



Area Size

4,460 km²

Qualifying Species and Criteria

Grey seal – *Halichoerus grypus*

Criterion C (1)

Harbour seal – *Phoca vitulina*

Criterion B (2)

Humpback whale – *Megaptera novaeangliae*

Criterion C (2)

Minke whale – *Balaenoptera acutorostrata*

Criterion B (2)

Criterion D (2) - Marine Mammal Diversity

Balaenoptera acutorostrata, *Balaenoptera physalus*,
Delphinus delphis, *Grampus griseus*, *Halichoerus grypus*,
Megaptera novaeangliae, *Phocoena phocoena*, *Phoca vitulina*, *Tursiops truncatus*

Other Marine Mammal Species Documented

Globicephala melas, *Hyperoodon ampullatus*, *Orcinus orca*

Summary

The Dingle to Mizen Head IMMA is located in the southwest of Ireland and the coastal and tidal currents and bathymetry mean that this is an important feeding and aggregation area for a number of marine mammal species. The IMMA hosts aggregations of minke (*Balaenoptera acutorostrata*), humpback (*Megaptera*

Dingle to Mizen Head IMMA

Summary, continued.

novaeangliae) and fin whales (*Balaenoptera physalus*) between April and November each year. There are also large numbers of common dolphins (*Delphinus delphis*) continuously present but numbers vary seasonally, as well as concentrations of Risso's dolphins (*Grampus griseus*) and common bottlenose dolphins (*Tursiops truncatus*). The IMMA includes a number of important haul-out and breeding sites for grey and harbour seals.

Description:

Situated at the western margin of the northwest European Continental Shelf the waters of western Ireland exhibit hydrographic and biological properties characteristic of both coastal and Atlantic regimes. Weather systems play a significant role in nutrient circulation in the area with average wind speeds in January of 12 m s⁻¹ and even during the calmest month of June the average is 7 m s⁻¹ (Fernand et al., 2006). Bathymetry shelves rapidly to 100-150 m within 20 to 25 km of the coast, and it then extends to the shelf edge as a relatively flat plateau. This part of the South West Irish coast includes the Dingle, Iveragh, Beara, Sheep's Head and Mizen Peninsulas which have extended submarine ridges and seamounts seaward of the peninsulas creating a highly varied marine habitat (see Marine Institute, 2016 bathymetric maps). Coastal tidal currents enrich the waters around the coast with strong currents noted particularly off the Beara, Dingle and Mizen peninsulas where mixing of waters causes increased productivity. Fernand et al. (2006) demonstrated a strong summer northward flow of geostrophic



Figure 1: Common minke whales (*Balaenoptera acutorostrata*) in the Dingle to Mizen Head IMMA. Photo credit: Patrick Lyne, IWDG

currents generated by the bottom fronts intersecting the seabed at 60 m, this continuous pathway runs from the north Cornish coast to Malin Head with average residual velocities $>7.5 \text{ cm s}^{-1}$. The varied bathymetry along this coastline, with ridges intercepting geostrophic and tidal currents, creates a varied habitat mix further increased by tidal flows in and out of large bays as the tide flows around the peninsulas, islands and headlands (Simpson & Tett, 1986), which results in variable and mobile pockets of high productivity which repeat on a tidal cycle. Further tidal mixing fronts form in the summer months (Simpson & Sharples, 2012). This environment supports some of Ireland and western Europe's most important seabird colonies, with large gannet, puffin, manx shearwater and fulmar nesting sites throughout the western islands and headlands of this area.

Criterion B: Distribution and Abundance

Sub-criterion B2: Aggregations

Common minke whales (*Balaenoptera acutorostrata*) are often recorded in large numbers within the IMMA, sometimes more than 20 in a single feeding group, and there are records of aggregations of up to 80 recorded (IWDG, 2023). The Irish Whale and Dolphin Group data shows minke whales recorded in aggregations of 3 or more from mid-March to the end of October in the years 2013 to 2022 inclusive. Larger aggregations of 10 or more minkes have also been recorded from April to October over the same period. These larger aggregations are likely to be related to feeding and/or reproduction as feeding has been noted during many sightings and pulsed calls believed to be associated with mating have been

recorded in this area (Lyne, 2023) during periods of minke aggregations in April. While the OBSERVE aerial surveys (Rogan et al., 2018) reported no minke sightings in this IMMA in 2015 due to the fact there were no transect lines in this area, 2016 saw transect lines (339,377 km² aerial survey coverage in 2016) added for coastal areas on the west coast of Ireland and as a result large summer concentrations of minke whales were recorded. OBSERVE identified this section of the Irish EEZ as having the largest summer concentration of minke whales in Irish waters, with an overall abundance estimate of 6,578.7 (CV 49.96) in the summer 2016 (Rogan et al., 2018). This number compares with an abundance estimate of 12,417 from the SCANS IV surveys (Gilles et al., 2023) which covered much of the remaining minke habitat in the North East Atlantic (1,467,358 km² aerial survey coverage, 270,684 km² ship survey coverage). Indicating that this is potentially the most important area on a seasonal basis for minke whales in the North East Atlantic with repeated recordings of unusually large aggregations (IWDG, 2023).

Criterion C: Key Life Cycle Activities

Sub-criterion C1: Reproductive Areas

There is one important breeding area for Grey seals (*Halichoerus grypus atlantica*) and two for harbour seals (*Phoca vitulina vitulina*) seals in this IMMA both of which are defined as SACs. Though the seals may breed in small numbers throughout the area these three sites are recognised for their importance for these EU Habitats Directive ANNEX II species and are listed as qualifying interests for the SAC.

An estimated 314 grey seal pups were born in the Blasket Islands SAC in 2011 (Ó'Cadhlá et al., 2014). Cronin et al. (2013) suggests that grey seals in the southwest of Ireland forage closer to haul-out sites during the summer months. The corresponding minimum population estimate for the site numbered

1,099-1,413 grey seals of all ages (O'Cadhlá et al., 2014). A total of 1,574 grey seal pups were estimated to have been born in the Republic of Ireland during the 2005 breeding season (Ó'Cadhlá et al., 2007). While numbers are not as high as many parts of the UK, grey seal numbers (Banga et al., 2022) in the Blasket colony is significant with 20% of the Irish grey seal population.

The southwest of Ireland appears to be a significant stronghold for harbour seals in Ireland, with 33.6% of the total population. Within the southwest, County Cork and particularly Bantry Bay stand out as the most significant local populations. The two SAC's for harbour seals are the Kenmare River SAC and Glengarriff Harbour SAC both of which have harbour seals as a qualifying interest and are two of thirteen SACs with harbour seals as a qualifying interest in the Republic of Ireland. Cronin et al. (2008) found that tagged harbour seals in the Kenmare River rarely moved outside of the SAC and therefore appear to be largely resident in the SAC and within this IMMA. An aerial survey conducted in 2012, which counted 3,489 harbour seals in Ireland, and an 18.1% increase in numbers since 2003 (Duck & Morris, 2013).

Population assessments have been made semi-regularly on a local level in Bantry Bay (Glengarriff Harbour SAC) since 1985, and between 1985 and 2005, a steady linear increase in numbers was seen from 135 to around 400 (Heardman et al., 2006). Foraging trips out to sea may extend 60 km from haul-out sites, but most trips are less than 24 hours and 5 km (Thompson et al., 1996; Cronin et al., 2008).



Figure 2: Grey seal (*Halichoerus grypus atlantica*) haul out site, West Cork. Photo credit: Patrick Lyne



Figure 3: Harbour seal (*Phoca vitulina vitulina*). Photo credit: Patrick Lyne, IWDG

Sub-criterion C2: Feeding Areas

Feeding activity by baleen whales is regularly recorded in this IMMA with sightings of fin whales (*Balaenoptera physallus*), minke whales and humpback whales (*Megaptera novaeangliae*) (Whooley et al., 2011; Berrow & Whooley, 2021). These sightings are often associated with common dolphins (*Delphinus delphis*) and with important sandeel (Ammodytidae) concentrations in spring, and sprat (*Sprattus sprattus*) in summer and autumn which appear to be an important food source for many cetacean, seabirds and other species in the area including bluefin tuna (*Thunnus thynnus*), and sharks.

Humpback whales are known to regularly visit high latitude feeding grounds in the western (U.S., Gulf of Maine; Eastern Canada including Nova Scotia, Labrador, Newfoundland and Gulf of Saint Lawrence and West Greenland) and eastern (Iceland, Norway and Svalbard) North Atlantic during the summer (Katona & Beard, 1990; Palsbøll et al., 1997; Stevick et al., 1999). The low probability of occurrence in winter is consistent with this migratory pattern as animals would migrate out of the IMMA during colder months towards their breeding grounds in the south. Thanks to photo-identification, these migratory movements have been demonstrated with humpback whale matches between Ireland, Cabo Verde and the Dominican Republic and some individuals have been reported in other areas further north, such as Iceland and Norway (Berrow et al., 2021).

High resighting rates of some individuals (Berrow et al., 2021), would support the existence of a small group of humpback whales with high site fidelity to coastal Irish waters that use this area as a feeding ground (Blazquez, in press). Blazquez et al. (in review) suggest humpback whale presence was always more probable in waters close to the shore off the coast of Ireland, especially in west Cork and west

Kerry, with movement northwards from spring to winter and largely within 50 km of the coast or less. Humpback whales are known to feed on small schooling fish such as herring and sprat in Irish waters (Fariñas-Bermejo et al., 2023; Ryan et al., 2014), and humpback whale individuals have high resighting rates and residency times of up to 186 days (Berrow et al., 2021; Berrow & Whooley, 2022), which suggests that Ireland is not just a mere stopover in their migratory routes but a relevant area for the species. Humpback whales returning to Irish waters are remaining for an average of 7 weeks with 16% staying for over 3 months (Berrow & Whooley, 2022). It is plausible that some individual humpback whales prefer to exploit Ireland's inshore waters as a feeding ground, given the high resighting and site fidelity rates observed (Blazquez et al., in review). Inter-annual site fidelity has also been observed (Ryan et al., 2015) with the same animals identified using photo-id returning to the same locations over a number of years.

Bubble netting by humpback whales is also commonly recorded during the summer months as well as lunge feeding and the IWDG (2023) database reveals that 71% of all 461 sightings of this species in this area from 2013 to 2023 were recorded as exhibiting feeding behaviours.



Figure 4: Humpback whale (*Megaptera novaeangliae*) off the Blasket Islands, County Kerry. Photo credit: Nick Massett



Figure 5: Humpback whale (*Megaptera novaeangliae*) off the Blasket Islands, County Kerry. Photo credit: Nick Massett



Figure 6: Humpback whales (*Megaptera novaeangliae*) off the Blasket Islands, County Kerry. Photo credit: Nick Massett

Criterion D: Special Attributes

Sub-criterion D2: Diversity

The IMMA contains year-round populations of common (*Delphinus delphis*) and common bottlenose dolphins (*Tursiops truncatus*) as evidenced by land-based sightings data reported to the IWDG from vantage point effort surveys and validated opportunistic sightings from the public, as well as aerial survey data (Rogan et al., 2018). Seasonal populations of fin (*Balaenoptera physalus*) (IWDG, 2023), humpback and minke whales, along with Risso's dolphins (*Grampus griseus*) are sighted in this area from March to September (IWDG, 2023) during effort-based vantage point surveys, and opportunistic sighting data (IWDG, 2023). The 2016 estimate for Risso's dolphins by the OBSERVE aerial survey area, covering most of the western and southern Irish waters to the 200 nautical mile limit, was 2,629 (CV 40.78) (Rogan et al, 2018) and this compares with a SCANS IV abundance estimate of 13,854 for the larger part of the remaining North East Atlantic (Gilles et al, 2023), implying a high concentration of Risso's dolphins in waters off the west coast of Ireland. The OBSERVE aerial survey reported the highest density of Risso's dolphins in the summer of 2016 in stratum 8 covering the coastal zone from the Dingle peninsula, in the north of the IMMA to Carnsore Point in the southeast corner of Ireland, with two primary areas of concentration one within the IMMA off the Beara peninsula and the other outside the IMMA to the north off County Wexford, in the south eastern corner of Ireland (Rogan et al., 2018).

Year-round abundance of harbour seals, grey seals, harbour porpoises (*Phocena phocena*), common bottlenose, and common dolphins indicate an important resident population of these species which feed, breed and reside in this area, while other species including minke whales and Risso's dolphins

are seasonally present. Humpback whales occur in the spring to early autumn and fin whales during summer and autumn. This marine mammal diversity is supported by high productivity in coastal waters enriched by strong coastal tidal currents and summer geostrophic currents.

The Blasket Islands SAC at the western end off the northernmost Dingle Peninsula in the IMMA has harbour porpoise as well as grey seals as qualifying interests. Harbour porpoise densities within the SAC have declined significantly over the last decade (O'Brien & Berrow, 2022) and dropped down to just 0.08 ± 0.03 porpoises per km² (CV=0.41 and 95% Confidence Interval of 0.03 to 0.18) which is a decline of 71% on that reported in 2018 and an 88% decline on that reported in 2014 (O'Brien & Berrow, 2022). Harbour porpoise have been recorded throughout the area and declines within the SAC may simply reflect the fact that the SAC at 227 km² is not large enough to cover all suitable habitat for harbour porpoise and IWDG (2023) data suggests that harbour porpoise may be found widely throughout the area of the IMMA which is over 4000 km².

Lastly over the last thirty years the IWDG (2023) has received many sightings in this area of killer whales (*Orcinus orca*), long-finned pilot whales (*Globicephala melas*) and more recently northern bottlenose whales (*Hyperoodon ampullatus*). All sightings have been validated and in many cases with photographic evidence but it is not thought this area represents critical habitat for these species.



Figure 7: Short-beaked common dolphins (*Delphinus delphis*). Photo credit: Patrick Lyne, IWDG

Supporting Information

Banga, R., Russell, D.J.F., Carter, M.I.D., Chaudry, F., and Gilles, A. 2022. Grey Seal Pup Production. In: OSPAR, 2023: The 2023 Quality Status Report for the Northeast Atlantic. OSPAR Commission, London. Available at: <https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/indicator-assessments/grey-seal-pup-production/>

Berrow, S. D., Massett, N., Whooley, P., Jann, B.V., Lopez-Suarez, P., Stevick, P.T., and Wenzel, F.W. 2021. Resightings of humpback whales (*Megaptera novaeangliae*) from Ireland to a known breeding ground: Cabo Verde, West Africa. *Aquat. Mamm.* 47(1): 63-70. [Available at: <https://doi.org/10.1578/AM.47.1.2021.63>].

Berrow, S. and Whooley, P. 2022. Managing a Dynamic North Sea in the light of its Ecological

Dynamics: Increasing occurrence of large baleen whales in the southern North Sea. *Journal of Sea Research* (182), <https://doi.org/10.1016/j.seares.2022.102186>.

Blazquez, M., Massett, N., Whooley, P., O'Brien, J., Wenzel, F.W., O'Connor, I., and Berrow, S.D. (In press). Abundance estimates of humpback whale (*Megaptera novaeangliae*) in Irish coastal waters using mark-recapture and citizen science. *Journal of Cetacean Research and Management*.

Blazquez, M., Massett, N., Whooley, P., O'Brien, J., Wenzel, F.W., O'Connor, I., and Berrow, S.D. (In review). Distribution models of baleen whale species in the Irish Exclusive Economic Zone to inform management and conservation.

Cooke, J.G. 2018. *Balaenoptera physalus*. IUCN Red List of Threatened Species. 2018: e.T2478A50349982. doi:10.2305/IUCN.UK.20182.RLTS.T2478A50349982.en

- Coram, A. 2018. Assessing Potential Impact on Seals. Technical Advisor's Report: Supplementary Briefing Note Common seal (*Phoca vitulina vitulina*) impact assessment. Aquaculture Licences Appeals Board. [online]
<https://alab.ie/media/alab/content/boarddeterminations/2015/13.%20Report1Feb2018Seals110418.pdf> (accessed 19/11/2023).
- Cronin, M.A. 2007. The abundance, habitat use and haul-out behaviour of harbour seals (*Phoca vitulina vitulina*) in southwest Ireland. Series : Unpublished PhD thesis, University College Cork.
- Cronin, M.A., Kavanagh, A. and Rogan, E. 2008. The foraging ecology of the harbour seal in Ireland. Final Report of project ST/05/12. Marine Institute, Galway.
- Cronin, M., Pomeroy, P. and Jessopp, M. 2013. Size and seasonal influences on the foraging range of female grey seals in the northeast Atlantic. Marine Biology 160, 531-539.
- Duck, C. and Chris, M. 2013. "An Aerial Survey of Harbour Seals in Ireland: Part 2: Galway Bay to Carlingford Lough." A Report for the National Parks & Wildlife Service of the Department of Arts, Heritage & the Gaeltacht (DAHG), 1-28.
- Fariñas-Bermejo, A., Berrow, S., Gras, M., O'Donnell, C., Valavanis, V., Wall, D., and Pierce, G.J. 2023. Response of cetaceans to fluctuations of pelagic fish stocks and environmental conditions within the Celtic Sea ecosystem. Frontiers in Marine Science, 10, 1033758. DOI:
<https://doi.org/10.3389/fmars.2023.1033758>.
- Fernand, L., Nolan, G.D., Raine, R., Chambers, C.E., Dye, S.R., White, M., and Brown, J. 2006. The Irish coastal current: A seasonal jet-like circulation. Continental Shelf Research. Vol. 26, Iss. 15.
- Gilles, A., Authier, M., Ramirez-Martinez, N.C., Araújo, H., Blanchard, A., Carlström, J., Eira, C., Dorémus, G., Fernández-Maldonado, C., Geelhoed, S.C.V., Kyhn, L., Laran, S., Nachtsheim, D., Panigada, S., Pigeault, R., Sequeira, M., Sveegaard, S., Taylor, N.L., Owen, K., Saavedra, C., Vázquez-Bonales, J.A., Unger, B., and Hammond, P.S. 2023. Estimates of cetacean abundance in European Atlantic waters in summer 2022 from the SCANS-IV aerial and shipboard surveys. Final report published 29 September 2023. 64 pp. <https://tinyurl.com/3ynt6swa>.
- Harrington, R. 1990. 1989 survey of breeding herds of common seal *Phoca vitulina* with reference to previous surveys. Unpublished report to Wildlife Service.
- Heardman, Clare, Declan O'Donnell, and Don McMahon. 2006. 'The Status of the Harbour Seal *Phoca vitulina* L. in Inner Bantry Bay, Co Cork and Inner Kenmare River, Co Kerry.' The Irish Naturalists' Journal 28 (5): 181-91.
<http://www.jstar.org/stable/25536710>.
- Ingram, S.N. 2000. The ecology and conservation of bottlenose dolphins in the Shannon Estuary, Ireland. PhD thesis, University College Cork, Ireland. 213pp.
- IWDG. 2023. Irish Whale and Dolphin Group sightings database. IWDG, Merchants Quay, Kilrush. Co. Clare, Ireland. [Unpublished data].
- Katona, S.K. and Beard, J.A. 1990. Population size, migrations and feeding aggregations of the humpback whale (*Megaptera novaeangliae*) in the western North Atlantic Ocean. Rep. Int. Whal. Commn. (Special Issue 12): 295-306.
- Lyne, P. 2023. Minke vocalisations in Irish waters. A study of minke vocalisations produced off West Cork. IWDG Report to IEN. IWDG, Merchants Quay, Kilrush.

Co. Clare, Ireland.

Lyons, D.O. 2004. Summary of National Parks & Wildlife Service surveys for common (harbour) seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*), 1978 to 2003. Irish Wildlife Manual No.13.

Marine Institute. 2016. Ireland's Marine Atlas. [online] <https://atlas.marine.ie/#?c=52.1217;-11.2115;8> (accessed 16/11/2023).

National Biodiversity Data Centre, 2023. Eelgrass (*Zostera marina*). National Biodiversity Data Centre, Ireland, [online] <https://maps.biodiversityireland.ie/Species/28095> (accessed 25/05/2023).

NPWS. 2013. Conservation Objectives: Kenmare River SAC 002158. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS. 2015. Conservation Objectives: Glengarriff Harbour and Woodland SAC 000090. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

O'Brien, J., Dudley, R. and Berrow, S. 2022. Harbour porpoise surveys in Blasket Islands SAC, 2022. Report to the National Parks and Wildlife Service, Department Housing, Local Government & Heritage, Ireland.

Ó Cadhla, O., Strong, D., O'Keeffe, C., Coleman, M., Cronin, M., Duck, C., Murray, T., Dower, P., Nairn, R., Murphy, P., Smiddy, P., Saich, C., Lyons, D., and Hiby, A.R. 2007. An assessment of the breeding population of grey seals in the Republic of Ireland, 2005. Irish Wildlife Manuals No. 34. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Ó Cadhla, O., Keena, T., Strong, D., Duck, C., and Hiby, L. 2013. Monitoring of the breeding population of grey seals in Ireland, 2009 – 2012. Irish Wildlife Manuals, No. 74. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Dublin, Ireland. 18pp.

Palsbøll, P.J., Allen, J., Clapham, P.J., Feddersen, T.P., Hammond, P.S., Hudson, R.R., Jørgensen, H., Katona, S., Larsen, A.H., Larsen, F., Lien, J., Mattila, D.K., Sigurjónsson, J., Sears, R., Smith, T., Sponer, R., Stevick, P., and Øien, N. 1997. Genetic tagging of humpback whales. *Nature*, 388(6644): 767-769. DOI: <https://doi.org/10.1038/42005>.

Rogan, E., Breen, P., Mackey, M., Cañadas, A., Scheidat, M., Geelhoed, S., and Jessopp, M. 2018. Aerial surveys of cetaceans and seabirds in Irish waters: Occurrence, distribution and abundance in 2015-2017. Department of Communications, Climate Action & Environment and National Parks and Wildlife Service (NPWS), Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland. 297pp.

Roycroft, D., Cronin, M., Mackey, M., Ingram, S.N., and Cadhla, O. 2006. Risk assessment for marine mammal and seabird populations in south-western Irish waters (R.A.M.S.S.I.). Coastal & Marine Resource Centre, University College Cork.

Ryan, C., Berrow, S.D., McHugh, B., O'Donnell, C., Trueman, C.N., and O'Connor, I. 2014. Prey preferences of sympatric fin (*Balaenoptera physalus*) and humpback (*Megaptera novaeangliae*) whales revealed by stable isotope mixing models. *Marine Mammal Science* 30(1): 242–258.

Ryan, C., Whooley, P., Berrow, S., Barnes, C., Massett, N., Strietman, W.J., Broms, F., Stevick, P.T., Fernald, Jr., T.W., and Schmidt, C., 2015. A longitudinal study of humpback whales in Irish waters. *Journal of the*

Marine Biological Association of the United Kingdom, page 1 of 7. doi:10.1017/S0025315414002033.

Stevick, P.T., Øien, N. and Mattila, D.K. 1999. Migratory destinations of humpback whales from Norwegian and adjacent waters: evidence for stock identity. J. Cetacean Res. Manag. 1(2): 147-152.

Simpson, J.H. and Sharples, J. 2012. Introduction to the physical and biological oceanography of shelf seas. Cambridge: Cambridge University Press 413 pp.

Simpson, J.H. and Tett, P.B. 1986. Island stirring effects on phytoplankton growth. In: M.J. Bowman, C.M. Yentsch, W.T. Petersen, W.T., eds. Tidal Mixing and Phytoplankton Dynamics, Springer-Verlag, New York: 41-76.

Summers, C.F., Warner, P.J., Nairn, R.G.W., Curry, M.G., and Flynn, J. 1980. An assessment of the status of the common seal *Phoca vitulina vitulina* in Ireland Biological Conservation 17: 115-123

Thompson, P.M., Macconnell, B.J., Tollit, D.J., Mackay, A., and Racey, P.A. 1996. Comparative Distribution, Movements and Diet of Harbour and Grey Seals from Moray Firth. Journal of Applied Ecology 33 (6):1572-84.

Warner, P.J. 1983. An assessment of the breeding populations of common seals (*Phoca vitulina vitulina* L.) in the Republic of Ireland during 1979. Irish Naturalists' Journal 21: 24-26.

Acknowledgements

We would like to thank the participants of the 2023 IMMA Regional Expert Workshop for the identification of IMMAs in the North East Atlantic Ocean. Funding for the identification of this IMMA was provided by the Water Revolution Foundation. Other sponsors for the workshop included OceanCare and ORCA (orca.org.uk), and substantial administrative support to the IMMA Secretariat was provided by the Tethys Research Institute and Whale and Dolphin Conservation.

