

Roadmap for the implementation of collective actions within the Recommendations for the protection and conservation of OSPAR listed Species and Habitats 2017-2025

Action sheet 9

Action 9	Evaluate the extent to which ecological data from commercial <i>Nephrops</i> stock assessment and commercial video footage and photographic evidence can be used to assess the status of sea-pen and burrowing megafauna communities, and as appropriate develop protocols for assessment purposes.
Participants	United Kingdom to establish a Task group (proposed membership in Annex I) that will engage with relevant Contracting Parties [including science leads via the ICES Working Group on <i>Nephrops</i> Surveys - WGNEPS ¹] and the OSPAR Secretariat.
Plan	<p><u>T&D feature, applicable OSPAR Regions and background information -</u></p> <ul style="list-style-type: none"> • <i>Sea-pen and burrowing megafauna communities</i>² • Regions II & III [T&D] • Also relevant to Regions I & IV [habitat present but not considered T&D] • For areas surveyed as part of the <i>Nephrops</i> stock assessment work using underwater television (UWTV) methodologies see reference map in Annex 2 and refer to ICES WGNEPS 2016 report³ for further details • ICES provided initial advice in relation to Action 9 in March 2011. This advice is available online⁴ <p><u>Relevant, scheduled ICES WGNEPS activities (from 2016-2018 ToR⁵):</u></p> <ol style="list-style-type: none"> I. Ongoing review of <i>Nephrops</i> UWTV methodologies, incorporation of technological advancements and training to improve consistency in review and assessment of footage (2016-2018). II. Discuss the utility of <i>Nephrops</i> UWTV and trawl surveys as platforms for the

¹ <http://www.ices.dk/community/groups/Pages/WGNEPS.aspx>

² http://qsr2010.ospar.org/media/assessments/p00358_case_reports_species_and_habitats_2008.pdf

³ <http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/SSGIEOM/2016/WGNEPS/WGNEPS%202016.pdf>

⁴ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2011/Special%20Requests/OSPAR%20Protocols%20for%20assessing%20the%20status.pdf>

⁵ <http://www.ices.dk/community/Documents/Science%20EG%20ToRs/SSGIEOM/2016/MA%20ToRs%20WGNEPS%202016.pdf>

	<p>collection of data for OSPAR and MSFD indicators (December 2017). This provides an opportunity for OSPAR to ask WGNEPS whether things have moved on sufficiently to enable an update to their 2011 Action 9 advice⁴.</p> <p>III. Develop an international database to hold <i>Nephrops</i> burrow counts, <i>Nephrops</i> ground extent and distribution GIS files & other data associated with UWTV surveys (2018). [NB this may not include sea-pen / PSA records but this functionality could perhaps be usefully requested depending on the current status of the build].</p>
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Plan cont.	<p><u>OSPAR POSH Task group activities:</u></p> <ol style="list-style-type: none"> a. Engage with ICES WGNeps to determine the scope of proposed ‘utility’ discussions in December 2017 (whether there is sufficient new information available to enable an update to their 2011 Action 9 advice); the status of the ICES <i>Nephrops</i> database build (can fields be added for sea-pen observations, other epifauna, fisheries marks, T&D habitat status etc.); and, to start dialogue regarding potential future data exchange / accessibility. b. Confirm correlations between imminent updates to the UK & Ireland marine habitat classification [and EUNIS] and the OSPAR T&D habitat (early 2018). c. Validation of OSPAR T&D habitat presence (on the basis of biotopes) on <i>Nephrops</i> UWTV footage across habitat substrate gradients in a number of different Region II & III functional units [FU]⁶. d. Develop habitat assignment rules (semi-automated) to facilitate linkages and future data transfer between the new ICES <i>Nephrops</i> database (subject to incorporation of relevant fields and ICES being content with data transfer) and EMODNET⁷ and / or ODIMS⁸ (2018-19). e. Build on 2011 ICES advice and WGNeps 2017 ‘utility’ discussions as appropriate to determine the scope for UWTV to inform habitat status indicator development. Explore available ecological data (e.g. burrow abundance for <i>Nephrops</i>; particle size analysis (PSA); sea-pen abundance where available) in relation to mapped fisheries pressures (surface & sub-surface abrasion etc.). This may entail seeking source video files from ICES WGNeps contacts for more detailed analyses. The work will also include consideration of the overlaps between mapped <i>Nephrops</i> grounds and wider marine areas considered suitable for various sea-pen species and other burrowing megafauna (e.g. using existing predictive habitat mapping products such as UKSeaMap 2016⁹ EUSeaMap 2016 and species distribution modeling products such as Greathead <i>et al.</i>, 2014¹⁰) (2019-20). f. Explore changes in the community composition of the T&D habitat observed through other survey and monitoring studies (likely to include underwater video comparable with the UWTV work as well as additional methodologies) following the implementation of fisheries management measures (e.g. prohibition of demersal trawling in defined areas or effort-based restrictions). May include BACI-type studies in OSPAR MPAs (e.g. Small Isles MPA¹¹ and Central Fladen MPA¹² in Scottish waters) (ongoing). g. Produce recommendations regarding the potential role of the UWTV programme to support OSPAR and MSFD indicator assessments and feasible technological or logistical refinements to facilitate this role (2021).
Timeline	<ul style="list-style-type: none"> • WGNeps consideration of the utility of UWTV surveys for informing OSPAR and MSFD indicators (including status assessment of <i>Sea-pen and burrowing megafauna communities</i> T&D habitat) (end 2017; feedback in early 2018). • Agreement on suitably robust T&D habitat assignment ‘rules’ to underpin

⁶ MSS, AFBI, CEFAS & MI (Ireland) all routinely record sea-pens (either presence/absence or semi-quantitative)

⁷ The European Marine Observation and Data Network (EMODnet): <http://www.emodnet.eu/>

⁸ OSPAR Data and Information Management System: <https://odims.ospar.org/>

⁹ <http://jncc.defra.gov.uk/ukseamap>

¹⁰ <https://academic.oup.com/icesjms/article/72/2/576/675444/Environmental-requirements-for-three-sea-pen>

¹¹ <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/MPAmonitoring>

¹² <http://jncc.defra.gov.uk/page-7308>

	correlation with <i>Nephrops</i> UWTV records (end 2018).
Timeline cont.	<ul style="list-style-type: none"> • Development and population of an ICES <i>Nephrops</i> UWTV database (2018). Application of T&D habitat rules to existing and new <i>Nephrops</i> UWTV records - data exchange protocols established to facilitate updates to T&D habitat point, polyline and polygon datasets for incorporation into EMODNET / ODIMS at the next scheduled update (for 2019 data call). • Detailed assessment and recommendations regarding the role of <i>Nephrops</i> UWTV work in future assessments of the status of the T&D habitat (2021).
Events	<ul style="list-style-type: none"> • WGNEPS annual meetings. 28 Nov. - 1 Dec., 2017 (Herakion, Crete, Greece); Details of subsequent WGNEPS meetings to be determined. • POSH Task group meeting / workshops - <i>ad hoc</i> as required to progress work programme and scheduled to provide timely feedback to POSH / BDC.
Links to other actions	<p>Action 2 - Updated and refined information on the <i>Sea-pen and burrowing megafauna communities</i> T&D habitat to feed into scheduled updates of the OSPAR habitat mapping database and be mobilised via ODIMS and EMODNET.</p> <p>Actions 3 & 7 - Opportunities to collect additional information on <i>Sea-pen and burrowing megafauna communities</i> should be explored as part of wider monitoring and assessment activities (including for MPAs) established by CPs in the context of the OSPAR Joint Assessment and Monitoring Programme (JAMP). The <i>Nephrops</i> UWTV surveys are limited to relevant fishing grounds. To avoid bias, any assessment of the status of the T&D habitat should include consideration of other suitable habitat in adjacent waters.</p>
Links to other actions cont.	Work to deliver Action 9 should be informed by the outcomes of EU-funded projects such as Benthis ¹³ and ongoing work to develop indicators to help define benthic habitat condition (e.g. BH3 ¹⁴ and the assessment of subtidal habitats of the Southern North Sea ¹⁵ completed for the 2017 Intermediate Assessment).
Added value of action by OSPAR	<p>The technical evaluation of the potential role of the <i>Nephrops</i> UWTV surveys is best delivered through science leads in ICES WGNEPS. Since providing initial advice in 2011, WGNEPS has made significant progress in developing and implementing standardised protocols to derive semi-quantitative abundance estimates of burrowing megafauna within the areas being surveyed. This is particularly the case for species that are easily identifiable or have distinctive burrow signatures¹⁶.</p> <p>However, analysing video for multiple species is time consuming and is not a priority for surveys designed for <i>Nephrops</i> monitoring. Recording sea-pen presence and abundance is not currently a mandatory requirement for UWTV analysis (but has been captured by those working in the UK and Ireland since the OSPAR advice request in 2011).</p> <p>The 2011 advice concluded that the surveys designed for covering <i>Nephrops</i> habitats are unlikely to cover the full habitats of all 3 sea-pen species. For some areas it may now be possible to explore that assertion in more detail (e.g. using</p>

¹³ <http://www.benthis.eu/en/benthis.htm>

¹⁴ <https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/habitats/extent-physical-damage-predominant-and-special-habitats/>

¹⁵ https://oap-cloudfront.ospar.org/media/filer_public/81/05/810559b7-6477-4c6b-809d-56323172e4e9/subtidal_habs_snorth_sea.pdf

¹⁶ <https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/SSGIEOM/2016/WKNEPS/WKNEPS%202016.pdf>

	species distribution modelling - see Greathead <i>et al.</i> , 2015 ⁶).
Added value cont.	<p>The OSPAR POSH Task group will engage with ICES WGNeps and provide linkages to support the potential application of the <i>Nephrops</i> stock assessment data for nature conservation purposes and also to other survey and monitoring activity on the T&D habitat not covered by UWTV programme (e.g. within MPAs). This will help ensure representation of the full range of sea-pens and burrowing megafauna associated with the T&D habitat).</p> <p>If it is not possible to modify the ICES <i>Nephrops</i> database to record additional information such as sea-pen abundance (which would require the development of robust guidelines), then it might be possible to request that the standardised records are exported and supplied to the POSH Task group. Additional attribution could then be sourced from individual WGNeps members for relevant records prior to the application of the agreed habitat assignment rules.</p> <p>The POSH Task group provides a mechanism to seek additional resourcing and to coordinate delivery of relevant agreed complementary tasks / research whilst ensuring ongoing liaison with WGNeps.</p>
Barriers to Progress	<ul style="list-style-type: none"> • Financial and human resources to achieve WGNeps activities I. and II. are in place. An update on activity III. is expected at the Dec. 2017 meeting. • Resourcing of an OSPAR POSH Task group is currently under discussion and can certainly deliver the ground work set-out in activities a. - d. • The scope of Task group activities e. & g. will in part depend upon the conclusions of WGNeps 'utility' discussions and any additional research proposed following their December 2017 meeting.
Stakeholders to engage	<ul style="list-style-type: none"> • WGNeps and relevant ICES governance structures. • Fishing industry and environmental NGOs.
Other CAs	-
Product(s)	<ul style="list-style-type: none"> • Updated biotope correlations with the OSPAR T&D habitat. • Report publication presenting findings of the review and biotope tagging of <i>Nephrops</i> UWTV video samples with proposed correlation rules. Undertaken by a specialist marine biologist familiar with EUNIS and UK biotopes. • T&D habitat data update mechanisms in place providing routine capture of relevant records from ongoing <i>Nephrops</i> UWTV stock assessment work (data supply procedures in place with agreed habitat correlation rules to enable semi-automated record assignment, capture and web serving). • An enhanced understanding of the distribution, extent and 'qualities' (in terms of sediment type, density of burrowing megafauna and potentially other conspicuous epifauna) of the <i>sea-pen and burrowing megafauna communities</i> T&D habitat across the OSPAR Maritime Area. Captured in QSR-format documents / reports. • A recommendations report providing clarity regarding the ability of ongoing <i>Nephrops</i> UWTV surveys to inform future assessments of the status of the T&D habitat and / or other OSPAR and MSFD seabed habitat indicators. Whether in its current format or subject to realistic methodological / protocol refinements.

Annex 1 Proposed membership of POSH Action 9 Task Group

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Ben James	Scottish Natural Heritage	Ben.James@snh.gov.uk
TBC	Joint Nature Conservation Committee	TBC

Annex 2 Map showing *Nephrops* functional units [FU] and underwater television UWTV survey application in relation to OSPAR Regions (adapted from ICES WGNEPS 2016)

