

OSPAR request on review of a draft nomination proforma for a “North Atlantic Current and Evlanov Seamount” MPA in the OSPAR Maritime Area

Review summary

ICES has reviewed the draft nomination proforma for a North Atlantic Current and Evlanov Seamount marine protected area (MPA). It finds that the area proposed is important for seabirds, but that the case is not sufficiently made for establishing the area as an MPA. ICES advises that OSPAR should widen and deepen the information included in the proforma, which should then be re-evaluated. An appropriate way of doing this would be to include knowledge from experts on fauna other than birds, oceanographers, and those responsible for managing human usage of the proposed site. This could considerably improve the nomination.

Request

Carry out a scientific peer-review of the proposal to be designated ‘North Atlantic Current and Evlanov Seamount MPA’ (NACES MPA, the site).

Questions 1-3 are the priority questions. The priority questions ask for advice on the scientific case for establishing an MPA. The questions to be answered (Yes/No + additional comments as relevant).

- 1. Does ICES advise that the conclusions of the analysis in the NACES HS MPA nomination proforma are correct in identifying the Site as an important area for seabirds in OSPAR ABNJ, hosting and supporting 22 species (of which 3 are listed as threatened and/or declining by OSPAR, namely Black-Legged kittiwake *Rissa tridactyla*, Thick-billed Murre *Uria lomvia* and Little shearwater/Audubon’s shearwater) and 2.9-5 million seabirds throughout different seasons?*
- 2. Does ICES advise that the seabirds identified in the conservation objectives of the nomination proforma and the range of habitats and ecosystems that support the seabirds are – on the basis of available data - sufficiently described in B. Selection Criteria, a. ecological considerations sections 1-7 of the nomination proforma and associated annexes to fulfil the criteria for designation?*
- 3. Does ICES advise that the scientific case for designating the NACES HS MPA is sound, taking into account that OSPAR works on the best available science and applies a precautionary approach to its measures?*

Tasks a–c are of secondary priority and should be responded to if possible without impeding responses to the priority questions. The tasks a–c are presented in order of priority. Completing the tasks a–c will contribute with scientific advice to support identification of management options to achieve the conservation objectives of the Site.

- a. Evaluate any relevant pressures/threats from human activities within the site as described in the nomination proforma in relation to the conservation objectives, i.e. regarding both seabirds and their supporting habitats/ecosystems, and on this basis provide initial views on possible management options that could contribute to achieving the conservation objectives of the site.*
- b. Evaluate the relevance of the proposed site in terms of long-term population stability and/or increase for the seabird species in focus, and as relevant, reflect on any possible difference in relation to different populations of the species.*
- c. Comment on the possible effect on the long-term population dynamics of the seabird species of any management actions that could be taken at the Site.*

Review

- 1. Does ICES advise that the conclusions of the analysis in the NACES HS MPA nomination proforma are correct in identifying the Site as an important area for seabirds in OSPAR ABNJ, hosting and supporting 22 species (of which 3 are listed as threatened and/or declining by OSPAR, namely Black-legged kittiwake *Rissa tridactyla*, Thick-billed murre *Uria lomvia* and Little shearwater/Audubon's shearwater) and 2.9–5 million seabirds throughout different seasons?**

ICES concludes that the North Atlantic Current and Evlanov Seamount High Seas (NACES HS) MPA nomination proforma (hereafter "proforma") does in general support the conclusion that the proposed site is an important area for seabirds in OSPAR's Areas Beyond National Jurisdiction (ABNJ). It is visited, at least in some seasons, by 22 or more species of seabirds (from the data provided, it is not possible to assess the area's importance for Leach's petrel, phalaropes, and other species). However, from tracking data, which only document the presence or absence of individual tracked birds, the proforma extrapolates "presence" to "used by" while "used by" is generalized to "supports". The exact relevance of the area (visited? used? supported by?) has to be deduced from numerous maps and estimates of the numbers of birds that utilize the area (based on the tracked fraction within the area of the overall range of that species), but there are no detailed comparisons with other nearby or more distant areas.

The estimates of 2.9–5 million seabirds supported throughout different seasons depends on accepting several assumptions as reasonable, while alternative plausible assumptions are considered unlikely to provide substantially different estimates of numbers. Further exploration of the literature might offer better explanations for the unique importance of such a remote pelagic area other than the common presence of tracked individuals.

ICES notes that the proposed site occupies about 4.7% of the OSPAR Convention Area. If seabirds were randomly scattered through the Convention Area, it would be expected that around 4.7% of each species was in the proposed site (at least at seasonal peak occurrence). Based on Table 3 of the proforma, six species of the twenty-one that occur (sooty shearwater, Northern fulmar, Bulwer's petrel, Arctic tern, common murre, and razorbill) fail to meet this threshold. For an area to be considered important for a species, the occurrence of this species in that area should presumably exceed that which might occur if the species were randomly distributed throughout the Convention Area. During peak seasons a further seven species are present at this site at less than two times the number that would be expected if these species were distributed randomly in the OSPAR Convention Area.

Of the three species listed in OSPAR's list of threatened and/or declining species, one (Audubon's shearwater) occurs in important (i.e. above random) numbers in one season only, another (black-legged kittiwake) occurs in important numbers in three seasons, and the third (thick-billed murre) occurs in important numbers in two seasons. For the other seabird species considered, results are undoubtedly fairly robust to the arbitrary and speculative assumptions of the analyses. However, based on the evidence presented, the proposed site would be considered important for seabird populations.

The term "a seabird assemblage" (and comparable collective terms) appears several times in the proforma without a definition of what makes the group of species and individuals an "assemblage". The exact meaning of "assemblage" is unclear: Do the species interact? Do they perhaps depend on one another? Or is it just that a considerable variety of birds were tracked into the same general area?

The estimates used in analyses also depend on benchmarks or cut-offs that seem to be largely arbitrary, making the reference to specific millions of seabirds somewhat speculative and to a degree unnecessary. Although the absolute numbers in the results would be different with other (equally arbitrary) benchmarks or cut-offs, the relative results would again be largely the same. The scientific case for an MPA is mainly presented in Annex 3 of the proforma, where a spatial modelling method known as Kernel Density Estimation (KDE) is applied to the recorded tracks of 2188 individual seabirds of 21 species. There are alternative modelling methods to KDE, but these are overall more computationally difficult and, in some cases, demand much more data; in any case, they usually produce results very similar to the ones from KDE.

While sample sizes are probably adequate to achieve wide representation of the foraging distribution of the species, no assurance is given with regard to other potential shortcomings of the data. For example, the degree to which the data from the birds tracked within each of the "feeder" studies are independent is not considered; do tracked individuals reside in different parts of the colony for instance, thus minimizing local enhancement effects? Similarly, the degree to which

individual trips might not be independent is not addressed; some individuals' trips might be heavily represented in the data set, thereby biasing results.

Within the Methods Summary, at the bottom of page three in the proforma, references to "the presence of an OSPAR species counted 3x" and, on page 4, "presence of a threatened species counted 2x" are illustrative of the type of arbitrary benchmarks and cut-offs that pervade the analytical methods. In the same paragraph the sentence "The complex oceanography of the [proposed] MPA which creates higher primary productivity and concentrations of zooplankton and biomass are *likely* (emphasis added) underlying the high levels of biodiversity and abundance of the area." illustrates the speculative, but plausible assumptions also referred to in that response. The KDE analysis also combined high rigour in some steps, with arbitrary benchmarks in others, revealing that for 27 of the 84 possible species × season combinations, there are either insufficient data or the area is not used. In 53 of the remaining 57 combinations, the proposed site represents > 1% (another arbitrary cut-off) of the relevant biogeographical population; however, the benchmark of 4.7% (the area of the proposed site relative to the area of the full Convention Zone) was not considered.

In light of these concerns, it is premature to draw strong conclusions about the importance of the proposed site for seabirds, and more analyses of seabird and other species data, as well as research on the oceanographic processes underlying the proposed site's productivity are both needed. This additional work is feasible in a realistic time-frame for management decisions, given the conclusions in the proforma regarding "naturalness" (see below).

A further consideration relates to the proposed site boundaries. The boundaries of the proposed site are trimmed, primarily to the OSPAR Convention Area boundary and excluding two areas of extended Continental Shelf claims. However, the site is proposed to be designated for its seabirds, and not for seabed habitats (though some seabed habitats are noted). Extended Continental Shelf claims apply national jurisdiction only to the seabed, not to superjacent waters and their fauna (including seabirds). Thus the analysis, by omitting these waters currently beyond the boundaries of the proposed site but within the Convention Area, may not be determining the best site for potential designation.

2. Does ICES advise that the seabirds identified in the conservation objectives of the nomination proforma and the range of habitats and ecosystems that support the seabirds are – on the basis of available data – sufficiently described in B. Selection Criteria, a. ecological considerations sections 1–7 of the nomination proforma and associated annexes to fulfil the criteria for designation?

It is concluded that the seabirds identified in the conservation objectives, and the range of habitats and ecosystems described in the proforma are well described in the ecological considerations section of the proforma. The three species of seabird on the OSPAR list of threatened and/or declining species that occur in the proposed MPA are described fairly well in the proforma (noting the possible biases in selected individuals discussed in the answer to Question 1). Similarly, with the same reservations regarding unknown but possible biases, the occurrence of other species of seabird is adequately described. The supporting evidence comes largely from the tracking data and some evidence from recent fieldwork, the results of which are as yet unpublished. Little use is made of existing published literature.

The evidence is consistent with the proposed site, being important to seabirds and possibly some other megafauna. The importance of the habitats that occur in the proposed site is not quantified to any great extent. Rather, their significance is described in more general terms with little direct evidence from the proposed MPA itself. The map of ocean currents (Figure 3 in the proforma) that identifies the area as an area of high productivity pelagic habitats is a schematic of a highly complex, and widely studied current system. All the currents meander around and well beyond the entire area, with eddies and gyres forming and moving across both the "proposed site" and areas to the east, west, north, and south. The unpredictable and small-scale patchiness of the oceanography, and by inferential speculation the pelagic food supply, is explicitly mentioned. Moreover, one of the major oceanographic features of the area is the subpolar front. This front moves hundreds of kilometres north and southwards seasonally. As an ecotone it is ecologically important. However, as discussed by the Convention on Biological Diversity (CBD) at the appropriate Ecologically or Biologically Significant Marine Areas (EBSA) workshop concerning the comparable front in the North Pacific, this seasonal movement makes it a priority to focus restrictive conservation measures just on the front, and not be unnecessarily prescriptive year round in all areas where the front may occur for some part of a season.

Discussing whether part of this system is unique or not is really quite pointless if the precise important mechanisms of the conditions for foraging, or for whatever uses, of the fauna intended to be "conserved" or "protected" are not revealed, or

if they are found to be not appropriate for spatially based protection measures. The boundaries of the proposed area could be moved to east, west, north, or south and the result would be equally unique (in the absence of a clear ecological explanation as to why the boundaries are exactly where they are proposed).

Because the resulting size of the area meeting the criteria argued in the proforma is so large, and the localization of the “special” features meeting the criteria so diffuse and inconsistent across species, the more appropriate conclusion is that the information for the proforma sets the minimum standards for what is “sustainable use” of the entire deep-sea areas of the North Atlantic, rather than identifying a restricted site for enhanced conservation measures over and above the measures needed to meet the standards for sustainable use.

As with Question 1, the results and conclusions in the proforma are consistent with the evidence provided, but premature because additional information is likely available on relevant aspects of the marine area and ecosystems, including the seabirds that visit it. The evidence presented suggests the area is important for seabird prey species as well as other top predators, and some oceanographic processes confirmed in the literature as being important are present. To go further and describe the ecological significance of the proposed site as unique would be speculative at this time, but it would be fair to describe such a description as precautionary. Within the context of the study area (OSPAR ABNJ), the proposed MPA would indeed appear to have high seabird species richness; however, rigorous comparisons with the diversity of areas outside the proposed MPA need to be conducted before strong conclusions are warranted. It has not been quantified generally to which degree the proposed site is high in natural biological diversity.

3. Does ICES advise that the scientific case for designating the NACES HS MPA is sound, taking into account that OSPAR works on the best available science and applies a precautionary approach to its measures?

ICES does not consider that a sufficiently sound case has been made that the proposed site would necessarily benefit from designation as an MPA receiving enhanced protection relative to a background of sustainable use of the high seas. ICES considers that a sound scientific case is made for ensuring that all human uses of the deep-sea ABNJ areas of the North Atlantic are sustainable, for example for the CBD Aichi Target 6 and the ecosystem and precautionary approaches, as endorsed and interpreted individually by the UN FAO, IMO, or ISA (the intergovernmental organizations within the UN system accountable for guidance and leadership in management of the three potential human uses identified in the proforma as being of greatest concern – fisheries, shipping and transportation, and seabed mining, respectively). ICES encourages OSPAR to meet with these regulatory organizations and to ensure that the core management approaches of these organizations take account of the needs of seabirds foraging in the OSPAR Convention Area.

The proforma claims the proposed site is the most important high seas foraging ground in the OSPAR area for pelagic seabird species, identifying it as a foraging hotspot containing a significant proportion of the North Atlantic assemblage of seabirds. Whether or not the area is indeed an important foraging area or the most important high seas foraging ground for each of the seabird species remains to be seen, for only tracking data have been used in which simple movements have not always (or never) been separated from active foraging behaviour.

Even such conclusions, weaker than those in the proforma, hinge on a number of uncertainties in the data completeness and analysis rigour. With regard to the species and data, the document is unclear in its explanations of what the designation of this area as an MPA would mean for each of the (very different) species. The explanations become particularly unclear when comparing the management of human activities in the proposed area with areas elsewhere (e.g. what would designation of this new area bring for the birds?). With regard to the analyses, any major erroneous assumptions of true representativity, independence, or non-bias in the tracking data could significantly affect the accuracy of estimates of numbers of individual seabirds using the proposed site. If the core use of any area is overestimated by violations of these assumptions, then the estimates will be inflated.

The proforma indicates that the proposed site is used by at least ten cetacean species during different times of the year. The underpinning for this is fairly weak (one ship-based survey, a few tracks from the Azores). Though the “use” by several species of cetaceans may be evident, the general importance for whales and dolphins of the proposed MPA requires further investigation, perhaps initially by using published studies and later by re-analysing the data underlying those studies.

Furthermore, the proforma does not make a sound case for substantial and lasting incremental conservation benefits for many of the species if strong conservation measures were in place inside the site proposed for designation as an MPA, as

human activities outside the site were not practiced sustainably with the application of both a precautionary and an ecosystem approach. It is argued that the designation of the site as an MPA would offer conservation benefits to animals while they are within the site. However, since essentially all the species analysed in the proforma are highly migratory and spend substantial parts of the annual cycle outside the site, unsustainable practices outside the site would over time dissipate some, and possibly a large part of those benefits.

Oppel *et al.* (2018) points out that knowledge of the spatial scales at which effective management can be implemented is fundamental for conservation planning. This is especially important for mobile species, which can be exposed to threats across large areas, but the space-use requirements of different species can vary to an extent that might render some management approaches inefficient. Oppel *et al.* (2018) examined the movement patterns of ten taxonomic groups of seabirds, using the same seabird tracking data as used in the proforma's analyses. There was evidence for substantial differences in patterns of space-use among the seabird families, indicating that several alternative conservation management approaches are needed. Several species exhibited large foraging ranges and little aggregation at sea and it was concluded that improved regulation of fisheries, bycatch, pollution, and other threats over large spatial scales would be needed to best conserve these species. Such measures do not require the designation of an MPA.

While the importance of the study area for seabirds across the study area has been asserted using seabird density and a measure of species richness, the geographical boundaries of the proposed MPA have been selected rather arbitrarily. The area comprising the 15% most important (seabird density × inflated species richness) cells were selected and this area was then further reduced to exclude geopolitically sensitive areas, resulting in a neatly defined area not within any national jurisdiction or likely to be so in the future. This expedient and precautionary approach is beyond the strictly scientific realm. The "status of the location" shows a very incomplete grasp of the legal regime in ABNJ and that alone makes it hard to really evaluate the added value of this or any MPA in the area ABNJ, whatever conservation tools OSPAR may or may not have in its arsenal. Although it is understandable for political reasons why areas within extended continental shelf claims are not included in the proposed MPA, it makes no sense on biological grounds, and undermines some aspects of the effectiveness of any such designation. Moreover, respecting the western boundary of the OSPAR convention zone is questionable when many of the figures in the Annexes of the proforma show that waters to the west are important, with the text in many places highlighting potential threats in those waters. Together these factors also contribute to seeking conservation measures that are not spatially restricted, rather than making the spatial restriction the main feature of the measure.

It is clear, however, that rather many species frequent the area at various seasons, and that the duration of their stay within the boundaries of the proposed MPA is such that at least some use of the resources within the region is likely. Further information on foraging conditions, species-specific resources, foraging interactions, and feeding hotspots is urgently required. The preliminary results of a single cruise are not sufficient and do not provide the evidence needed to underpin the need for a special status for the region, except perhaps for some shearwaters (presence/absence data only).

The proforma is based mostly on seabird tracking data. Cetaceans are also mentioned briefly in an attempt to note the importance of the area for other fauna. If OSPAR wished to include cetaceans in the proposal, then the results of surveys for whales and dolphins, such as with the US National Agricultural Statistics Service (NASS) surveys and more recent censuses could usefully be analysed (e.g. Buckland *et al.*, 1993; Gunnlaugsson and Sigurjónsson, 1990; and materials underpinning the International Whaling Commission (IWC) population estimates at <https://iwc.int/estimate>).

- a. *Evaluate any relevant pressures/threats from human activities within the site as described in the nomination proforma in relation to the conservation objectives, i.e. regarding both seabirds and their supporting habitats/ecosystems, and on this basis provide initial views on possible management options that could contribute to achieving the conservation objectives of the site.*

All the pressures and threats from human activities within the proposed site are plausible in principle, in that if they occurred consistently and without management constraint they would increase risk to the seabirds and other megafauna described in the proforma. However, the extent to which these prevail within the proposed MPA is not evaluated to any great extent, with the argument that there is a lack of information on human activity in the proposed site because it is so remote. The text of the proforma consistently argues for each potential threat that there is "a major gap in knowledge for the North East Atlantic on ..." (page 51) the occurrence of each activity, and that knowledge is "not available [or clearly understood] to the experts that have drafted the proforma thus far" (page 51). However, experts with substantial amounts

of such information and knowledge are available within the OSPAR contracting Parties and elsewhere around the North Atlantic. It is apparent from Annex 1 in the proforma that no such experts were present when the proforma was drafted. ICES advises that OSPAR would have a clearer view of the threats and their management if expertise from the various relevant management bodies were invited.

The list of threats is a list of things that have already been acknowledged as needing to be managed, avoided, or if unavoidable, mitigated, by the respective sectoral management bodies. None of them are inherently spatially located within the MPA. Climate change may not be “regulated”, and an MPA will not avoid or mitigate the threat of climate change. ICES notes also that the section on Naturalness starts with the statement that the “area has a high degree of naturalness, with species and habitats/biotope types still in a very natural state as a result of the lack of human-induced disturbance or degradation.” This strongly indicates that existing sectoral measures must be appropriate and working well. It is not clear from this as to what the added value of the MPA might therefore be.

The proforma notes that the seabird species that occur in the proposed MPA are sensitive to a variety of threats, from bycatch in fishing gear through pollution to climate change. While these threats pertain widely, the degree to which the birds are vulnerable to these in the proposed site is not known precisely. However, the point is well made that seabirds are (generally) long-lived species, with deferred maturity and their populations are sensitive to adult mortality (from whichever threat).

ICES notes that the paragraph “Method to achieve the vision” does not describe a method to achieve that vision. Most of the paragraph describes ways to increase knowledge, which is always a good thing to do, but is not absolutely essential to effectively manage threats. Protective measures can be taken in the absence of complete knowledge. Working with relevant regulators, both within and outside MPAs, to identify actual threats and suitable management measures to reduce threats, could achieve the vision. An MPA does not need to be designated for this to occur.

Monitoring schemes for both the populations and the threats will be necessary for any more enhanced conservation approach to the proposed site, whether through designation as an MPA or use of other tools. Given that the proposed MPA is by definition beyond any national jurisdiction then this probably adds to the difficulty of establishing a coherent, systematic monitoring scheme. However, monitoring schemes to assess, for example, the extent of any bycatch within the proposed MPA, would be consistent with commitments made by regulatory authorities to apply ecosystem approaches and the Deep Sea Fishery Guidelines of FAO that include mainstreaming biodiversity considerations in fisheries management (as reviewed and supported in the 2016 CBD COP).

- b. *Evaluate the relevance of the proposed site in terms of long-term population stability and/or increase for the seabird species in focus, and as relevant, reflect on any possible difference in relation to different populations of the species.*

The information in the proforma is not sufficient to provide more than qualitative and to varying degrees speculative statements about the relevance of the proposed site for different populations of each species. In the cases within the proforma where relevance for particular populations of a widespread species is suggested, the rationales are reasonable and the statements appropriately cautious, so there is a modest basis for confidence in these statements. With regard to the larger question of long-term stability and/or increase in the seabird species in focus, in no instance is a strong case made that threats specifically in the area proposed for MPA designation were or are a major factor in population decline or vulnerability. Instead, in many cases the observations or evidence presented show that the major causes of recent or on-going population decline (when declines are documented in population assessments) are in the vicinity of the breeding grounds (far from the site proposed for the MPAs). Even when winter mortality was high the causes, and therefore the location of the deaths, were not known.

There is no discussion of the spatial implications of climate change, even though such change is mentioned as a problem for several species. Knowledge of relevant and important changes in the distribution of megafauna in the North Atlantic (e.g. Víkingsson *et al.*, 2015) should have been used, not least to question the long-term validity of the proposed site as an “important area” for marine wildlife. If large cetaceans, many fish species, and zooplankton show highly distinct shifts in their distribution patterns, seemingly in response to warming conditions, it would be surprising if seabirds did not also respond to those changes.

The proforma does include the suggestion that because climate change may have effects in the area, the MPA may serve as a reference site to study these effects (page 5). There is no basis in the proforma for that statement, and until the oceanographic processes underlying the system dynamics are better understood, such a proposal would be speculative and not supported by sound science.

While the analysis presented in the nomination is driven exclusively by seabird distribution data with no quantification of specific habitat use, there can be little doubt that the proposed site contributes to an unknown degree to the stability of the seabird populations that at least use the area in numbers representing significant proportions of Large Marine Ecosystem populations. However, population stability depends also on other factors that operate elsewhere and at different times of the year when the birds are not present in the proposed MPA, and there is no evidence that enhanced protection specifically at the proposed MPA site would substantially increase the stability of these populations.

- c. *Comment on the possible effect on the long-term population dynamics of the seabird species of any management actions that could be taken at the Site.*

Negative long-term effects on the population dynamics of the seabird species might ensue if (a) the bycatches in fisheries or depletion of the mid-trophic levels by harvesting in the waters in ABNJ were allowed to occur without effective constraint, (b) shipping led to frequent oil spills, pollution, and litter in the proposed site, or (c) deep-sea mining were conducted in ways that allowed substantial sediment generation or pollutions. However, the regulatory authorities for these activities in ABNJ (FAO and NEAFC, ICCAT, IMO and ISA) are already committed to regulating the potential threats from fishing, shipping, and seabed mining, and have effective measures for doing so. The proforma provides no information on how widely these measures are currently used by the respective regulatory authorities, but ICES is aware that such information is likely to exist. ICES recommends that a review of current measures, their implementation, and their effectiveness be carried out before a decision on site designation is made.

Basis of the advice

This review is based on the consolidated view of three scientific experts who independently reviewed the proforma against the questions posed by OSPAR.

Sources and references

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