

ICELAND

PROGRESS REPORT ON MARINE MAMMALS IN 2015

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I INTRODUCTION

The following reports on studies on marine mammals in Icelandic and adjacent waters in 2015. While most of the studies were conducted by the Marine Research Institute (MRI, since 2016 MFRI) and its various research partners, queries for information on research were sent to all offices or individuals known to have been involved in marine mammal research or data collection during the period. These include Húsavík Research Centre (HRC), Húsavík Whale Museum (HWM); Faxaflói Cetacean Research project (FCR), Innovation Centre, Iceland (ICI); Keldur, Institute for Experimental Pathology (KIEP); The Institute of Natural History (INH); University of Iceland (UI), University of British Columbia in Canada, University of Barcelona in Spain, University of St Andrews in Scotland, Icelandic Seal Center (ISC), Institute of Freshwater Fisheries (IFF) as well as data collection from private commercial platforms such as whaling and whale watching companies.

II RESEARCH BY SPECIES 2015

Fin whale

Fin whales were a primary target species of the Icelandic and Faroese NASS15 shipboard surveys (Vikingsson and Gunnlaugsson 2015b). Appreciable changes in fin whale catch distribution of Iceland in 2014 were reported (Vikingsson et al. 2015).

The MRI continued extensive sampling from fin whales brought to the Hvalfjörður whaling station for studies on biological parameters, feeding ecology, genetics and energetics.

A whale research team from the University of British Columbia has conducted various research projects on fin whales at the whaling station in Hvalfjörður in recent years. In 2015 the research program focused on analysis of anatomical features related to engulfment feeding and diving in fin whales. This includes a study of many structures in the head and thorax including diaphragm, arteries, nerves and muscles in the ventral groove blubber and tongue, esophagus, pharynx, lung and baleen. The aim is two-fold: 1. to understand how rorqual whales have evolved the capacity to engulf extremely large volumes of water containing prey, filter the prey items from the water, and swallow the prey rapidly with total protection of the airway. 2. to explore mechanisms that protect against adverse effects of rapid descent in the ocean that must cause transient pressure gradients in the thorax, vascular system, and lungs. These are ongoing studies which were presented at conferences in 2015 and now being written for publications.

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The MRI cooperates on fin whale research with the Department of Animal Biology, University of Barcelona, Spain. Research in 2015 focused on the use of stable isotope values to gain better understanding of feeding and migration of the fin whales caught off Iceland. Studies have been conducted in a variety of tissues, including skin, muscle, baleen plates, scats and stomach contents, as well as in bone samples collected in the 1980s.

Common minke whale

Common Biological sampling from the minke whale hunt in Iceland continued under the auspices of the MRI.

MRI scientists participated in genetic collaborative work on stock structure issues relevant to management of minke whales.

Studies continued at the MRI on the development of a new ageing method for common minke whales.

Humpback whale

Humpback whales were the primary species of a whale observation effort onboard a capelin survey vessel 14 Sept - 4 Oct 2015 (Gunnlaugsson et al. 2016), The humpbacks are concentrated in the area where capelin is detected and this is of interest in the modeling of the capelin stock..

The HRC in Husavik continued their long-term photo-identification and sightings studies of cetaceans in Skjálfandi bay. The MRI continued their photo-identification studies including the establishment of a central national humpback whale photo-id database.

Three humpback whales were instrumented with satellite tags in October 2015 in a cooperative project between the MRI and the exhibition Whales of Iceland, Reykjavík.

Blue whale

The HRC made recordings of blue whales using a large hydrophone array and recordings of white-beaked dolphins using a 16-hydrophone array.

N-Bottlenose whale

In 2015, the laboratory of Patrick Miller from University of St Andrews in Scotland led a 4-week expedition starting in June working in the coastal waters of northern Iceland and waters between Iceland and Jan Mayen. This trial built upon research in the Jan Mayen area in 2013 and 2014, which had the dual objectives of using animal-attached tags to study the body condition of large cetaceans, and studying northern bottlenose whales in the waters north of Iceland and in particular using at-sea experiments to how they respond to underwater anthropogenic noise. The outcome of the 2015 trial is reported in full in a cruise report (Miller et al. 2015). A publication (Miller et al. 2015) reported the first results of how *Hyperoodon* responded to underwater noise presented in an at-sea experiment.

Killer whale

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Data collection continued for MRI's research project on killer whale ecology and behaviour in Breiðafjörður Bay Work (late winter) and around the Vestmannaeyjar Islands (summer). This project was finalized in 2015, but a continuation of the project has received additional funding for another three years.

Harbour porpoise

Collaboration of the MRI with the University of Potsdam on harbour porpoise genetics is ongoing (Lah et al. 2016).

Harbour seals

The event "The great seal count" was carried the 19th of July 2015 for the ninth year in a row in Húnaflói bay by volunteers under supervision of the ISC. All seals on the coastline of Vatnsnes and Heggstaðanes peninsulas in Húnaflói bay were counted (~100 km). The count resulted in 446 seals (mainly harbour seals), compared to 706 in the same area and time of year in 2014.

A study on the effect of seals on salmonids was initiated in 2009 by ISC and IFF. The main goal is to determine feeding habits of seals in river mouths in the north western part of Iceland, especially in regards of the effect of seals on salmonids. Different methods are used (Hard-part analysis, stable isotope analysis and prey-DNA analysis using barcoding). The diet project is in cooperation with ISC, Stockholm University, Natural History Museum in Stockholm and BioPol in Skagaströnd Iceland. Statistical analysis of the data and writing of reports and scientific papers were ongoing.

The effect of seal watching on the behaviour and distribution of harbour seals has been studied by ISC and IFF since 2008. During 2015 the compliance of tourists to seal watching codes was investigated by a masterstudent (Marschall 2015).

Grey seals

No research on grey seals was carried out by ISC in 2014, but a planned grey seal census survey is planned for 2017.

Other pinniped species

ISC monitors visits of vagrant seals to the coast of Iceland by collecting information about such visits from the news or human resources (photos of life animals).

Reported sightings of vagrant species in 2015.

	Harp seals	Bearded seals	Walrus
Kópur	2	0	0
Fullorðin	0	3	2
Alls	2	3	2

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III ONGOING (CURRENT) RESEARCH

Cetaceans

As in 2015 humpback whales were the primary species of a whale observation effort onboard two capelin survey vessels 10 Sept - 4 Oct 2016, The humpbacks were similarly concentrated in the area where capelin was detected and this is of interest in the modeling of the capelin stock. Of surprise at this time of season was the high density of fin whales more distributed in the southern part of the surveyed area. Point estimates for fin and humpback whales in the area in 2015 (shown with grey borders on Fig 1) were reported in Gunnlaugsson et al (2016).

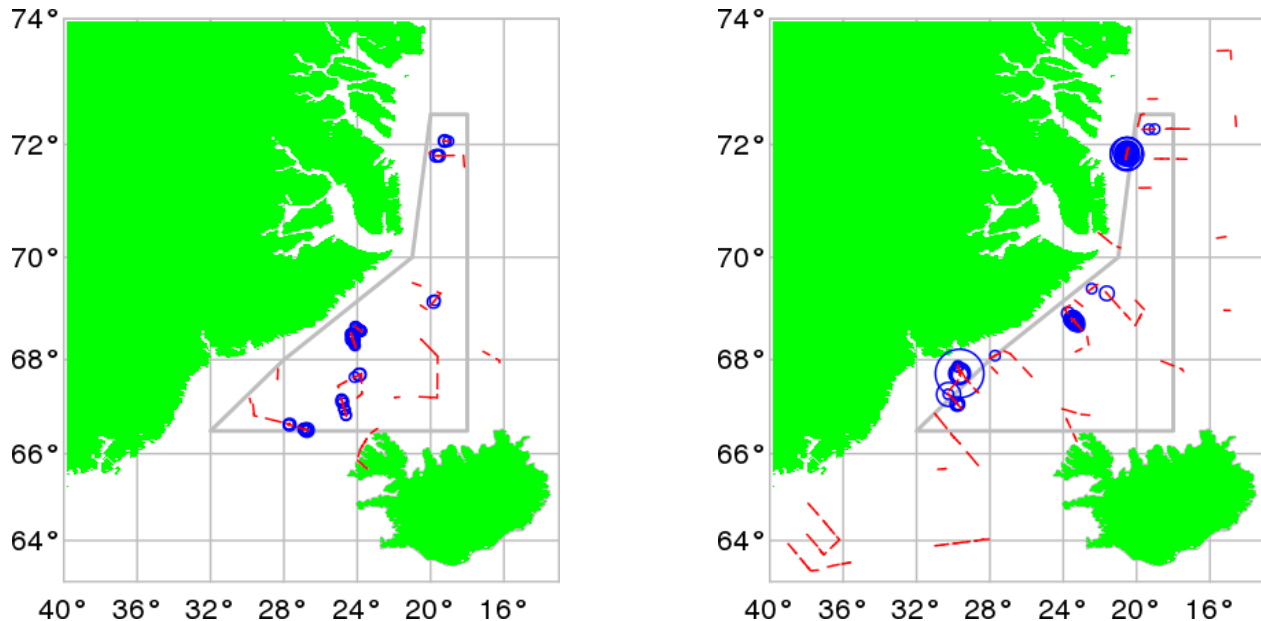


Fig 1. Sightings of humpback whales (blue) and covered trask lines (red) in capelin surveys Sept-October 2015 (left) and 2016 (right). Estimates have been produced for 2015 (grey bordered area).

The aerial (Partenavia) component of the Icelandic NASS15 resulted in very low coverage and was repeated using a Twin Otter aircraft in 2016. Analysis of the results and those from the NASS15 are in preparation.

Pinnipeds

An aerial harbour seal census was carried out in 2016 to estimate population size. Analysis is currently ongoing. The seal count in Húnaflói bay is conducted annually in the end of July by the ISC (since 2007).

Dietary studies of harbour seals that haul-out in river mouths in the north west of Iceland (by ISC and IFF), with special efforts put on investigating the effect of seals on salmonids has continued during 2016 and some results have been published in 2016.

A study on the effect of tourism on the spatial and behavioural haul-out patterns of harbour seal initiated in 2008 by ISC and IFF will continue the following years. A study of the potential effect

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of boat-based seal watching on seal behaviour is ongoing. The perception of marine mammal watching tourists towards marine mammal conservation and management in Iceland is being investigated by ISC and IFF in co-operation with Stockholm University. In addition, data of abundance and haul-out patterns of harbour seals at Vatnsnes peninsula has been published by the ISC and IFF.

IV ADVICE GIVEN AND MANAGEMENT MEASURES TAKEN

Cetaceans

Based on assessments conducted by the Scientific Committees of NAMMCO and the IWC, the MRI recommended that annual catches in 2016-2017 do not exceed 146 fin whales on the East Greenland – Iceland management area. On the same basis the MRI recommended maximum annual takes of 224 common minke whales in the Icelandic continental shelf (CIC) area, and 121 animals in the CM area (Jan Mayen) in 2016 and 2018.

Pinnipeds

MRI advised that reporting of all seal hunt should be mandatory. MRI will release advice based on the management objectives set for harbour and grey seals in Iceland after the harbour seal census in the summer of 2016.

Reference

Gunnlaugsson, T., Mikkelsen, B. and Víkingsson, G.A. 2016. Cruise report of the Icelandic NASS 2015 cetacean census vessel survey. Report IWC SC/66b/IA18 12pp.

Lah L, Trense D, Benke H, Berggren P, Gunnlaugsson Þ, Lockyer C, Öztürk A, Öztürk B, Pawliczka I, Roos A, Siebert U, Skóra KE, Víkingsson G, Tiedemann R (2016) Spatially Explicit Analysis of Genome-Wide SNPs Detects Subtle Population Structure in a Mobile Marine Mammal, the Harbor Porpoise. PLoS One 11:e0162792

Víkingsson G, Pike D, Schleimer A, Valdimarsson H, Gunnlaugsson T, Silva T, Elvarsson B, Mikkelsen B, Öien N, Desportes G, Bogason V, Hammond PS (2015). Distribution, abundance and feeding ecology of baleen whales in Icelandic waters: have recent environmental changes had an effect? Front Ecol Evol 3:1–18.

V PUBLICATIONS AND DOCUMENTS

Peer-reviewed publications

Bertulli, C, Tetley, M, Magnúsdóttir, EE and Rasmussen, MH (2015) Observations of movement and site fidelity of white-beaked dolphins (*Lagenorhynchus albirostris*) in Icelandic coastal waters using photo-identification'. J. Cet. Res. Manage 15: 27-34.

Bertulli, CG, Galatius, A, Kinze, CC, Rasmussen, MH, Deaville, R, Jepson, P, Vedder, EJ, Sánchez, GJ, Contreras, Sabin, CRC and Watson, A (2015). Vertebral column deformities in white-beaked dolphins from the eastern North Atlantic. Diseases of Aquatic Organisms 116:59-67.

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Bertulli, CG, Rasmussen, MH and Rosso, M (2015). An Assessment of the Natural Marking Patterns used for Photo-Identification of Common Minke Whales and White-Beaked Dolphins in Icelandic Waters." *Journal of the Marine Biological Association of the United Kingdom*, 1-13.

Christiansen, F, Bertulli, C, Rasmussen, M and Lusseau, DI (2015). Estimating cumulative exposure of wildlife to non-lethal disturbance using spatially explicit capture recapture models. *Journal of Wildlife Management* 79, 311-324.

Fernández, R., Schubert, M., Vargas- Velázquez, A.M., Brownlow, A., Víkingsson, G.A Siebert, U., Jensen, L.F., Øien, N., Wall, D. and Rogan, E. 2015. A Genomewide Catalogue of Single Nucleotide Polymorphisms in White- beaked and Atlantic White-sided Dolphins. *Molecular Ecology Resources* 16 (1), 266-276. DOI: 10.1111/1755-0998.12427

Filatova, O., Samarra, F.I.P, Deecke, V., Ford, J., Miller, P. and Yurk, H. 2015. Cultural evolution of killer whale vocalizations: background, mechanisms and consequences. *Behaviour* 152 (15), 2001-2038, DOI: 10.1163/1568539X-00003317

Filatova, O., Miller, P., Yurk, H., Samarra, F.I.P, Hoyt, E., Ford, J., Matkin, C. and Barrett-Lennard, L. 2015. Killer whale call parameters are similar across the oceans, but vary across sympatric ecotypes. *Journal of the Acoustical Society of America* 138: 251-257.

Goldbogen, J.A., Shadwick, R.E., Lillie, M.A., Piscitelli, M.A., Potvin, J., Pyenson, N.D. and Vogl, A.W. (2015). Using morphology to infer physiology: case studies on rorqual whales (Balaenopteridae). *Can. J. Zool.* 93: 687–700. doi: 10.1139/cjz-2014-0311

Magnúsdóttir, EE, Miller, PJO, Lim, R, Rasmussen, MH, Lammers, MO and Svavarsson, J (2015). Humpback whale (Megaptera novaeangliae) song unit and phrase repertoire progression on a subarctic feeding ground. *J. Acoust. Soc. Am.* 138, 3362–3374

Miller P. J. O., Kvadsheim, P. H., Lam, F. P. A., Tyack, P.L., Curé, C., DeRuiter, S. L., Kleivane, L., Sivle, D. L., van IJsselmuide, S. P., Visser, F., Wensveen, P. J., von Benda-Beckmann, A. M., Martín López, L. M., Narazaki, T., Hooker, S. K. (2015). First indications that northern bottlenose whales are sensitive to behavioural disturbance from anthropogenic noise. *R. Soc. open sci.* 2: 140484. <http://dx.doi.org/10.1098/rsos.140484>.

Pálsson, Ó. K. Gunnlaugsson, Th. G. and Droplaug Ólafsdóttir. 2015. Meðafli sjófugla og sjávarspendýra í fiskveiðum á Íslandsmiðum. By-catch of sea birds and marine mammals in Icelandic fisheries. *Fjölrit Hafrannsóknastofnunar* nr. 178, 21 pp.

Samarra, F.I.P, Deecke, V. og Miller, P.J.O. (in review) Low-frequency sounds produced by Northeast Atlantic killer whales (*Orcinus orca*). *Journal of the Acoustical Society of America*

Samarra, F.I.P. 2015. Variations in killer whale (*Orcinus orca*) food-associated calls produced during different prey behavioural contexts. *Behavioural Processes* 116: 33-42.

Samarra, F.I.P. and Foote, A.D. 2015. Seasonal movements of killer whales between Iceland and Shetland. *Aquatic Biology* 24: 75-79.

Samarra, F.I.P. and Miller, P.J.O. 2015. Prey-induced behavioural plasticity of herring-eating killer whales. *Marine Biology* 162: 809-821

Samarra, F.I.P, Deecke, V.B., Simonis, A.E. and Miller P.J.O. 2015. Geographic variation in the time-frequency characteristics of high-frequency whistles produced by killer whales (*Orcinus orca*). *Marine Mammal Science* 31(2): 688-706

Víkingsson, G.A., Pike, D.G., Schleimer, A., Héðinn Valdimarsson, Gunnlaugsson, Th. , Teresa Silva, Elvarsson, B. Þ., Mikkelsen, B., Øien, N., Desportes, G., Valur Bogason, Hammond, P.S. 2015. Distribution, Abundance and Feeding Ecology of Baleen Whales in Icelandic Waters: Have Recent Environmental Changes Had an Effect? *Frontiers in Ecology and Evolution* 3 (6), 1-18. DOI:10.3389/fevo.2015.00006

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Víkingsson, G.A. Heide- Jørgensen, M.P. 2015. First indications of autumn migration routes and destination of common minke whales tracked by satellite in the North Atlantic during 2001-2011. *Marine Mammal Science* 31, 376-385.

Víkingsson, G.A., Teresa Silva, Elvarsson, B. Þ. and Héðinn Valdimarsson. 2015. Nýlegar breytingar á útbreiðslu og fjölda skíðishvala við Ísland og hugsanlegir orsakavaldar / Recent changes in distribution and abundance of baleen whales in Icelandic waters and their potential causes. Þættir úr vistfræði sjávar. *Hafrannsóknir* 181, 36-46.

Vogl, A.W., Lillie, M. Piscitelli, M.A. Goldbogen, J.A., Pyenson, N.D. and Shadwick, R.E. (2015). Stretchy nerves are an essential component of the extreme feeding mechanism of rorqual whales. *Current Biology* 25:R360-R361. doi:10.1016/j.cub.2015.03.007.

Reports

Fortuna, C.M., Kitakado, T., Donovan, G., Double, M., Holm, P., Jackson, J., Rendell, J., Roel, B., Rojas-Bracho, L., Ritter, F., Víkingsson, G.A. and Walløe, L. 2015. Discussion paper on improving the Scientific Committee budget review process: proposal for a revised method of defining and adopting the SC budget and implications for the SC working methods. *IWC/SC/66a/SCP3*, 12 pp.

Granquist, S.M. 2015. Effects of wildlife watching tourism on Arctic marine mammals, with a special note on harbour seal watching in Iceland. Nammco symposium, Copenhagen, Denmark Okt. 2015.

Granquist, S.M., Erlingur Hauksson og Tryggvi Stefánsson. 2015. Landselatalning árið 2014 -Notkun Cessna yfirþekju flugvélar, þyrilvængju og ómannaðs loftfars (flygildi) við talningu landsela úr lofti. Skýrsla til Veiðimálastofnunnar VMST/15002

Gunnlaugsson, Th. G. and Víkingsson, G.A. 2015. Comments on the proposed research plan for new scientific whale research program in the Antarctic Ocean (NEWREP-A) submitted to the Scientific Committee of the IWC by the Government of Japan. Report IWC/SC/F15/SP04 submitted to the IWC NewRep-A Special Permit Expert Panel Review Workshop, 3 pp.

Miller, P., Narazaki, N., Isojunno, S., Hansen, R., Kershaw, J., Neves dos Reis, M., Kleivane, L. 2015. Cruise report for body condition and 3S15 projects: 2015 Jan Mayen trial. Internal report available from author.

Víkingsson, G.A. and Gunnlaugsson, Th. G. 2015a. A note on changes in fin whale catch distribution of Iceland in 2014. *Report IWC SC/66a/RMP2*, submitted to the annual Meeting of the Scientific Committee of the International Whaling Commission (IWC), 4 pp.

Víkingsson, G.A. and Gunnlaugsson, Th. G. 2015b. T. NASS 2015 survey plan. Report *IWC/SC/66a/RMP3* submitted to the annual Meeting of the Scientific Committee of the International Whaling Commission (IWC), 7 pp.

Young Madeline 2015. Marine animal entanglements in mussel aquaculture gear. Documented cases from mussel farming regions of the world including first-hand accounts from Iceland. MSc Thesis University of Akureyri, Iceland.

Conference abstracts

Bertulli, CG, Galatius, A, Kinze, CC, Rasmussen, M, Keener, W and Webber, M (2015). Color patterns in white-beaked dolphins *Lagenorhynchus albirostris* from Iceland. Biennial Conference on the Biology of Marine Mammals, San Francisco, U.S.A.

Bertulli, C.G., Gero, S. and Rasmussen, M.H. Association patterns of white-beaked dolphins *Lagenorhynchus albirostris* in Iceland: insights into social organization. 29th Annual European Cetacean Society Conference, Malta.

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Bertulli, C.G., Guéry, L., Suzuki, A., Brannan, N., Marques, T., Rasmussen, M.H. and Gimenez, O. Survival rates and abundance estimates of photographically identified humpback whales off Iceland. 29th Annual European Cetacean Society Conference (23-25 March), Malta.

Cabot, R.L., Vighi, M., Borrell, A., Gísli Víkingsson, Thorvaldur Gunnlaugsson, Sverrir D. Halldórsson and Aguilar, A. 2015. Baleen plates as a continuous-time recorder of fin whale migration: Results of nitrogen and carbon stable isotopes analysis. Poster at the ECS annual conference, Malta, 23-25 March.

Chosson-P, Valerie., Shears, G., Rasmussen, M., Bertulli, C.G., Stevick, P., Rickert, S., Pampoulie, C., Jóhann Sigurjónsson and Gísli Víkingsson 2015. Long-distance migration pattern of humpback whale (*Megaptera novaeangliae*) from Icelandic waters. Poster for Society for Marine Mammalogy, San Fransisco, 13-18 Decsember and on the Biology conference, Reykjavik, Iceland.

Fontaine, M., Roland, K., Calves, I., Austerlitz, F., Palstra, F.P., Tolley, K. A., Ryan, S., Ferreira, M., Jauniaux, T., Llavona, A., Ozturk, B., Ozturk, A. A., Ridoux, V., Rogan, E., Sequeira, M., Siebert, U., Gísli A. Víkingsson, Borrell, A., Michaux, J. R. and Aguilar, A. Postglacial rise of three ecotypes of harbour porpoises, *Phocoena phocoena*, in western Palearctic waters. Presentation to the ECS annual conference, Malta, 23-25 March.

Lim, R, Magnúsdóttir, E, Rasmussen, M and Lammers, M (2015). Humpback whale *Megaptera novaeangliae* winter mating season songs from a subarctic feeding ground. Biennial Conference on the Biology of Marine Mammals, San Fransisco, U.S.A.

Lloret, R.; Vighi, M.; Borrell, A.; Víkingsson, G.; Gunnlaugsson, Th.; Halldórsson, S. D. and Aguilar, A. 2015. Baleen plates as a continuous-time recorder of fin whale migration. Results of nitrogen and carbon stable isotopes. 29th European Cetacean Society Conference, 23-25 March 2015, St Julian's (Malta).

Marschall, S., Granquist, S., Burns, G.L. 2015. Interpretation in Wildlife Tourism: Assessing the effectiveness of signage to modify visitor behaviour at a seal watching site in Iceland. 24th Nordic Symposium in Tourism and Hospitality Research, 1-3th October 2015, Reykjavík, Iceland.

Neves, M., Samarra, F.I.P., and Miller, P. 2015. Structural analysis of an individual killer whale's vocal repertoire. Poster at Scottish Conference on Animal Behaviour, St Andrews, 28 March.

Neves M, Samarra, F.I.P., and Miller P.J.O. 2015. Structural and temporal analysis of the calling behaviour of an isolated killer Whale (*Orcinus orca*). Poster to the 21. Biennial Conference on the Biology of Marine Mammals, San Francisco, California, 13.-18. December

Rasmussen, MH, Wahlberg, M, Schack, HB, Bircher, N, Iversen M and Siebert U (2015). A large hydrophone array to localize vocalizing blue whales (*Balaenoptera musculus*) in Skjálfandi Bay, Iceland Biology conference, Reykjavik, Iceland.

Rasmussen, MH, Akamatsu, T, Akiyama, Y, Iversen, M, Iwata, T and Sato, K (2015). Deployment of acoustic, behavioral and camera tags on humpback whales in Skjálfandi Bay, Northeast Iceland, ECS conferenc, Malta

Rasmussen, M, Levenson, J, Whitaker, M and Zetterlind, V (2015). A Case Study From Iceland: Spotter Pro – Combining Smartphones And Cloud-Computing To Describe The Cetacean Population In Iceland. Biennial Conference on the Biology of Marine Mammals, San Fransisco, U.S.A.

Richard, G., Filatova, O., Samarra, F.I.P., Fedutin, I., Lammers, M. and Miller, P.J.O. 2015. Diel variation in Icelandic killer whale foraging and acoustic behavior. Poster at Watkins Memorial Marine Mammal Symposium, New Bedford, Massachusetts, 28 March

Samarra, F.I.P., Wensveen, P., Kvadsheim, P., Lam, F-P., Tyack, P., von Benda-Beckmann, A. and Miller, P.J.O. 2015. Killer whale (*Orcinus orca*) vocal response to naval sonar. Presentation to the 21. Biennial Conference on the Biology of Marine Mammals, San Francisco, California, 13.-18. December

Tavares S, Samarra, F.I.P., and Miller, P.J.O. 2015. The social structure of the Icelandic killer whale (*Orcinus orca*) population. Presentation to the 21. Biennial Conference on the Biology of Marine Mammals, San Francisco, California, 13.-18. December

Tavares, S., Samarra, F.I.P., and Miller, P. 2015. Using photo-ID to study the social structure of Icelandic killer whales (*Orcinus orca*). Poster at Scottish Conference on Animal Behaviour, St Andrews, 28 March.

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Vighi, M.; Borrell, A.; Víkingsson, G.; Gunnlaugsson, Th.; Halldórsson, S. D.; Serrano, G.; Lloret, R. & Aguilar, A. 2015. Do baleen plates mirror seasonal migrations in fin whales? Results of trace elements analysis. 29th European Cetacean Society Conference, 23-25 March 2015, St Julian's (Malta).

Víkingsson, G.A. 2015. Distribution, abundance and migration of humpback whales in Icelandic and adjacent waters-An overview of MRI's research in recent decades. ECS annual conference, Malta, 22. March.

Víkingsson, G.A. 2015 Scientific basis for cetacean management advice issued by the Marine Research Institute. Marine Research Institute 8. April 2015.

Víkingsson, G.A. and Heide-Jørgensen, M.P. Migration and local movements of humpback whales in Icelandic and adjacent waters. Iceland Biology Conference, Reykjavik, Iceland., 6. November 2015.

Zeza, L, Bertulli, CG, Fabbri, E and Rasmussen, M (2015). Effect of whale-watching traffic on the behaviour of white-beaked dolphin (*Lagenorhynchus albirostris*) in Faxaflói bay, Iceland. Biennial Conference on the Biology of Marine Mammals, San Fransisco, U.S.A.

Öqvist, E.L., Granquist, S., Burns, G.L., Angerbjörn, A. 2015. Codes of Conduct for Seal Watching: An investigation of guidelines for human behavior. 24th Nordic Symposium in Tourism and Hospitality Research, 1-3th October 2015, Reykjavík, Iceland.

Öqvist, E.L., Granquist, S.M., Burns, G.L., Angerbjörn, A. 2015. Seal watching management: Codes of conduct as a management tool for conservation. Poster. Líffræðiráðstefnan, Reykjavík, Iceland. 2-4 november 2015.

Öqvist, E.L., Granquist, S.M., Angerbjörn, A., Burns, G.L. 2015. Managing seal watching: An investigation of codes of conduct for tourist behavior. Þjóðarspegilinn, Reykjavík, Iceland 30. Okt 2015.

Öqvist, E.L. , Granquist, S.M., Angerbjörn, A., Burns, G.L. 2015. Seal Watching: An Investigation of Code of Conducts. Poster. VIIth European Congress of Mammalogy, Stockholm, Sweden. 17-21 August, 2015.

Öqvist, E.L., Granquist, S.M., Angerbjörn, A. 2015. Watching or whaling, sealing or seeing: Tourist perception of marine mammal hunting and watching in Iceland. Poster. Iceland Biology Conference, Reykjavik, Iceland. 2-4 November 2015.

VI APPENDIX 1 - CATCH DATA

See separate sheet.

VII APPENDIX 2 - BY-CATCH DATA

a. Short narrative

By-catch in research surveys and when observed by inspectors on fisheries vessels is reported here. No significant changes have occurred in the by-catch reporting from fishermen (see last years *Iceland progress report* and the report from the NAMMCO Scientific Committee Working Group on By-catch, 29 February 2016, Reykjavík), therefore the limited records available are not reported here. Genetic samples from 23 by-caught harbour porpoises and 4 fetuses were however received from voluntary fishermen (mainly from lumpsucker nets) in 2015.

VIII APPENDIX 3 - STRANDINGSⁱ

a. Short narrative

All cetacean strandings should be reported to the MRI and when possible genetic samples are stored in the genetic database at the institute.

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