style-type: none"> <li>– BMM to manage the BPG update going forward.</li> </ul> <p><b>ACTION:</b> HN to send BPG update notes to JK/FB, who will then circulate to FLOWW members.</p> <p><b>ACTION:</b> FLOWW members to review BPG update notes prior to next meeting.</p> <p><b>ACTION:</b> JK/FB to make BPG update an agenda item for discussion at next FLOWW meeting.</p> <p><b><u>Notice to Mariners</u></b></p> <ul style="list-style-type: none"> <li>– HN currently compiling NtM guidance text.</li> </ul> <p><b>ACTION:</b> HN to complete NtM guidance text and send to JK/FB, who will then circulate to FLOWW members for approval.</p> <p><b><u>Cables Sub-group</u></b></p> <ul style="list-style-type: none"> <li>– Cables guidance text almost complete.</li> <li>– DR suggested dividing guidance into two sections for 1.) OFTOS, and 2.) cable planning and fisheries.</li> <li>– Best practice guidance on cable avoidance by fishing vessels is still to be agreed.</li> <li>– Cables industry does not currently consult with the fishing industry on where cable routes are located. Route planning between both parties ought to be encouraged. Cable industry representative agreed to this.</li> </ul> <p><b>ACTION:</b> DR to set up conference call with cables sub-group and finalise text before next FLOWW meeting.</p>	<p>HN</p> <p>FLOWW members</p> <p>JK/FB</p> <p>HN</p> <p>DR</p>	<p>ASAP</p> <p>Next FLOWW meeting</p> <p>Next FLOWW meeting</p> <p>Next FLOWW meeting</p> <p>Before next FLOWW meeting</p>

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7.0	<p><b>MMO Regulator Update (5 mins)</b> - Ellie Noble (MMO)</p> <ul style="list-style-type: none"> <li>– MMO are developing a standard template for operation and maintenance (O&amp;M) of offshore wind farms.</li> <li>– Standard navigation requirements being inserted into DCOs.</li> <li>– Blyth demonstration site to be decommissioned later this year (first to be decommissioned in UK). Once decommissioning process finalised, this will be shared with FLOWW Group.</li> <li>– Looking at standard template of O&amp;M to ensure correct liaison with right parties.</li> <li>– Clumped cable end locations to be included as a requirement of licences going forward.</li> </ul> <p><b>ACTION:</b> JK/FB to follow up Blyth demonstration site decommissioning as potential topic for a future FLOWW meeting.</p>	JK/FB	Future FLOWW meeting
8.0	<p><b>“Notice Board” (20 mins)</b> Pre-requested topics:</p> <p><b><u>FLOWW priorities going forward</u></b></p> <ul style="list-style-type: none"> <li>– Representative(s) from oil and gas industry to be invited to join FLOWW Group, eg. Representative from ‘Oil and Gas UK’ and/or Equinor oil. HN suggested Graeme Rogerson, who has shown interest in FLOWW in the past.</li> <li>– Presentations by the fishing industry requested. MF suggested Mike Montgomery. MM offered SFF presentation on ‘fishing awareness’, which they already provide to oil and gas industry.</li> <li>– DR suggested a presentation on EIA baseline surveys and how science meets regulation in terms of informing EIAs. Suggested Adrian Judd from Cefas.</li> <li>– Impacts of Brexit on UK fishing suggested.</li> </ul> <p><b>ACTION:</b> JK/FB to explore inviting oil and gas industry representatives to join FLOWW Group.</p> <p><b>ACTION:</b> JK/FB to explore inviting presentations from the fishing industry and Cefas at the next FLOWW meeting.</p> <p><b><u>Is it time to change our name?</u></b></p> <ul style="list-style-type: none"> <li>– ‘Fishing Liaison with Offshore Wind and Wet Renewables Group’ – the offshore environment is diversifying and there are now a range of developers on the FLOWW group.</li> <li>– Consider adopting a new name and/or logo to reflect this?</li> <li>– Some members felt that the FLOWW acronym has become iconic and changing it may cause confusion.</li> </ul> <p><b>ACTION:</b> FLOWW members to consider a new name/logo for the group.</p> <p><b><u>Longer term Chair solutions</u></b></p> <ul style="list-style-type: none"> <li>– Someone with knowledge of the industry preferred.</li> </ul> <p><b>ACTION:</b> FLOWW members to send suggestions to JK/FB for a new longer term chairperson for the FLOWW group.</p>	<p>JK/FB</p> <p>JK/FB</p> <p>FLOWW members</p> <p>FLOWW members</p>	<p>Next FLOWW meeting</p> <p>Next FLOWW meeting</p> <p>Next FLOWW meeting</p> <p>Ongoing</p>

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9.0	<p><b>AoB</b></p> <ul style="list-style-type: none"> <li>– Management of FLOWW email address (<a href="mailto:floww@thecrownestate.co.uk">floww@thecrownestate.co.uk</a>) to be handed over to JK/FB, if remote online access possible.</li> <li>– New FLOWW secretariat (JK and FB) contact details to be circulated to FLOWW members with minutes.</li> <li>– TCE website currently undergoing makeover. FLOWW webpage unavailable at present, but will be reinstated within the next month.</li> </ul> <p><b>ACTION:</b> HN to handover management of the FLOWW email address to JK/FB, if remote online access possible.</p> <p><b>ACTION:</b> JK and FB contact details to be circulated to FLOWW members with minutes.</p> <p><b>ACTION:</b> JK/FB to circulate link to new FLOWW Group website, once it becomes available.</p>	<p>HN</p> <p>JK/FB</p> <p>JK/FB</p>	<p>ASAP</p> <p>With minutes</p> <p>When available</p>
	<b>NEXT meeting to be held around November in London.</b>		