



# Animal Welfare Institute

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Dear Ms. Harrison and Dr. Weise:

On behalf of the Animal Welfare Institute, I write to you regarding the research study that will involve a deliberate take of minke whales in order to conduct auditory evoked potential (AEP) hearing tests.<sup>1</sup> The capture of these minke whales off Lofoten, Norway is planned to commence in or around May 2021, last for approximately three weeks and then resume in 2022.<sup>2</sup> We maintain the animal welfare and human safety risks associated with this study are unacceptable and urge its cancellation.

AWI understands that the research study is being co-funded by the Office of Naval Research Marine Mammal Biology program and the interagency White House Subcommittee on Ocean Science & Technology (SOST) Ocean Sound and Marine Life (OSML) Task Team, with co-funding from USN's 6.4 Living Marine Resources program, BOEM, NOAA and the MMC.<sup>3</sup>

The purpose of this letter is to bring to your attention the deficiencies that we feel exist with respect to Norway's permitting of this project, our concerns for the safety of the involved whales and researchers, and the legal dilemma that this sort of research poses. To be clear, AWI does not oppose all research on animals; instead, we contemplate research involving animals on a case-by-case basis and advocate for the best possible treatment of animals involved in research. Here,

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<sup>1</sup> AWI has received documentation for this project from the Norwegian government following a request under Norway's Public Access to Information regulation, section 6, and notes that it is awaiting further results from a Freedom of Information Act request; the following letter is representative of the information we currently have at our disposal.

<sup>2</sup> AWI is aware that the project timeline had to be amended due to the COVID pandemic

<sup>3</sup> Again, AWI is awaiting more specifics on the US government's funding of this project. We also understand that additional funding may be coming from the oil and gas industry.

we have serious concerns regarding the welfare of the whales proposed for study, including any released after deemed unsuitable for the planned research. We are equally concerned for the safety of the humans involved in the research; we believe the researchers who will be in the water with the whales will be at risk of serious injury.

### Project Background

AWI is aware that Dr. Petter Kvadsheim of the Norwegian Defense Research Establishment (Forsvarets Forskningsinstitutt (unit 053)) is leading the project in cooperation with Dr. Dorian Houser of the US-based National Marine Mammal Foundation. We understand the proposed project's purpose is to better understand the kinds of sounds and frequencies that baleen whales can hear, including those pertaining to active sonar and seismic activities.<sup>4</sup>

AWI understands that the researchers are planning to set up a 1,300 meter long net across a strait at Vestvågøy in Lofoten. The plan is to use the net to maneuver juvenile minke whales, who will be migrating through this area on their way to foraging areas further north in the Barents Sea, into a 280 meter long, 150 meter wide and 27 meter deep enclosure between some islets in the fjord. When a whale moves into the netted-off area, the entrance will be closed and the whale trapped inside. The whale will be held in this area for 24 hours before the researchers try to measure its hearing, presumably by introducing different levels of sound to the animal and measuring the response.<sup>5</sup>

The researchers will conduct the AEP hearing testing using electrophysiological techniques and plan to optimize these techniques for measuring hearing in mysticetes. Before the experiments take place, a veterinarian from Dyreparken in Kristiansand will decide whether the animal is healthy enough to become a research subject. Before the hearing test, the whale will be moved to a modified salmon cage. The cage will be closed around the whale, which will be held between two rafts. There will be two people in the water with the whale and four on a raft. The whale's state of health will be monitored by measuring heart rate and respiration. Researchers estimate it will take a maximum of six hours to complete the hearing testing for each whale, during which time it is claimed that the whales will likely experience "moderate distress and discomfort." A safety protocol will be in place to minimize risk to the animal, including human end points, health monitoring in all phases, and if needed, use of sedation to reduce stress. Although the whales should not have to be stunned, stunning could take place if an emergency safety situation arises. Before the minke whales are released, they will be satellite-tagged. The tags will be used to track the whales following the research to see if they resume normal activities.

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<sup>4</sup> Email from Heidi Bugge to Peter Kvadsheim, Notification about central decision, 21 May 2019. Available upon request.

<sup>5</sup> Proposed work plan.

Mattilsynet has given approval to Dr. Kvadsheim to use 12 minke whales for this experiment.<sup>6</sup> To our knowledge, the approval gives no information about any limits on the number of minke whales permitted to be chased during the attempt to corral a whale into the netted-off area, nor does it specify how many minkes maybe captured and released if they are determined not to be suitable candidates for the research.

### Existing Research Tells Us What We Need to Know

Dolphins and other toothed whales (odontocetes), many species of which have been well-studied, use high and medium frequency sound for echolocation and communication. Baleen whales (mysticetes), however, do not have the same structures associated with echolocation. They tend to make lower frequency sounds and are able to communicate with each other across long distances. Although previous studies have indicated that baleen whales are affected by active sonar and seismic activity, more-specific data and levels of understanding are sought. AWI is aware of a number of published studies that already speak to acoustic responses in baleen whales,<sup>7</sup> including acoustic response studies conducted on free-ranging minkes, one of them by Dr. Kvadsheim.<sup>8</sup> This study noted:

Minke whales are difficult to study and little information exists regarding their responses to anthropogenic sound. This study pools data from behavioural response studies off California and Norway. Data are derived from four tagged animals, of which one from each location was exposed to naval sonar signals. Statistical analyses were conducted using Mahalanobis distance to compare overall changes in parameters summarising dive behaviour, avoidance

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<sup>6</sup> See Module 1: National legislation – NORWAY, National and EU laws and guidance that regulate the scientific use of animals in Norway, <https://org.uib.no/dyreavd/Documents/Module1NationalLaws.pdf>

<sup>7</sup> Goldbogen, J.A., Southall, B.L., DeRuiter, S.L., Calambokidis, J., Friedlaender, A.S., Hazen, E.L., Falcone, E.A., Schorr, G.S., Douglas, A., Moretti, D.J., Kyburg, C., McKenna, M.F., and Tyack, P.L.(2013), Blue whales respond to simulated mid-frequency military sonar, *Proceedings of the Royal Society B* 280(1765): 20130657, <https://research-repository.st-andrews.ac.uk/handle/10023/3837>; Melcón, M. L., Cummins, A. J., Kerosky, S. M., Roche, L. K., Wiggins, S. M., & Hildebrand, J. A. (2012), Blue whales respond to anthropogenic noise. *PLoS ONE* 7(2). <https://doi.org/10.1371/journal.pone.0032681>; Forney, K.A., B.L. Southall, E. Sloaten, S. Dawson, A.J. Read, R.W. Baird, and R.L. Brownell Jr. (2017), Nowhere to go: noise impact assessments for marine mammal populations with high site fidelity, *Endangered Species Research* 32: 391–413; NOAA, “Cetacean and Sound Mapping,” available at: [www.st.nmfs.noaa.gov/cetsound](http://www.st.nmfs.noaa.gov/cetsound); Gomez, C., Lawson, J.W., Wright, A.J., Buren, A.D., Tollit, D., and Lesage, V. (2016), A systematic review on the behavioural response of wild marine mammals to noise: The disparity between science and policy, *Canadian Journal of Zoology* 94: 801–19. <https://cdnsiencepub.com/doi/abs/10.1139/cjz-2016-0098>.

<sup>8</sup> Kvadsheim, P. H., DeRuiter, S., Sivle, L. D., Goldbogen, J., Roland-Hansen, R., Miller, P., Lam, F. A., Calambokidis, J., Friedlaender, A., Visser, F., Tyack, P. L., Kleivane, L., & Southall, B. (2017), Avoidance responses of minke whales to 1-4kHz naval sonar, *Marine Pollution Bulletin* 121(1-2): 60–68. <https://doi.org/10.1016/j.marpolbul.2017.05.037>. See also Kvadsheim, P., Forland, N., de Jong, K., Nyqvist, D., Grimsbø, E and Sivle, L. (2020). *Effekter av støyforurensning på havmiljø – kunnskapsstatus og forvaltningsrådgiving*. Forsvarets forskningsinstitutt (FFI), Havforskningsinstituttet and Miljødirektoratet, FFI-RAPPORT 20/01015. In this latter paper, it is noted that “knowledge of how the behavior of marine mammals is affected by noise pollution has increased enormously in the last 20 years...due both to increased focus on the issue, but also to a positive development in relation to methodology for studying this.”

behaviour, and potential energetic costs of disturbance. Our quantitative analysis showed that both animals initiated avoidance behaviour, but responses were not associated with unusual dive behaviour. In one exposed animal the avoidance of the sonar source included a 5-fold increase in horizontal speed away from the source, implying a significant increase in metabolic rate. Despite the different environmental settings and exposure contexts, clear changes in behaviour were observed providing the first insights into the nature of responses to human noise for this wide-ranging species.<sup>9</sup>

### The Safety and Welfare Risks Outweigh the Proposed Benefits to Research

AWI understands that this study purports to go beyond the realm of existing research and, to learn more precisely what minke whales hear. We believe however there is a reason that the types of research being proposed in the study in question have not been attempted previously: the safety risks to people and the welfare risks to the whales were simply too great. Further, no new developments have made it any safer. Any potential research gains do not outweigh the liabilities.

Regarding welfare, holding wild animals captive for any period of time constitutes harm, as capture, restraint and containment will cause stress and may have an impact on the animals' health, behavior, immune function, reproduction and survival, which could in turn skew the results of the research.<sup>10</sup> We do not believe the ends justify the means here; hence our position that the project should be canceled.

Previous attempts to catch live minke whales for similar studies have ended with the whale being able to escape. The proposed method is meant to contain the minke whale safely and securely long enough for the necessary tests to be performed. However, AWI is not at all confident that the proposed methods *can* be conducted safely and securely. There have been a number of incidents where minke whales have become entangled in aquaculture pens, at times resulting in the euthanasia of the animal. For example, in 2009 a 4–5 meter long minke entered a cod pen at

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<sup>9</sup> *Id.*

<sup>10</sup> While more is known about capturing and containing odontocetes than mysticetes due to their differences in size and ecology and the use of several species of odontocetes in captive marine facilities, what is known indicates that such activities are stressful. See, e.g., Spoon, T. R., & Romano, T. A. (2012), Neuroimmunological response of beluga whales (*Delphinapterus leucas*) to translocation and a novel social environment, *Brain, Behavior, and Immunity* 26(1): 122–131. <https://doi.org/10.1016/j.bbi.2011.08.003>. However, stress responses have been demonstrated in bowhead whales entangled in fishing gear. Rolland, R. & Graham, K., Stimmelmayer, R., Suydam, R. & George, J. (2019), Chronic stress from fishing gear entanglement is recorded in baleen from a bowhead whale (*Balaena mysticetus*). *Marine Mammal Science* 35. <https://doi.org/10.1111/mms.12596>. The impacts of chronic stress on general health and reproductive fitness of baleen whales due to entanglement in gear has also been noted in North Atlantic right whales (*Eubalaena glacialis*). van der Hoop, J., Corkeron, P. & Moore, M. (2017), Entanglement is a costly life-history stage in large whales, *Ecology and Evolution* 7: 92–106. doi: 10.1002/ece3.2615

the Nap Marine aquaculture facility “with great force,” and according to the managing director, the whale “raged wild among the cod.” The animal had to be shot, and was removed from the pen by a crane.<sup>11</sup> In other cases in which minke whales have been entangled in aquaculture pens, facility staff have emphasized that the whales were able to break through the net, causing damage.<sup>12</sup> These instances point to danger, perhaps even grave danger, for both the involved whales and humans. Given the size of a minke whale, if it responds to any of the proposed methods “with great force,” it is hard to imagine how the safety of the researchers can be guaranteed or even their risks of injury minimized.<sup>13</sup>

Entanglement of whales in both aquaculture and wild-caught fisheries has now become so common in Norway, and of such concern, that in 2017 the Fisheries Directorate published a series of guidelines on safe ways to free whales that have been entangled in fishing gear or have broken into aquaculture pens and become trapped. In the section on aquaculture, it is stated that “these incidents could have animal welfare consequences for both the whale and the fish” and also mentions damages caused to the aquaculture cages /nets.<sup>14</sup>

In light of the anecdotal reports of minke whales breaking through aquaculture pens noted above, and the concerns raised by the Fisheries Directorate in its guidelines regarding entanglement in both fishing gear and aquaculture, AWI has reservations as to whether the materials proposed to be used to enclose the whales (fishing nets and an aquaculture pen) can prevent harm to the whales. We also question the potential negative impacts such gear might pose for other marine life in the area, including other marine mammals, seabirds and fish.

Furthermore, AWI is very concerned by the suggestion that the researchers may stun the whales in an emergency. Little is known about stunning/sedation in cetaceans; while guidance exists regarding sedation of small captive cetaceans,<sup>15</sup> it is rarely attempted and inherently risky

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<sup>11</sup> Hatlem, T. (2009, August 16). *Vågehval sprengete oppdrettsmerd*. Fisk. <https://fisk.no/oppdrett/476-vagehval-sprengte-oppdrettsmerd>

<sup>12</sup> Berge, A. (2015, May 13). *Vågehval svømte inn i oppdrettsmerd*. iLaks. <https://ilaks.no/vagehval-svomte-inn-i-oppdrettsmerd/>; Jørgensen, L. (2017, May 3). *Hval i laksemerden*. Frøya. <https://www.froya.no/nyheter/hval-i-laksemerden/>; iLaks. (2019, December 16). *Vågehval førte til lakserømming hos Lerøy: – Har rett og slett fått god fart og kommet seg gjennom til fisken*. <https://ilaks.no/vagehval-for-te-til-lakseromming-hos-leroy-har-rett-og-slett-fatt-god-fart-og-kommet-seg-gjennom-til-fisken/>; Hatlem, T. (2019, December 18). *Mulig lakserømming fra Lerøy i Varangerfjorden*. <https://fisk.no/oppdrett/6899-mulig-lakseromming-fra-leroy-i-varangerfjorden>

<sup>13</sup> There are at least two known examples of baleen whale disentanglement efforts leading to the death of trained individuals, Tom Smith of New Zealand and Joe Howlett of Canada. The IWC’s Great Whale Entanglement Rescue Network rightly notes that the handling of any large, wild animal can be dangerous. IWC(nd). *Whale Entanglement - Building a Global Response*. <https://iwc.int/entanglement>

<sup>14</sup> Fiskeridirektoratet. (2017). *Dyrevelferdsmessig forsvarlig håndtering av levende strandet hval, hval i oppdrettsmerder og hval viklet inn i fiskeredskaper i sjøen*. [https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Veiledere/Strandet-hval/\\_attachment/download/4ac40a72-1629-4c7d-b8de-0b36c79b9e0e:de402ce5503b82d336c662c8c3d503e5238a5822/forsvarlig-handtering-strandet-hval%20rev%2013052020.pdf](https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Veiledere/Strandet-hval/_attachment/download/4ac40a72-1629-4c7d-b8de-0b36c79b9e0e:de402ce5503b82d336c662c8c3d503e5238a5822/forsvarlig-handtering-strandet-hval%20rev%2013052020.pdf)

<sup>15</sup> Higgins, J. & Hendrickson, D. (2013), Surgical procedures in pinniped and cetacean species, *Journal of Zoo and Wildlife Medicine* 44(4): 817-836. <http://www.jstor.org/stable/24550078>.

because cetaceans are highly adapted for hypoxia.<sup>16</sup> Even less is known about sedating wild cetaceans, and the few data that are available demonstrate that attempted sedation may not even achieve the desired result, which we presume would be to calm the whale if it appears to be panicking. For example, Barco *et al.* (2016) noted that the use of barbiturate sedatives on cetaceans can “result in animal(s) exhibiting excitatory reactions, including violent spinning and fluking, which can place responders and onlookers at risk of physical injury....”<sup>17</sup> Further, in their review of the sedation and tagging of an entangled North Atlantic right whale, Moore *et al.* (2012) concluded that, “the intervention with sedation, and the required tagging needed to evaluate sedation, disentanglement and the outcome of chronic severe entanglement, can result in a number of potential complications during the application of these techniques.”<sup>18</sup> We further question whether the sedation would affect the results of the hearing test.

### Legal Concerns

AWI has written to Mattilsynet, the Norwegian Food Safety Authority, regarding the deficiencies that we believe exist in the permitting of this project. (Attachment 1.) In short, we contend that additional bodies, such as the Fisheries Directorate and Ministry of Transportation, should have been involved in the permitting process, and that the research itself does not comport with Norwegian law. For NOAA and the Navy’s part in funding this project, however, we feel obligated to point out that this project also runs counter to the principals and standards of the US Marine Mammal Protection Act.<sup>19</sup>

Based on an initial FOIA response provided by NMFS, AWI is aware that NMFS advised Dr. Houser that no MMPA permit would be necessary here, because the research would be taking place within 12 nautical miles of Norway’s coast. While AWI does not dispute the applicability of a Norwegian government permit in this case, we question the appropriateness of a hands-off approach by the US government on a controversial project that it is effectively co-sponsoring.

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<sup>16</sup> Tian, R., Wang, Z., Niu, X., Zhou, K., Xu, S., & Yang, G. (2016), Evolutionary genetics of hypoxia tolerance in cetaceans during diving, *Genome Biology and Evolution* 8(3): 827–839. <https://doi.org/10.1093/gbe/evw037>.

<sup>17</sup> Barco, S., Walton, W., Harms, C., George, R., D’Eri, L and Swingle, W.(2016) Collaborative Development of Recommendations for Euthanasia of Stranded Cetaceans. NOAA Technical Memorandum NMFS-OPR-56. We also refer you to a report of an International Whaling Commission (IWC) on optimizing welfare for stranded cetaceans , presented by Norway and the UK in 2013, which noted the potential eco-toxicity of certain sedatives and the need for additional research on the environmental persistence and potential effects of some of these methods. IWC (2014) Report of the IWC Workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans. [https://iwc.int/private/downloads/v6JneUId0VDFOfOlqIXVg/IWC%20Euthanasia%20Workshop%20Report\\_FIN\\_AL\\_31-03-14.pdf](https://iwc.int/private/downloads/v6JneUId0VDFOfOlqIXVg/IWC%20Euthanasia%20Workshop%20Report_FIN_AL_31-03-14.pdf)

<sup>18</sup> Moore, M., Andrews, R., Austin, T., Bailey, J., Costidis, A., George, C., Jackson, K., Pitchford, T., Landry, S., Ligon, A., McLellan, W., Morin, D., Smith, J., Rotstein, D., Rowles, T., Slay, C. and Walsh, M. (2013), Rope trauma, sedation, disentanglement, and monitoring-tag associated lesions in a terminally entangled North Atlantic right whale (*Eubalaena glacialis*). *Mar Mam Sci*, 29: E98-E113. <https://doi.org/10.1111/j.1748-7692.2012.00591.x>

<sup>19</sup> 16 U.S.C. §§ 1361, 1374(c).

Under section 101(a)(5) of the MMPA, small take authorizations are required, even for activities occurring in the territorial waters of foreign nations, when US entities (e.g. citizens, researchers, or government agencies) are involved, or when the federal government funds those activities. For example, in 2008, NMFS reviewed an application from the Lamont-Doherty Earth Observatory at Columbia University to incidentally take by harassment marine mammals during geophysical seismic surveys in South East Asia.<sup>20</sup> The notice for that action stated:

The proposed action is planned to take place in the territorial seas and EEZ's of foreign nations, and will be continuous with the activity that takes place on the high seas. NMFS does not authorize the incidental take of marine mammals in the territorial seas of foreign nations, as the MMPA does not apply in those waters. *However, NMFS still needs to calculate the level of incidental take in territorial seas as part of the proposed issuance of an IHA in regards to NMFS' analysis of small numbers and negligible impact determination.*<sup>21</sup>

Those seismic surveys were to be conducted under a cooperative agreement with the National Science Foundation (NSF), which was funding the project. Incidental take calculations have similarly been required for seismic surveys conducted in, for example, the Southeast Pacific and Antarctica.<sup>22</sup>

Here, however, we have US government funding going to research that will involve the deliberate take of minke whales, through research that will hopefully involve only Level B harassment, but that in light of the information presented above, could conceivably lead to fatal take – Level A harassment. We also have US citizens participating in the project. 16 U.S.C. § 1362(18). Yet, because the minke whales are the subject of the research, any take would not be incidental, and so the requirements of section 101(a)(5) do not apply. The concept of “incidental take” only applies to research when marine mammals are *not* the target of the research.

NMFS’s general issuance criteria for research permits require that the proposed activity be humane and not present any unnecessary risks to the health and welfare of marine mammals. 50 C.F.R. § 216.34(a)(1). Between the luring of the minke whales into netted areas, forcing them into aquaculture pens, and potentially sedating or stunning them, it is clear that this research will

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<sup>20</sup> Incidental Takes of Marine Mammals During Specified Activities; Marine Geophysical Survey in Southeast Asia, March-July 2009, 73 Fed. Reg. 78,294 (Dec. 22, 2008), <https://www.federalregister.gov/documents/2008/12/22/E8-30365/incidental-takes-of-marine-mammals-during-specified-activities-marine-geophysical-survey-in>

<sup>21</sup> *Id.*

<sup>22</sup> Takes of Marine Mammals Incidental to Specified Activities; Marine Geophysical Survey in the Southeast Pacific Ocean, 2016-2017, 81 Fed. Reg. 53443 (Aug. 12, 2016), <https://www.federalregister.gov/documents/2016/08/12/2016-19145/takes-of-marine-mammals-incident-to-specified-activities-marine-geophysical-survey-in-the>; Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to THwaites Offshore Research (THOR) Project in the Amundsen Sea, Antarctica, 85 FR 5619 (Jan. 31, 2020), <https://www.federalregister.gov/documents/2020/01/31/2020-01811/takes-of-marine-mammals-incident-to-specified-activities-taking-marine-mammals-incident-to>.

present unnecessary risk to the health and welfare of marine mammals. NMFS's regulations further require that "if a live animal will be held captive... the Applicant's qualifications, facilities, and resources" must be "adequate for the proper care and maintenance of the marine mammal." *Id.* at (6). Based on the information at our disposal, it does not appear that the veterinarian who will be present throughout the research will have any expertise in baleen whales, cetaceans in general, or even marine mammals as a whole.<sup>23</sup>

In addition to the requirements under 50 C.F.R. §§ 216.33–216.38 of the regulations, permits for scientific research are governed by specific issuance criteria listed under § 216.41(b). The applicant must demonstrate that "the proposed research will not likely have significant adverse effects on any other component of the marine ecosystem of which the affected species or stock is a part." § 216.41(b)(4). Here, we are concerned about potential impacts to other species, including marine mammals and seabirds that could become entangled in the various nets utilized to create the research area.

This is where, in theory, a foreign government's permitting system should step in to cover any ground that is lost by the lack of an MMPA permit. In practice, this is not what is happening, because not all countries have marine mammal-specific legislation like the MMPA. Norway, a country that still engages in commercial whaling, does not have an MMPA equivalent. So, despite the fact that Norway's Food Safety Authority has issued a permit for this project, it is clear that the project will not be conducted utilizing the same standards that would be required under an MMPA permit.

Based on our reading of NMFS's regulations, we are troubled by the fact that were researchers to propose this type of study in the US, it would likely not be allowed. Yet, in Norway, this study appears to be allowed despite the country's relatively strong animal welfare law. We are aware of numerous other US permits that have involved tagging and/or introducing sound into the marine environment.<sup>24</sup> We are aware of AEP studies on small cetaceans such as beaked whales

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<sup>23</sup> The facility that has been mentioned as providing veterinary support, Dyreparken, is an amusement park and zoo that holds terrestrial animals, not cetaceans. If it is the case that a cetacean vet will not be involved, it will run counter to the recommendations made by the Fisheries Directorate in its aforementioned guidelines regarding whale entanglement in aquaculture gear, which state, "Killing whales trapped in aquaculture cages entails a significant risk of injury to the whale, and a risk of damage to personnel, fish and equipment. As a general rule, whales in cages should therefore not be killed. Should there nevertheless be cases where euthanasia is considered to be the most appropriate action, this must be done in close collaboration with professionals who have expertise in this area." Fiskeridirektoratet (2017) Dyrevelferdsmessig forsvarlig håndtering av levende strandet hval, hval I oppdrettsmerder og hval viklet inn I fiskeredskaper i sjøen.

<sup>24</sup> Permit no. 223 and 576 involved natural sound playbacks to baleen whales (1981 and 1991, respectively) Permit no. 369-1440-01 involved tagging sperm whales in the Gulf of Mexico during the spring and summer of 2001

Permit no. 765 involved tagging and playback experiments with sperm whales, ended 31 December 1997

Permit no. 875-1401 was for the SURTASS LFA sonar SRP which involved playback experiments to baleen whales in 1997-98

Permit no. 917 also involved tagging sperm whales in the Gulf of Mexico during the summer of 2001



and beluga whales.<sup>25</sup> We are also aware of permits NMFS has issued to the US Navy that cover both domestic and international research activities.<sup>26</sup> But, as the researchers here acknowledge, this study will be novel – in part because no one has ever attempted to conduct AEP on a large cetacean/baleen whale. We contend that since the US is effectively co-sponsoring this project, and US researchers are participating, the intent, purpose and spirit of the MMPA should be taken into account here. NMFS and the Navy should have discouraged this study from moving forward rather than funding it. As you will see in AWI’s letter to Mattilsynet, we are calling upon that agency to revoke its approval for this study.

Finally, it is not clear that the project will be conducted with the same sort of worker protection standards required under the Occupational Safety and Health Act, which would not apply in the case of this project.<sup>27</sup> The activities involved in this foreign project thus pose a particular concern for the US researchers, who, under this scenario, will likely not be covered by either US or Norwegian worker protection laws, which may or may not have implications for the employer’s insurance policies and the employee’s ability to obtain worker’s compensation should this project result in injury, as we believe is likely.

## Conclusion

At this time, it is unrealistic for even the world’s best research scientists to expect to be able to handle entrapped minke whales in a way that is safe for both the humans and the animals involved. We deeply regret that the US government has committed itself to funding this effort, particularly when there are other types of studies, which can be conducted safely, that measure

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Permit no. 981-1578 involved research similar to that covered by the permit application in File No. 1079-1828  
Permit no. 1048-1717 involved research to develop, validate and improve low-power and high frequency sonar systems designed to detect marine mammals (2003)

<sup>25</sup> Mooney, T. A., Castellote, M., Jones, I., Rouse, N., Rowles, T., Mahoney, B., & Goertz, C. (2020). Audiogram of a Cook Inlet beluga whale (*Delphinapterus leucas*). *The Journal of the Acoustical Society of America*, 148(5), 3141. <https://doi.org/10.1121/10.0002351>; Southall B L, Finneran J J, Reichmuth C, Nachtigall P E, Ketten D R, Bowles A E, Ellison W T, Nowacek D P, Tyack P L (2019). Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals* 2019, 45(2), 125-232, DOI 10.1578/AM.45.2.2019.125.

<sup>26</sup> When AWI first learned of this research study, it was unclear to us whether this proposed research was part of the 3S3: Behavioral Responses of Cetaceans to Naval Sonar, which dates back to 2006 and involves several other countries’ naval marine research units. Before we knew that AEP was involved, it seemed plausible to us that this project could be covered by the permit for File No. 21482, which involves research on numerous species of whales, including minke whales, in international waters and the territorial waters of foreign nations. In other words, given the fact that the US Navy already engages in marine mammal research abroad, and that research is covered by NMFS-issued research permits, it is conspicuous that this particular auditory study has been planned in a way that circumvents application of US laws.

<sup>27</sup> The authority of OSHA is limited to employment performed within the geographical limits covered by the Occupational Safety and Health Act of 1970 (OSH Act). See, Section 4(a), 29 U.S.C. § 653(a)). Section 4(a), as modified by later agreements, provides that the OSH Act applies to employment performed in a workplace in a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, Guam, Wake Island, *Outer Continental Shelf Lands defined in the Outer Continental Shelf Lands Act*, and Johnston Island, and the Canal Zone. See <https://www.law.cornell.edu/uscode/text/29/653>.

the response of these animals to various sounds. In consideration of the information and arguments we have presented in this letter, AWI urges the team to not move forward with this inherently dangerous research.

Sincerely,

A handwritten signature in black ink that reads "Susan Millward". The signature is written in a cursive style with a large, sweeping initial 'S'.

Susan Millward  
Marine Program Director

Cc: Mr. Michael Gosliner, General Counsel, Marine Mammal Commission

# ATTACHMENT 1



# Animal Welfare Institute

900 Pennsylvania Avenue, SE, Washington, DC 20003  
awionline.org phone: (202) 337-2332 fax: (202) 446-2131

March 19, 2021

Mattilsynet v/ Ole Aamodt,  
Seksjon for nasjonale oppgaver,  
Jærveien 12, 4319 Sandnes Felles  
postmottak Pb 383 2381 Brumunddal  
[postmottak@mattilsynet.no](mailto:postmottak@mattilsynet.no)

Dear Mr Aamodt:

On behalf of the Animal Welfare Institute and its more than 217,000 members and constituents worldwide, including its members in Norway, I write to you regarding a research study that will involve a deliberate take of minke whales in order to conduct auditory evoked potential (AEP) hearing tests. The capturing of these minke whales off Lofoten, Norway is planned to commence in or around May 2021 and recur for four summers thereafter.

AWI does not oppose all research on animals; instead, we contemplate research involving animals on a case-by-case basis and advocate for the best possible treatment of animals involved in research. Here, we have serious concerns regarding the welfare of the whales proposed for study. We are equally concerned for the safety of the humans involved in the research; we believe the researchers who will be in the water with the whales will be at risk of serious injury. For the reasons set forth below, we are opposed to this project and urge its cancellation.

## Project Background

AWI is aware that Dr. Petter Kvadsheim of the Norwegian Defense Research Establishment (Forsvarets Forskningsinstitutt (unit 053)) is leading the project in cooperation with Dr. Dorian Houser of the US-based National Marine Mammal Foundation. We understand the proposed project's purpose is to better understand the kinds of sounds and frequencies that baleen whales can hear, including those pertaining to active sonar and seismic activities.<sup>1</sup>

AWI understands that the researchers are planning to set up a 1,300 meter long net across a strait at Vestvågøy in Lofoten. The plan is to use the net to maneuver juvenile minke whales, who will be migrating through this area on their way to foraging areas further north in the Barents Sea, into a 280 meter long, 150 meter wide and 27 meter deep enclosure between some islets in the

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<sup>1</sup> Email from Heidi Bugge to Peter Kvadsheim, Notification about central decision, 21 May 2019.

fjord. When a whale moves into the netted-off area, the entrance will be closed and the whale trapped inside. The whale will be held in this area for 24 hours before the researchers try to measure its hearing, presumably by introducing different levels of sound to the animal and measuring the response.<sup>2</sup>

The researchers will conduct the AEP hearing testing using electrophysiological techniques and plan to optimize these techniques for measuring hearing in mysticetes. Before the experiments take place, a veterinarian from Dyreparken in Kristiansand will decide whether the animal is healthy enough to become a research subject. Before the hearing test, the whale will be moved to a modified salmon cage. The cage will be closed around the whale, which will be held between two rafts. There will be two people in the water with the whale and four on a raft. The whale's state of health will be monitored by measuring heart rate and respiration. Researchers estimate it will take a maximum of six hours to complete the hearing testing for each whale, during which time it is claimed that the whales will likely experience "moderate distress and discomfort." A safety protocol will be in place to minimize risk to the animal, including human end points, health monitoring in all phases, and if needed, use of sedation to reduce stress. Although the whales should not have to be stunned, stunning could take place if an emergency safety situation arises. Before the minke whales are released, they will be satellite-tagged. The tags will be used to track the whales following the research to see if they resume normal activities.

Mattilsynet has approved the use of 12 minke whales for this experiment, having given approval to Dr. Kvadsheim, with the decision based in the Regulation on the Use of Animals in Research (*Forskrift om bruk av dyr i forsøk*).<sup>3</sup> To our knowledge, the approval gives no information about any limits on the number of minke whales permitted to be captured and released if they are determined not to be suitable candidates for the research. Mattilsynet found that the purpose of the planned project and the use of animals fulfill the general requirements for animal experimentation, such as the Regulation § 10 (purpose of experiment), § 11 (methods, test strategies and endpoints), and § 9 (replacement, reduction and refinement), and that the benefits of the expected results, as opposed to the expected harm inflicted on the animals, make it likely that animals will not be subjected to unnecessary harm; for example, in the Regulation § 1. For the foregoing reasons, AWI respectfully disagrees with this conclusion.

### Lack of Relevant Permits

While we are aware that consultations with the Institute of Marine Research did take place, we question whether all relevant agencies were fully apprised of the proposed research. For example, it is unclear to AWI how this project has been approved without a full review by, and potentially a permit from, the Ministry of Transportation given that the net barriers to be placed

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<sup>2</sup> Proposed work plan.

<sup>3</sup> See Module 1: National legislation – NORWAY, National and EU laws and guidance that regulate the scientific use of animals in Norway, <https://org.uib.no/dyreavd/Documents/Module1NationalLaws.pdf>

in the fjord mean that the Hurtigruten and other local ship traffic will be inhibited and vessel routes will require significant alteration during the weeks that the project is in progress. We note that in previous research undertaken on minke whale response to noise, the Fisheries Directorate, Kystverket and local authorities were consulted.<sup>4</sup> We believe a permit from the Fisheries Directorate is warranted here, as the Marine Resources Act (*Lov om forvaltning av viltlevende marine ressursar*) states at § 3 that this law “applies to all harvesting and other utilization of wild marine resources and associated genetic material. Wild marine resources are fish, marine mammals with full or partial presence in the sea, other marine organisms and plants located in the sea or on or under the seabed, and which are not privately owned.” Additionally, § 66 of the Marine Resources Act concerns marine research. Similarly, it is unclear to AWI why, after informal consultation with the Norwegian Environment Agency, it was decided that “this does not involve any intervention that requires [such] a permit.”<sup>5</sup>

#### Existing Research Tells Us What We Need to Know

Dolphins and toothed whales (odontocetes), many species of which have been well-studied, use high and medium frequency sound for echolocation and communication. Baleen whales (mysticetes), however, do not have the same structures associated with echolocation. They tend to make lower frequency sounds and are able to communicate with each other across long distances. Although previous studies have indicated that baleen whales are affected by active sonar and seismic activity, the entities funding the research state they are in need of more-specific data and levels of understanding. AWI is already aware of a number of published studies

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<sup>4</sup> Kvalsheim, P.&Forland, N. & de Jong, K., & Nyqvist, D. & Grimsbø, E & Sivle, L. (2020), *Effekter av støyforurensning på havmiljø – kunnskapsstatus og forvaltningsrådgiving*. Forsvarets forskningsinstitutt (FFI), Havforskningsinstituttet and Miljødirektoratet, FFI-RAPPORT 20/01015.

<sup>5</sup> See email from Petter Kvalsheim to Heidi Bugge, 13 May, 2019. AWI notes that game regulations enacted on 1 April 2020 state (Chapter 2), which are applicable within Norway’s economic zone, state that “the Norwegian Environment Agency may, upon application, grant permission to, or by its own initiative, capture game for research....”

that speak to acoustic responses in baleen whales,<sup>6</sup> including acoustic response studies conducted on free-ranging minke whales, one of them by Dr. Kvadsheim.<sup>7</sup> This study noted:

Minke whales are difficult to study and little information exists regarding their responses to anthropogenic sound. This study pools data from behavioural response studies off California and Norway. Data are derived from four tagged animals, of which one from each location was exposed to naval sonar signals. Statistical analyses were conducted using Mahalanobis distance to compare overall changes in parameters summarising dive behaviour, avoidance behaviour, and potential energetic costs of disturbance. Our quantitative analysis showed that both animals initiated avoidance behaviour, but responses were not associated with unusual dive behaviour. In one exposed animal the avoidance of the sonar source included a 5-fold increase in horizontal speed away from the source, implying a significant increase in metabolic rate. Despite the different environmental settings and exposure contexts, clear changes in behaviour were observed providing the first insights into the nature of responses to human noise for this wide-ranging species.<sup>8</sup>

### The Safety and Welfare Risks Outweigh the Proposed Benefits to Research

While AWI understands that this study purports to go beyond the realm of existing research, to learn more precisely what minke whales hear, we believe the safety risks to people and the welfare risks to the whales have precluded this type of research from being attempted before.

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<sup>6</sup> Goldbogen, J.A., Southall, B.L., DeRuiter, S.L., Calambokidis, J., Friedlaender, A.S., Hazen, E.L., Falcone, E.A., Schorr, G.S., Douglas, A., Moretti, D.J., Kyburg, C., McKenna, M.F., and Tyack, P.L. (2013), Blue whales respond to simulated mid-frequency military sonar, *Proceedings of the Royal Society B* 280(1765): 20130657, <https://research-repository.st-andrews.ac.uk/handle/10023/3837>; Melcón, M. L., Cummins, A. J., Kerosky, S. M., Roche, L. K., Wiggins, S. M., & Hildebrand, J. A. (2012), Blue whales respond to anthropogenic noise. *PLoS ONE* 7(2). <https://doi.org/10.1371/journal.pone.0032681>; Forney, K.A., B.L. Southall, E. Slooten, S. Dawson, A.J. Read, R.W. Baird, and R.L. Brownell Jr. (2017), Nowhere to go: noise impact assessments for marine mammal populations with high site fidelity, *Endangered Species Research* 32: 391–413; NOAA, “Cetacean and Sound Mapping,” available at: [www.st.nmfs.noaa.gov/cetsound](http://www.st.nmfs.noaa.gov/cetsound); Gomez, C., Lawson, J.W., Wright, A.J., Buren, A.D., Tollit, D., and Lesage, V. (2016), A systematic review on the behavioural response of wild marine mammals to noise: The disparity between science and policy, *Canadian Journal of Zoology* 94: 801–19. <https://cdnsiencepub.com/doi/abs/10.1139/cjz-2016-0098>.

<sup>7</sup> Kvadsheim, P. H., DeRuiter, S., Sivle, L. D., Goldbogen, J., Roland-Hansen, R., Miller, P., Lam, F. A., Calambokidis, J., Friedlaender, A., Visser, F., Tyack, P. L., Kleivane, L., & Southall, B. (2017), Avoidance responses of minke whales to 1-4kHz naval sonar, *Marine Pollution Bulletin* 121(1-2): 60–68. <https://doi.org/10.1016/j.marpolbul.2017.05.037>. See also Kvadsheim, P., Forland, N., de Jong, K., Nyqvist, D., Grimsbø, E and Sivle, L. (2020). *Effekter av støyforurensning på havmiljø – kunnskapsstatus og forvaltningsrådgiving*. Forsvarets forskningsinstitutt (FFI), Havforskningsinstituttet and Miljødirektoratet, FFI-RAPPORT 20/01015. In this latter paper, it is noted that “knowledge of how the behavior of marine mammals is affected by noise pollution has increased enormously in the last 20 years...due both to increased focus on the issue, but also to a positive development in relation to methodology for studying this.”

<sup>8</sup> *Id.*

Along these lines, we question whether the project is in compliance with the Norwegian Animal Welfare Act<sup>9</sup> and the Norwegian Working Environment Act.<sup>10</sup>

Under § 3 of the Animal Welfare Act, (*Generelt om behandling av dyr*), animals must be treated well and protected from unnecessary stress and strain. Section 13 (“Forsøk, undervisning og medisinsk virksomhet”), states that in order to be able to use animals for experiments, for teaching other than ordinary care and handling, or in medical activities, both the institution and the person responsible for the relevant activity must have permission from the supervisory authority, and this permission may not be granted if the purpose can be achieved without the use of animals, or if the animals are in danger of being exposed to unnecessary stress and strain. No more animals than necessary shall be used, and the animals shall be handled as little as possible. Further, § 20 (“Jakt, fangst og fiske”) states that trapping must be carried out in “an animal welfare-sound manner.”<sup>11</sup>

Regarding welfare, holding wild animals captive for any period of time constitutes harm as capture, restraint and containment will cause stress and may have an impact on the animals’ health, performance, immune function, reproduction and survival, which could in turn skew the results of the research.<sup>12</sup> We do not believe the end justifies the means here, and therefore we think the project should be canceled.

Mattilsynet classified the procedures as moderate—for example, in the Regulation annex B—but recognized that capture and handling will be stressful to the animals. Previous attempts to catch live minke whales for similar studies have ended with the whale being able to escape. The proposed method is meant to contain the minke whale safely and securely long enough for the

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<sup>9</sup> Available at <https://lovdata.no/dokument/NL/lov/2009-06-19-97>.

<sup>10</sup> Available at <https://www.arbeidstilsynet.no/regelverk/forskrifter/forskrift-om-organisering-ledelse-og-medvirkning/1/1-1/>. Section 1-1 states “the purpose of the regulations is that work is organized and arranged so that employees are ensured a fully safe working environment protected from physical or mental strain by mapping, risk assessment and implementation of measures are carried out before the activity is initiated,” among other things.

<sup>11</sup> See also § 10, Merking av dyr (as relevant to the proposed tagging and behavioral restrictions vis-à-vis the planned netting off of large stretches of the waters off Lofoten), stating that when marking animals, sound methods must be used that do not impose behavioral restrictions on the animal or unnecessary stresses and strains.

<sup>12</sup> While more is known about capturing and containing odontocetes than mysticetes due to their differences in size and ecology and the use of several species of odontocetes in captive marine facilities, what is known indicates that such activities are stressful. See, e.g., Spoon, T. R., & Romano, T. A. (2012), Neuroimmunological response of beluga whales (*Delphinapterus leucas*) to translocation and a novel social environment, *Brain, Behavior, and Immunity* 26(1): 122–131. <https://doi.org/10.1016/j.bbi.2011.08.003>. However, stress responses have been demonstrated in bowhead whales entangled in fishing gear. Rolland, R. & Graham, K., Stimmelmayer, R., Suydam, R. & George, J. (2019), Chronic stress from fishing gear entanglement is recorded in baleen from a bowhead whale (*Balaena mysticetus*). *Marine Mammal Science* 35. <https://doi.org/10.1111/mms.12596>. The impacts of chronic stress on general health and reproductive fitness of baleen whales due to entanglement in gear has also been noted in North Atlantic right whales (*Eubalaena glacialis*). van der Hoop, J., Corkeron, P. & Moore, M. (2017), Entanglement is a costly life-history stage in large whales, *Ecology and Evolution* 7: 92–106. doi: 10.1002/ece3.2615



necessary tests to be performed. However, AWI is not at all confident that the proposed methods *can* be conducted safely and securely. There have been a number of incidents where minke whales have broken into aquaculture pens, at times resulting in the euthanasia of the animal. For example, in 2009 a four to five meter long minke entered a cod pen at the Nap Marine aquaculture facility “with great force,” and according to the managing director, the whale “raged wild among the cod.” The animal had to be shot, and was removed from the pen by a crane.<sup>13</sup> In other cases in which minke whales have been known to break into aquaculture pens, facility staff have emphasized that the whales were able to break through the net, causing damage.<sup>14</sup> These instances point to danger, perhaps even grave danger, for both the involved whales and humans. Given the size of a minke whale, if it responds to any of the proposed methods “with great force,” it is hard to imagine how the safety of the researchers can be guaranteed.<sup>15</sup>

Entanglement of whales in both aquaculture and wild-caught fisheries has now become so common in Norway, and of such concern, that in 2017 the Fisheries Directorate published a series of guidelines on safe ways to free whales that have been entangled in fishing gear or have broken into aquaculture pens and become trapped. In the section on aquaculture, it is stated that “these incidents could have animal welfare consequences for both the whale and the fish” and also mentions damages caused to the aquaculture cages /nets.<sup>16</sup>

AWI further questions whether the proposed research meets the requirements as delineated in Annex F of the Regulation (F. Hold av dyr, jf. § 29 tredje ledd og § 30 siste ledd). In the Annex (which mirrors requirements in Directive 2010/63/EU on the protection of animals used for scientific purposes, in accordance with the EEA<sup>17</sup>), animals are required to have access to areas that enable them to exercise “a wide range of normal behavior” (Annex F §3.3.b.), which will

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<sup>13</sup> Hatlem, T. (2009, August 16). *Vågehval sprenget oppdrettsmerd*. Fisk. <https://fisk.no/oppdrett/476-vagehval-sprengte-oppdrettsmerd>

<sup>14</sup> Berge, A. (2015, May 13). *Vågehval svømte inn i oppdrettsmerd*. iLaks. <https://ilaks.no/vagehval-svomte-inn-i-oppdrettsmerd/> ; Jørgensen, L. (2017, May 3). *Hval i laksemerden*. Frøya. <https://www.froya.no/nyheter/hval-i-laksemerden/> ; iLaks. (2019, December 16). *Vågehval førte til lakserømming hos Lerøy: – Har rett og slett fått god fart og kommet seg gjennom til fisken*. <https://ilaks.no/vagehval-for-te-til-lakseromming-hos-leroy-har-rett-og-slett-fatt-god-fart-og-kommet-seg-gjennom-til-fisken/> ; Hatlem, T. (2019, December 18). *Mulig lakserømming fra Lerøy i Varangerfjorden*. <https://fisk.no/oppdrett/6899-mulig-lakseromming-fra-leroy-i-varangerfjorden>

<sup>15</sup> There are at least two known examples of baleen whale disentanglement efforts leading to the death of trained individuals, Tom Smith of New Zealand and Joe Howlett of Canada. The IWC’s Great Whale Entanglement Rescue Network rightly notes that the handling of any large, wild animal can be dangerous. IWC(nd). *Whale Entanglement - Building a Global Response*. <https://iwc.int/entanglement>

<sup>16</sup> Fiskeridirektoratet. (2017). *Dyrevelferdsmessig forsvarlig håndtering av levende strandet hval, hval i oppdrettsmerder og hval viklet inn i fiskeredskaper i sjøen*. [https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Veiledere/Strandet-hval/\\_attachment/download/4ac40a72-1629-4c7d-b8de-0b36c79b9e0e:de402ce5503b82d336c662c8c3d503e5238a5822/forsvarlig-handtering-strandet-hval%20rev%2013052020.pdf](https://www.fiskeridir.no/Yrkesfiske/Dokumenter/Veiledere/Strandet-hval/_attachment/download/4ac40a72-1629-4c7d-b8de-0b36c79b9e0e:de402ce5503b82d336c662c8c3d503e5238a5822/forsvarlig-handtering-strandet-hval%20rev%2013052020.pdf)

<sup>17</sup> As per Mattilsynets forvaltning av forsøksdyrforskriften – Instruks, §2 Virkeområde.

clearly not be the case for these minke whales, given that the size of both the enclosure and especially the cage will limit normal swimming and diving activity.<sup>18</sup>

Further, the enclosures “shall be made of materials that are not harmful to the animals' health, and designed and constructed so that the animals are not harmed” (Annex F §3.3.c). In light of the anecdotal reports of minke whales breaking through aquaculture pens noted above, and the concerns raised by the Fisheries Directorate in its guidelines regarding entanglement in both fishing gear and aquaculture, AWI has reservations as to whether the materials proposed to be used to enclose the whales (fishing net and an aquaculture pen) can prevent harm to the whales. We also question the potential negative impacts such gear might pose for other marine life in the area, including other marine mammals, seabirds and fish.

These same guidelines point to the fact that the Fisheries Directorate plays an important advisory role in attempts to remove a whale from the net or pen, and that considerations for safety are paramount. If the situation requires euthanizing a whale, the decision is to be made by the Fisheries Directorate in consultation with the Institute of Marine Research “and should be based on a comprehensive risk assessment.” If a whale is stuck in the net or cage, “it must be considered whether it is possible to release the animal in whole or in part without endangering human life and health.”<sup>19</sup> A vet specialized in cetaceans and knowledgeable regarding minke whales should be present at all times. Mattilsynet stated a presumption that all who participate in the experiments have relevant, updated and documented theoretical and practical education and training; see, for example, the Regulation on the Use of Animals in Research at §§ 24, 25. However, instead of presuming this to be the case, this is the sort of criteria that Mattilsynet should *require*. In particular, we query whether Mattilsynet should require that members of either the Fisheries Directorate or Kystvakten, who have been trained in safe whale disentanglement methods, be included in the research team for this project.<sup>20</sup>

Furthermore, AWI is very concerned by the suggestion that the researchers may stun the whales in an emergency. Little is known about stunning/sedation in cetaceans; while guidance exists regarding sedation of small captive cetaceans,<sup>21</sup> it is rarely attempted and inherently risky

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<sup>18</sup> Minke whales are considered to be very fast swimmers, with a normal movement pattern which is a series of 3-5 fairly fast blows before making a long-term dive that can last for about 5 minutes. On average, the minke whale is up and blowing approx. 50 times in one hour. Havforskningsinstituttet .(2020, June16). *Tema: Vågehval*. <https://www.hi.no/hi/temasider/arter/vagehval> ; Studies of free-swimming tagged North Atlantic minke whale indicate that the whales travel at speeds ranging from 53km/day (2.2km/hr) to 79km/day (3.3km/hr). Heide-Jørgensen, Mads Peter & Nordøy, Erling & Øien, Nils & Folkow, Lars & Kleivane, Lars & Blix, Arnoldus & Jensen, Mikkel & Laidre, K.. (2001), Satellite tracking of minke whales (*Balaenoptera acutorostrata*) off the north Norwegian coast, *Journal of Cetacean Research and Management*.

<sup>19</sup> *Id.*

<sup>20</sup> IWC.(2017, October 5). *IWC entanglement response training for Norway*. <https://iwc.int/iwc-entanglement-response-training-for-norway>.

<sup>21</sup> Higgins, J. & Hendrickson, D. (2013), Surgical procedures in pinniped and cetacean species, *Journal of Zoo and Wildlife Medicine* 44(4): 817-836. <http://www.jstor.org/stable/24550078>.

because cetaceans are highly adapted for hypoxia.<sup>22</sup> Even less is known about sedating wild cetaceans, and the few data that are available demonstrate that attempted sedation may not even achieve the desired result, which we presume would be to calm the whale if it appears to be panicking. For example, Barco *et al.* (2016) noted that the use of barbiturate sedatives on cetaceans can “result in animal(s) exhibiting excitatory reactions, including violent spinning and fluking, which can place responders and onlookers at risk of physical injury...”.<sup>23</sup> Further, in their review of the sedation and tagging of an entangled North Atlantic right whale, Moore *et al.* (2012) concluded that, “the intervention with sedation, and the required tagging needed to evaluate sedation, disentanglement and the outcome of chronic severe entanglement, can result in a number of potential complications during the application of these techniques.”<sup>24</sup> We further question whether the sedation would affect the results of the hearing test.

This project also runs counter to the principals and standards of the US Marine Mammal Protection Act<sup>25</sup> and US Animal Welfare Act.<sup>26</sup> The US National Marine Fisheries Service’s general issuance criteria for research permits require that the proposed activity be humane and not present any unnecessary risks to the health and welfare of marine mammals;<sup>27</sup> this cannot be said to be true for this project. Since the US government is funding this project, the intent, purpose and spirit of these US laws should be taken into account.

#### Lack of Adequate Notice to Norwegian Public

Additionally, AWI takes issue with the lack of an opportunity for public comment with respect to this project. As a standard practice, the Fisheries Directorate, which we contend should have had a permitting role in this project, normally provides for a public comment period of between thirty to ninety days for its proposed actions. However, in the case of an animal research permit issued

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<sup>22</sup> Tian, R., Wang, Z., Niu, X., Zhou, K., Xu, S., & Yang, G. (2016), Evolutionary genetics of hypoxia tolerance in cetaceans during diving, *Genome Biology and Evolution* 8(3): 827–839. <https://doi.org/10.1093/gbe/evw037>.

<sup>23</sup> Barco, S., Walton, W., Harms, C., George, R., D’Eri, L and Swingle, W. (2016) Collaborative Development of Recommendations for Euthanasia of Stranded Cetaceans. NOAA Technical Memorandum NMFS-OPR-56. We also refer you to a report of an International Whaling Commission (IWC) on optimizing welfare for stranded cetaceans, presented by Norway and the UK in 2013, which noted the potential eco-toxicity of certain sedatives and the need for additional research on the environmental persistence and potential effects of some of these methods. IWC (2014) Report of the IWC Workshop on Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans. [https://iwc.int/private/downloads/v6JneUId0VDFOfOlqIXVg/IWC%20Euthanasia%20Workshop%20Report\\_FIN\\_AL\\_31-03-14.pdf](https://iwc.int/private/downloads/v6JneUId0VDFOfOlqIXVg/IWC%20Euthanasia%20Workshop%20Report_FIN_AL_31-03-14.pdf)

<sup>24</sup> Moore, M., Andrews, R., Austin, T., Bailey, J., Costidis, A., George, C., Jackson, K., Pitchford, T., Landry, S., Ligon, A., McLellan, W., Morin, D., Smith, J., Rotstein, D., Rowles, T., Slay, C. and Walsh, M. (2013), Rope trauma, sedation, disentanglement, and monitoring-tag associated lesions in a terminally entangled North Atlantic right whale (*Eubalaena glacialis*). *Mar Mam Sci*, 29: E98-E113. <https://doi.org/10.1111/j.1748-7692.2012.00591.x>

<sup>25</sup> 16 U.S.C. §§ 1361, 1374(c).

<sup>26</sup> 7 U.S.C. § 2131 et seq; *see also* 9 CFR § 1.1.

<sup>27</sup> 50 C.F.R. § 216.34(1); *see also* id. at (6), stating that “if a live animal will be held captive... the Applicant’s qualifications, facilities, and resources” must be “adequate for the proper care and maintenance of the marine mammal.” In addition to the requirements under 50 C.F.R. §§ 216.33–216.38 of the regulations, permits for scientific research are governed by specific issuance criteria listed under § 216.41(b).

by Mattilsynet, publication of a permit comes *after* approval per § 11, which states that Mattilsynet “shall publish the experimental summary in accordance with the Animal Research Regulations § 8 as soon as an experiment has been approved. If the summary is changed due to changes in the experiment, Mattilsynet shall publish an updated summary.”

Conclusion

At this point in time, it is unrealistic for even the world’s best research scientists to expect to be able to handle entrapped minke whales in a way that is safe for both the humans and the animals involved. We deeply regret that the US government has committed itself to funding this effort, particularly when there are other types of studies, which can be conducted safely, that measure the response of these animals to various sounds. In consideration of the information and arguments we have presented in this letter, AWI urges you to not move forward with this inherently dangerous research.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan Mitchell". The signature is fluid and cursive, with a large initial "S" and "M".

Marine Program Director