UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

FINDING OF NO SIGNIFICANT IMPACT FOR ISSUANCE OF A SCIENTIFIC RESEARCH PERMIT TO MYSTIC AQUARIUM FOR THE IMPORTATION AND TAKE OF CAPTIVE BELUGA WHALES (*DELPHINAPTERUS LEUCAS*)

I. INTRODUCTION

The National Marine Fisheries Service (NMFS) received an application (File No. 22629) from Mystic Aquarium requesting a permit to import five captive-born beluga whales (*Delphinapterus leucas*) from Marineland of Canada, Inc. (hereafter Marineland), located in Niagara Falls, Ontario, Canada, to Mystic Aquarium located in Mystic, Connecticut, for the purpose of conducting scientific research. NMFS is required to review applications and, if appropriate, may issue permits pursuant to the Marine Mammal Protection Act of 1972, as amended (MMPA)[1]. In addition, the National Environmental Policy Act (NEPA), the Council on Environmental Quality Regulations (CEQ)[2] and NOAA policy and procedures[3] require all proposals for major federal actions be reviewed with respect to environmental consequences on the human environment. The purpose of this document is to present the evaluation that issuance of a scientific research permit to Mystic Aquarium will not significantly impact the quality of the human environment.

This Finding of No Significant Impact (FONSI) and the Final Environmental Assessment (EA) titled "Issuance of Marine Mammal Protection Act Scientific Research Permit to Mystic Aquarium for the Importation and Take of Captive Beluga Whales (*Delphinapterus leucas*)" were prepared in accordance with CEQ Regulations and NOAA policy and procedures.

II. BACKGROUND

As described in the permit application and EA, Mystic Aquarium requested to import five captive-born beluga whales[4] from Marineland to Mystic Aquarium for the purposes of conducting scientific research. The objectives of the proposed research, as described in the permit application, are to contribute knowledge and inform management and recovery of beluga whale populations in the wild including the endangered Cook Inlet beluga whale distinct population segment (DPS) and the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga

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[1]16 U.S.C. 1361 *et seq.*

[2]40 CFR Parts 1500 -1508.

[3]NOAA Administrative Order (NAO) 216-6A "*Compliance with the National Environmental Policy Act, Executive Orders 12114, Environmental Effects Abroad of Major Federal Actions; l1988 and 13690, Floodplain Management; and 11990, Protection of Wetlands*" issued April 22, 2016 and the Companion Manual for NAO 216-6A "*Policy and Procedures for Implementing the National Environmental Policy Act and Related Authorities*" issued January 13, 2017.

[4]The five whales were captive-born and each is a descendant of at least one parent considered to be from the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock.

whale stock. To achieve these objectives, the following studies, described in Chapter 2 of the EA, are proposed:

- Study 1: Neuroimmunological response to environmental and anthropogenic stressors;
- Study 2: Development of novel non-invasive techniques to assess health in free-ranging, stranded and endangered beluga whales;
- Study 3: Hearing and physiological response to anthropogenic sound;
- Study 4: Photogrammetry body condition studies;
- Study 5: Diving physiology;
- Study 6: Microbiome;
- Study 7: Behavioral and reproduction studies; and
- Study 8: Testing of prototype telemetry and imaging devices before deployment on wild beluga whales.

While maintaining the five beluga whales for scientific research purposes, Mystic Aquarium proposed to display the beluga whales incidental to the research. Mystic Aquarium stated in the permit application (Study 7) that while beluga whale reproduction is not the purpose of the proposed research, breeding is a natural behavior that would be allowed to occur. The permit application included a statement that artificial insemination would not be used and contraception would not be used unless medically necessary for the health and well-being of an individual beluga whale. In the event of a pregnancy, Mystic proposed to opportunistically sample the pregnant females and up to two calves for the research. Finally, Mystic Aquarium's permit application stated that if deemed in the best interest of an individual beluga whale or the captive U.S. beluga whale population for social, health, or welfare reasons, any of the five imported whales may be moved to Georgia Aquarium, and the research would continue there[5].

As indicated in the "Introduction," when NMFS receives an application for a permit, NMFS is required to review the application and, if appropriate, may issue a scientific research permit pursuant to Section 104 of the MMPA. In summary, NMFS evaluates permit applications to determine if certain statutory and regulatory criteria are satisfied, which includes whether research activities are humane and for bona fide research purposes. For this permit request, NMFS considered all relevant factors within its purview and authorities, including several key issues such as how to address natural breeding, public display incidental to research, transportation to other facilities and the disposition of the animals after research. Details about NMFS' authorities and issuance criterion for this permit request is explained in Chapter 1 and 2 of the EA, and the discussion of these criterion are included in the Recommendation Memorandum for the permit application.

NMFS' consideration whether to issue a permit to Mystic Aquarium allowing the import of and scientific research on the five beluga whales, consistent with provisions under the MMPA and implementing regulations at 50 Code of Federal Regulations (CFR) Part 216, is a major federal action. Thus, NMFS also reviews information in the permit application to determine what level of analysis under NEPA is required to support the decision whether to issue any given permit or

[5]Mystic Aquarium provided additional information on circumstances for moving whales to Georgia Aquarium, which are described in the Recommendation Memorandum for the permit application.

permit amendment. In addition, NMFS relies on the public process required by the MMPA to develop and evaluate relevant environmental information.

The issuance of permits for research on marine mammals, including threatened and endangered species generally falls within NOAAs categories of actions that "…do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations" (40 CFR 1508.4). There are two categories associated with NMFS' issuance of research permits involving directed take of protected species. One is "Issuance of permits or permit modifications under Section 10(a)(1)(A) of the Endangered Species Act (ESA) for take, import or export of endangered species for scientific purposes or to enhance the propagation or survival of the affected species, or in accordance with the requirements of an ESA Section 4(d) regulation for threatened species," which is not applicable to the subject permit. The other is "Issuance of permits or permit amendments under Section 104 of the MMPA for take or import of marine mammals for scientific research, enhancement, commercial or educational photography or public display purposes; and issuance of Letters of Confirmation under the General Authorization for scientific research involving only Level B harassment." NOAAs full list of approved categorical exclusions (CEs) is in Appendix E of the Companion Manual for NAO 216-6A[6]. During the review of Mystic Aquarium's permit application, NMFS initially determined a CE was appropriate under NEPA and indicated this in the *Federal Register* notice for Mystic Aquarium's permit application (84 FR 52072, October 1, 2019). However, at the close of the public comment period and upon further environmental review for this action, NMFS determined preparation of an EA was appropriate in this case to allow for additional evaluation of the effects of the proposed action to inform the decision whether to issue a permit to Mystic Aquarium. Refer to Chapter 1, Section 1.4 of the EA regarding NMFS' environmental review process and public participation in the review of this permit application.

III. PROPOSED ACTION AND ALTERNATIVE SUMMARY

A. Proposed Action

NMFS is proposing to issue a scientific research permit to Mystic Aquarium pursuant to Section 104 of the MMPA and 50 CFR Part 216. This permit would be valid for five years from the date the permit is issued and authorizes the import of and scientific research on five captive-born beluga whales subject to certain prohibitions, conditions, mitigation, monitoring and reporting requirements. For reasons discussed in the Recommendation Memorandum, the permit would authorize importation and all research activities requested by Mystic Aquarium with the exception of Study 7 including breeding of any of the five imported whales and research on pregnant and lactating females and up to two progeny.

The purpose of NMFS' action is to evaluate Mystic Aquarium's permit application pursuant to Section 104 of the MMPA and 50 CFR Part 216 and issue a scientific research permit, if appropriate. The need for NMFS' action is to consider the impacts of Mystic Aquarium's

[6] NOAA's Companion Manual is available at https://www.nepa.noaa.gov/docs/NOAA-NAO-216-6A-Companion-Manual-01132017.pdf

activities on the marine mammals that are the subject of the permit application to ensure statutory and regulatory requirements are satisfied. Since NMFS' proposed action would authorize the import and directed take of the five beluga whales, Mystic Aquarium's proposed activities are the subject of NMFS's proposed action. Therefore, NMFS' proposed action is a direct outcome of Mystic Aquarium's request for a permit.

B. Alternatives

The EA addresses the potential environmental impacts of three alternatives to meet NMFS' purpose and need:

- Alternative 1 (No Action Alternative): Denial of the scientific research permit under the MMPA constitutes the No Action Alternative, which is consistent with NMFS' statutory obligation under the MMPA to grant or deny permit requests and to prescribe mitigation, monitoring, and reporting with any permits. Under the No Action Alternative, NMFS would not issue the scientific research permit, and Mystic Aquarium would not conduct their planned import and research as described in the permit application. The No Action Alternative served as a baseline in the EA against which the impacts of the action alternatives were compared and contrasted.

- Alternative 2 (Preferred Alternative): Under Alternative 2, NMFS would issue the permit to Mystic Aquarium authorizing the import and scientific research on the five beluga whales as described in the permit application, subject to a prohibition on breeding and additional standard conditions for public display incidental to scientific research; disposition; and mitigation. NMFS carefully reviewed and considered public comments and the best available information in making a decision to ensure that this permit meets the requirements of the MMPA and the agency's implementing regulations. The rationale for not authorizing Study 7 including breeding is provided in the Recommendation Memorandum for the permit application. The permit is conditioned to require Mystic Aquarium to submit a plan to provide safe and effective contraception or other means to prevent breeding of any of the five subject beluga whales, for approval by the Office Director prior to importation. The permit would still authorize behavioral observations, biological sampling, and ultrasound for reproductive monitoring; these activities would be authorized as part of normal husbandry to allow Mystic to monitor the reproductive status of the animals whether they are managed using contraception or physical separation. For example, since beluga whales breed seasonally, monitoring reproductive status may be necessary to strategically administer contraception or physically separate the animals at the onset of the reproductive season, as well as to ensure the methods are effective. Consistent with other research permits authorizing captive maintenance, the permit is conditioned to require approval by the Office Director for any subsequent disposition of the imported whales, which includes transport of any of the imported whales to the Georgia Aquarium and disposition of the whales at the termination of research. Consistent with NMFS' regulations, public display is authorized incidental to the research. This incidental public display must not interfere with the research and must occur as part of an educational program describing the status of the species and its endangered and depleted stocks. The animals may not be used in public interactive programs or be trained for performance. Public demonstrations in which the whales perform trained husbandry, medical, research-related, and natural behaviors is authorized.

- Alternative 3: Under Alternative 3, NMFS would issue the permit to Mystic Aquarium authorizing the import and scientific research on beluga whales, with Study 7 including breeding, as described in the submitted permit application and EA.

IV. ANALYSIS SUMMARY

The environmental consequences to the marine environment and protected resources are important to the evaluation leading to the decision to issue any given scientific research permit. The information in the following subsections discusses factors considered in the analysis in the EA along with the evaluation and reasons why the impacts of NMFS' proposed action will not significantly impact the quality of the human environment. Information in the EA specific to descriptions in the summary below is incorporated by reference per 40 CFR 1502.21.

A. Environmental Consequences

The action area for the applicant's proposed import and scientific research activities is the built environment beginning with the facility in Canada (Marineland) where the five beluga whales were born and are being held pending import[7] and ending with the facilities in the United States (i.e., Mystic Aquarium and potentially, Georgia Aquarium). The anticipated impacts are predominantly to the five beluga whales, through effects of transport and participation in the research activities. The EA presents the baseline environmental conditions and a qualitative assessment of the potential direct impacts associated with the import of and scientific research activities on the five beluga whales. The EA also addresses indirect impacts to wild beluga whale species and stocks.

B. Significance Evaluation

CEQ Regulations state that the significance of an action should be analyzed in terms of both "context" and "intensity" and lists ten criteria for intensity. The Companion Manual for NOAA Administrative Order 216-6A requires consideration of CEQ's context and intensity criteria (40 CFR 1508.27(a) and 40 CFR 1508.27(b)) along with six additional factors for determining whether the impacts of a proposed action are significant. Each criterion is discussed below with respect to NMFS's proposed action and is considered individually as well as in combination with the others.

1. Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

NMFS' issuance of a scientific research permit has the potential to result in minor or moderate impacts to the individual subject beluga whales. In general, the research activities may cause stress due to restraint during transport or out of water events and injury such as wounds from sampling. In addition, the animals may experience minor pain or discomfort. Repetition of the trials and procedures could worsen the impacts. However, the beluga whales are acclimated to humans, interact with the attending personnel and veterinarians on a daily basis, and their participation in the research activities would be voluntary (i.e., they would be able to leave the research sessions at any time). The beluga whales would be monitored daily and any abnormal

[7]Once whales are in transit for the proposed import, the built environment includes airports and public roadways between the facilities in Canada and the United States.

behavior or health concerns would be evaluated and treated, as necessary, without delay. Research would be ceased, as needed, for the animals' well-being. Overall, short-term minor or moderate[8] potential adverse impacts are anticipated from transport and research sampling procedures.

While the proposed import and research has potential for direct adverse impacts to the five individual beluga whales, the research would not directly affect the reproduction, numbers, or distribution of any wild population of beluga whales because these whales were captive-born and cannot be released to the wild under the proposed permit. With the exclusion of Study 7 including breeding, the types of studies proposed would contribute to fulfilling research needs and objectives in the Recovery Plan for the Cook Inlet Beluga Whale (NMFS 2016), and provide information that could be used to inform conservation of the MMPA-depleted Sakhalin Bay-Nikolaya Bay-Amur River stock of beluga whales. However, use of this information in any future research on or management of wild beluga whales under NMFS' jurisdiction would involve separate federal actions.

2. Can the proposed action reasonably be expected to significantly affect public health or safety?

The issuance of the permit is not expected to significantly affect public health or safety. The types of research activities being conducted would be done in a controlled captive setting using specific research activities directed at specific beluga whales. The action does not involve the public or expose the public directly (e.g., to chemicals, zoonotic diseases) or indirectly (e.g., by affecting food sources) to hazardous or toxic sources in a way that would be linked to the quality of the environment and well-being of humans.

3. Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

The issuance of the permit is not expected to result in significant impacts to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas because the proposed research activities take place in a controlled captive setting, where these resources do not exist.

4. Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

The effects of permit issuance will not likely result in highly controversial environmental effects because the types of scientific research proposed for the beluga whales are well understood and are considered standard for obtaining scientific information on marine mammals. There is not a substantial dispute about the extent, nature, or effects of the proposed scientific research. Over a

[8]Minor impacts are those that result in very low risk of injury from which animals can recover in the course of the day (minutes to hours). Moderate impacts are those that may result in minor injury or superficial harm to the animal with animals recovering and healing within days to weeks of the event.

number of years, NMFS has assessed and permitted scientific research on marine mammals, including beluga whales, and developed standard mitigation and monitoring measures. The scope of the authorized research is no different than past permits for the same or similar research activities on the same or similar species. In addition, the process for issuing permits and the conduct of marine mammal research is generally viewed by the public, scientists and others as a beneficial action that will contribute to species' management, conservation and recovery.

NMFS made the permit application available for public comment for 60 days and held a public hearing on the application. NMFS received over 9,500 public comments on the permit application arguing both for and against the proposed action. Substantive and relevant comments were fully considered in preparing the permit decision and the EA. Captivity of cetaceans, in general, is controversial. However, the MMPA allows captive maintenance of marine mammals for scientific research provided that certain statutory and regulatory criteria are met. The MMPA prohibits import of marine mammals from depleted stocks for public display but allows import of such animals for scientific research purposes. Because the whales to be imported are progeny of beluga whales that likely originated from the depleted Sakhalin Bay-Nikolaya Bay-Amur River stock, public commenters raised concern that the intended purpose of the permit was public display and not research. The proposed action takes into account all public comments received, and NMFS has determined the applicant has demonstrated they have met the statutory and regulatory issuance criteria for conducting scientific research on depleted marine mammals with the exception of Study 7 including breeding.

5. Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The issuance of the permit will not result in environmental effects that are uncertain, unique, or unknown because scientific research permits have been issued for similar research activities using methods and procedures that employ generally accepted research methods and mitigation that have been tested, verified, and approved. The type of research proposed for the subject beluga whales is well understood and documented through reports and in the scientific literature. Additionally, the permit is conditioned to require measures to mitigate adverse effects of the import and research activities.

6. Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

The issuance of the permit may inform the environmental review for future similar projects, and may establish a precedent or represent a decision in principle about future considerations; however, there would not be significant effects from such precedent. The MMPA prohibits import of marine mammals from depleted stocks for public display but allows import of such animals for scientific research purposes. NMFS considers one of the beluga whales to be a member of the Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock because both parents are likely from that stock. Four of the whales have mixed-stock parentage (i.e., one parent likely from the depleted stock and the other from a stock that has not been designated as depleted). NMFS has not formally established the MMPA status of the mixed-stock progeny. For the purposes of this permit application, we are treating all five whales as depleted.

However, NMFS' actions under MMPA Section 104 are considered individually and based on the best available scientific information, which is continuously evolving. Therefore, issuance of a permit to a specific organization or individual for a given activity does not guarantee or imply that NMFS will authorize others to conduct similar activities. Subsequent requests for permits are evaluated upon their own merits relative to the criteria established in the MMPA and its implementing regulations (50 CFR Part 216) on a case-by-case basis, and NMFS will carefully scrutinize permit applications to import whales from or descended from any depleted stock. For these reasons, the issuance of a scientific research permit to Mystic Aquarium would not be precedent setting.

7. Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

The issuance of the permit will not have significant cumulative impacts on the individual subject beluga whales or those in the wild. The subject beluga whales would be trained to participate in husbandry and research behaviors and restraint would not be needed to accomplish the majority of the proposed research. Research samples would be primarily collected in conjunction with routine health sampling under behavioral control with voluntary participation by the whales. Veterinarians would be kept apprised of the status of each whale daily and have the authority to cease sampling for research at any time if this is in the best interest of a beluga whale's health and well-being. Whales would not be required to participate and there would be no negative consequences if they do not participate. Due to this, cumulative significant impacts on the five subject whales are not anticipated.

Because research would be conducted only in the controlled aquarium setting, there is no risk of direct negative consequence to animals in the wild. Conspecifics or other species (e.g., seals) in either aquarium are not anticipated to be negatively impacted when the subject whales participate in research activities.

The subject whales were not captured from a wild population and no takes from the wild would be authorized under this permit. NMFS is satisfied that the applicant has demonstrated, as required by NMFS' regulations, that the proposed activity (import and research, except breeding) by itself or in combination with other activities will not result in additional captures of or an increase in demand for beluga whales and will not likely have a significant adverse impact on the species or stock in the wild as a result of the preferred alternative.

8. Can the proposed action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources?

NMFS' proposed action is not expected to affect historic or cultural resources because the proposed action is limited to the issuance of the permit for research on captive beluga whales. Issuance of the permit is not expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic places or cause loss or destruction of significant scientific, cultural or historical resources because the proposed research would take place in a controlled captive setting where these resources do not exist.

9. Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the ESA of 1973?

Issuance of the permit will not impact endangered or threatened species or critical habitat, significantly or otherwise, as the research will be conducted in a controlled captive setting on marine mammals that are not listed under the ESA.

10. Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

The issuance of the permit would not violate any federal, state or local laws for environmental protection. NMFS' evaluation of and compliance with environmental laws and regulations is based on the nature and location of the applicant's proposed activities and NMFS' proposed action. The Permit Holder will be required to obtain any additional permits necessary to carry out the proposed importation and research activities.

11. Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined in the Marine Mammal Protection Act?

The proposed importation of and research on the subject beluga whales are not likely to contribute to collectively significant adverse impacts on the target or any non-target marine mammal stocks. The effects of the takes to the individual marine mammals would be transitory and recoverable. The whales would be trained to voluntarily participate in the research activities, and, to the maximum extent possible, concurrent with the routine care and husbandry of the animals. In addition, the beluga whales would be monitored daily and under the care of a veterinarian. Therefore, cumulative effects of the action are not expected for the subject whales.

The proposed action is not reasonably expected to adversely affect stocks of marine mammals in the wild. The subject whales were not captured from a wild population and no takes from the wild would be authorized under this permit. NMFS is satisfied that the applicant has demonstrated, as required by NMFS' regulations, that the proposed activity (import and research, except breeding) by itself or in combination with other activities will not result in additional captures of or an increase in demand for beluga whales and will not likely have a significant adverse impact on the species or stock in the wild as a result of the preferred alternative.

12. Can the proposed action reasonably be expected to adversely affect managed fish species?

The issuance of the permit will not affect managed fish species. The research actions will occur in a controlled captive setting and will not affect any fish species, water chemistry, live bottom habitat, or their prey species.

13. Can the proposed action reasonably be expected to adversely affect essential fish habitat (EFH) as defined under the Magnuson-Stevens Fishery Conservation and Management Act?

The issuance of the permit will not affect fish habitat. The research activities will be conducted in a controlled captive setting and do not involve any actions in the wild including alteration of substrate, or other interactions with physical features of ocean and coastal habitat. Likewise, authorizing the research activities on captive marine mammals will not directly or indirectly reduce the quantity or quality of EFH by affecting the physical, biological or chemical parameters of EFH.

14. Can the proposed action reasonably be expected to adversely affect vulnerable marine or coastal ecosystems, including but not limited to, deep coral ecosystems?

The proposed research activities are directed at individual beluga whales in a controlled captive setting and these activities will not affect marine, coastal, or deep coral ecosystems.

15. Can the proposed action reasonably be expected to adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.)?

The proposed activities include research on individual beluga whales in a controlled captive setting and will not interfere with benthic productivity, animals' susceptibility to predation, alter dietary preferences or foraging behavior, or change distribution or abundance of predators or prey. The research activities will not affect nutrient flux, primary productivity, or other factors related to ecosystem function.

16. Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

The research activities are directed at individual beluga whales in a controlled captive setting. The activities do not involve methods known to result in the introduction or spread of non-indigenous species, such as ballast water exchange. Therefore, issuance of the permit will not result in the introduction or spread of a nonindigenous species.

V. CONDITIONS – MITIGATION, MONITORING AND REPORTING

Issuance of this scientific research permit is conditioned upon implementation of mitigation and monitoring designed to reduce impacts to the beluga whales to the level of least practicable impact and reporting requirements. These conditions summarized below are described in in the permit and in Section 2.4.1 of the EA.

The permit includes a standard condition that the beluga whales must be transported and maintained in compliance with Animal Welfare Act regulations. Mitigation measures identified in the application, and required by the permit, include using voluntary, trained behaviors and husbandry procedures to collect the required samples for the research projects with minimal impact to the subject animals. All research activities must be conducted in a humane manner (i.e., that which involves the least possible degree of pain and suffering), and, to the maximum

extent possible, concurrent with the routine care and husbandry of the animals. The animals undergoing research must be closely monitored to determine if research activities are having an adverse effect on the individuals. The attending veterinarian must be available for emergencies, illnesses, and for treating any health problems associated with the research procedures.

The permit contains conditions requiring Mystic Aquarium to 1) prevent breeding of any of the five imported beluga whales; and 2) receive permission before transporting, transferring, exporting or otherwise disposing of any of the beluga whales. Consistent with NMFS' regulations, public display is authorized incidental to the research, but the whales cannot be used in public interactive programs or be trained for performance. Public demonstrations in which the whales perform trained husbandry, medical, research-related, and natural behaviors is authorized.

VI. DETERMINATION

Based on the information presented herein along with the analysis in the EA and the Mystic Aquarium permit application, it is hereby determined the issuance of the scientific research permit to Mystic Aquarium will not significantly impact the quality of the human environment. In addition, we addressed all beneficial and adverse impacts of the action to reach the conclusion of no significant impacts associated with NMFS's issuance of this scientific research permit. Accordingly, the preparation of an Environmental Impact Statement for this action is not necessary.

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Donna S. Wieting
Director, Office of Protected Resources

August 27, 2020
Date

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

PROPOSED ACTION:	Issuance of Marine Mammal Protection Act Scientific Research Permit to Mystic Aquarium for the Importation and Take of Captive Beluga Whales (*Delphinapterus leucas*)
TYPE OF STATEMENT:	Environmental Assessment (EA)
LEAD AGENCY:	U.S. Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service
RESPONSIBLE OFFICIAL:	Donna S. Wieting Director, Office of Protected Resources National Marine Fisheries Service
FOR FURTHER INFORMATION:	Office of Protected Resources National Marine Fisheries Service (NMFS) 1315 East West Highway Silver Spring, MD 20910 301-427-8401
LOCATION:	Import from Marineland of Canada (Niagara Falls, Ontario, Canada) to Mystic Aquarium (Mystic, Connecticut) with potential subsequent transport to Georgia Aquarium (Atlanta, Georgia).
ABSTRACT:	This EA evaluates the potential effects of NMFS' proposed action and alternatives for consideration of whether to issue a permit to Mystic Aquarium to import five captive born beluga whales from Marineland of Canada Inc., to Mystic Aquarium for conducting scientific research.
Date:	August 2020

Table of Contents

CHAPTER 1 INTRODUCTION AND PURPOSE AND NEED 5

1.1 INTRODUCTION 5

1.2 OVERVIEW OF RELEVANT AUTHORITIES UNDER THE MARINE MAMMAL PROTECTION ACT AND IMPLEMENTING REGULATIONS 6

1.3 PROPOSED ACTION AND PURPOSE AND NEED 7

1.4 ENVIRONMENTAL REVIEW PROCESS 7

1.4.1 Overview and Background 7

1.4.2 Consultations and Compliance with Other Environmental Laws 8

1.4.2.1 Consultation with the U.S. Marine Mammal Commission 8

1.4.2.2 Consultation with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service and Animal Welfare Act Requirements 8

1.4.2.3 U.S. Fish and Wildlife Service Requirements for Importation 9

1.4.3 Public Involvement 9

1.5 DOCUMENT SCOPE 10

CHAPTER 2 ALTERNATIVES 13

2.1 INTRODUCTION 13

2.1.1 Considerations for Selecting Alternatives 13

2.2 DESCRIPTION OF PROPOSED ACTIVITIES 14

2.2.1 Importation and Research Activities 15

2.2.2 Incidental Public Display and Disposition after Research 19

2.3 ALTERNATIVE 1 (NO ACTION) 19

2.4 ALTERNATIVE 2 (PREFERRED ALTERNATIVE) – ISSUANCE OF SCIENTIFIC RESEARCH PERMIT WITH BREEDING PROHIBITION AND STANDARD CONDITIONS 20

2.4.1 Proposed Mitigation Measures (Alternative 2, Preferred) 20

2.4.2 Monitoring and Reporting (Alternative 2, Preferred) 23

2.5 ALTERNATIVE 3 – ISSUANCE OF SCIENTIFIC RESEARCH PERMIT AS REQUESTED WITH STANDARD CONDITIONS 24

2.5.1 Proposed Mitigation Measures (Alternative 3) 24

2.5.2 Monitoring and Reporting (Alternative 3) 24

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 25

3.1 INTRODUCTION AND APPROACH TO THE ANALYSIS 25

3.1.1 Approach to the Analysis 25

3.2.1 Affected Species/Stocks 26

3.2.1.1 Whales Proposed for Import and Research 26

3.2.1.2 Wild Populations 27

3.2.2 Environmental Consequences of Alternative 1 (No Action Alternative) – Permit Denial 31

3.2.3 *Environmental Consequences of Alternative 2* 31
3.2.3.1 Direct Impacts of Alternative 2 33
3.2.3.2 Indirect Impacts of Alternative 2 38
3.2.4 Environmental Consequences of Alternative 3 40
3.2.4.1 Direct Impacts (Alternative 3) 40
3.2.4.2 Indirect Impacts (Alternative 3) 41
3.3 **CUMULATIVE EFFECTS** 42
3.3.1 Scientific Research Activities 42
3.3.2 Wild Populations 43
CHAPTER 4 LIST OF PREPARERS AND AGENCIES CONSULTED 44
CHAPTER 5 LITERATURE CITED 45

List of Acronyms and Abbreviations

AEP	Auditory evoked potentials
APHIS	Animal and Plant Health Inspection Service
AWA	Animal Welfare Act
CE	Categorical Exclusion
CEQ	Council on Environmental Quality Regulations
CFR	Code of Federal Regulations
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
dB	Decibel
DPS	Distinct Population Segment
EA	Environmental Assessment
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FR	Federal Register
IACUC	Institutional Animal Care and Use Committee
IATA	International Air Transport Association
LAR	Live Animals Regulations
MMPA	Marine Mammal Protection Act
MMC	Marine Mammal Commission
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OPR	Office of Protected Resources
OMB	Office of Management and Budget
PK	Peak sound level
RMS	Root Mean Square pressure
SEL_{cum}	Cumulative Sound Exposure Level
TTS	Temporary Threshold Shift
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

CHAPTER 1 INTRODUCTION AND PURPOSE AND NEED

1.1 INTRODUCTION

The National Marine Fisheries Service (NMFS) received permit application File No. 22629 (hereafter "permit application") submitted by Mystic Aquarium requesting authorization to import five captive-born beluga whales (*Delphinapterus leucas*) from Marineland of Canada, Inc. (hereafter "Marineland"), located in Niagara Falls, Ontario, Canada, to Mystic Aquarium located in Mystic, Connecticut, for the purpose of conducting scientific research, with a possible later transport from Mystic Aquarium to Georgia Aquarium in Atlanta, Georgia[1]. Mystic Aquarium is proposing this research to contribute knowledge to inform management and recovery efforts of wild beluga whale populations, including the endangered Cook Inlet beluga whale distinct population segment (DPS) and the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock.

NMFS is required to review applications and, if appropriate, may issue scientific research permits pursuant to Section 104 of the Marine Mammal Protection Act of 1972[2], as amended (MMPA). NMFS evaluates permit applications to determine if statutory and regulatory criteria are satisfied, including whether research activities are for bona fide research[3] purposes and research methods are humane[4]. A summary of NMFS' authorities and issuance criteria is in Section 1.2.

In addition to making determinations under the MMPA for Mystic Aquarium's permit application, the National Environmental Policy Act (NEPA)[5], the Council on Environmental Quality Regulations (CEQ)[6] and National Oceanic and Atmospheric Administration (NOAA) policy and procedures[7] require all proposals for major federal actions be reviewed with respect to

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[1]Mystic proposed that the whales could be later transported from Mystic Aquarium to Georgia Aquarium (Atlanta, Georgia) if deemed in the best interest of an individual beluga whale or the captive U.S. beluga whale population for social, health, or welfare reasons. Mystic Aquarium further clarified Mystic Aquarium further clarified circumstances under which they might deem it necessary to move the whales to Georgia Aquarium in their responses to public comments (see Recommendation Memorandum for the permit application).

[2]16 U.S.C. 1374 (Section 104); 16 U.S.C. 1361, *et seq.* (MMPA).

[3]"Bona fide research" means research on marine mammals, the results of which: 1) are likely to be accepted for publication in a refereed scientific journal; 2) are likely to contribute to the basic knowledge of the species biology or ecology; or 3) are likely to identify, evaluate, or resolve conservation problems (MMPA Section 3[22]; 16 U.S.C. 1362).

[4]Humane, in the context of the taking of a marine mammal, means "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved" (as defined in MMPA Section 3[4]).

[5]42 U.S.C. 4321, *et seq*.

[6]40 CFR Parts 1500 -1508.

[7]National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6A "Compliance with the National Environmental Policy Act and Executive Order 12114 Environmental Effects Abroad of Major Federal

environmental consequences on the human environment. NMFS' consideration of whether to issue scientific research permits allowing import and take of marine mammals is considered a major federal action. While scientific research permits are, in general, categorically excluded from the requirement to prepare an Environmental Assessment (EA) or Environmental Impact Statement, NMFS determined preparing an EA was appropriate in this case to allow us to more fully evaluate the potential effects of the proposed action. This EA addresses the potential environmental impacts of three alternatives to meet the purpose and need of NMFS' proposed action.

1.2 OVERVIEW OF RELEVANT AUTHORITIES UNDER THE MARINE MAMMAL PROTECTION ACT AND IMPLEMENTING REGULATIONS

When the MMPA was enacted in 1972, Congress made several findings concerning the protection and preservation of marine mammals, including that "certain species and population stocks of marine mammals are or may be in danger of extinction or depletion as a result of man's activities" (MMPA Section 2[1][8]) [and] "such species and population stocks should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part […]" (MMPA Section 2[2]) [and that] "marine mammals…[are] resources of great international significance… [that] should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and the primary objective of their management should be to maintain the health and stability of the marine ecosystem […]." These and other findings listed in Section 2 of the MMPA speak to the need to consider both species and ecosystem level impacts.

To serve these goals, the MMPA prohibits the import, export, and take of marine mammals in the United States, including territorial seas, subject to certain enumerated exceptions. Take[9] means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. Section 104 of the MMPA allows NMFS to issue permits for the import and directed take associated with bona fide scientific research on marine mammals, including those designated as depleted[10], provided certain statutory and regulatory determinations are made. This includes specifying the number and species of animals that can be imported or taken and designating the manner (method, dates, locations, etc.) in which the takes may occur. In addition, the import and taking must be conducted in a humane manner and must further a bona fide scientific purpose. An applicant must demonstrate the taking will be consistent with the purposes of the MMPA and implementing regulations at 50 CFR Part 216. NMFS also has produced Office of Management and Budget (OMB)-approved application instructions that prescribe the procedures (including the form and manner) necessary to apply for scientific research permits. Applicants must comply with these regulations and application instructions in

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Actions 11988 and 13690 Floodplain Management; and 11990 Protection of Wetlands" and the Companion Manual for NAO 216-6A.

[8]16 U.S.C. 1362.

[9]As defined in MMPA Section 3[13]; 16 U.S.C. 1362.

[10]Marine mammals designated as depleted may only be imported pursuant to a permit for scientific research or enhancement and cannot be imported pursuant to a public display permit per MMPA Section 101(a)(3)(B); 16 U.S.C. 1371.

addition to the statutory provisions of the MMPA. The application instructions are available for review on NMFS' website: https://www.fisheries.noaa.gov/permit/scientific-research-and-enhancement-permits-marine-mammals.

1.3 PROPOSED ACTION AND PURPOSE AND NEED

NMFS is proposing to issue a scientific research permit to Mystic Aquarium pursuant to Section 104 of the MMPA and implementing regulations at 50 CFR Part 216. The permit would be valid for five years from the date of issuance and would authorize the import of five captive-born beluga whales from Marineland to Mystic Aquarium for the purposes of scientific research. NMFS' proposed action is a direct outcome of Mystic Aquarium's application to import and take these five beluga whales for scientific research purposes; thus, the purpose of NMFS's action is to evaluate Mystic Aquarium's application pursuant to Section 104 of the MMPA. The need for NMFS' action is to meet its obligation to grant or deny the permit request under the MMPA.

As stated in Section 1.2 above, NMFS evaluates scientific research permit applications to determine if statutory and regulatory criteria are met, including that the import and proposed research activities will be conducted for bona fide scientific research purposes and that the research activities and methods are "humane," among other requirements described below in Chapter 2. NMFS also evaluates the best available scientific information to determine whether the mitigation proposed by the applicant will minimize the impacts of the proposed import and research and whether any additional mitigation measures are required to ensure that the import and research will not result in unnecessary risks to the health or welfare of the subject animals. NMFS must also assess, among other things, whether the applicant has demonstrated that the proposed activity, by itself or in combination with other activities, will not likely have a significant adverse impact on the species or stock. In addition, the permit would set forth the permissible methods of import and take as well as requirements for monitoring and reporting, as well as any other terms and conditions that NMFS deems appropriate.

1.4 ENVIRONMENTAL REVIEW PROCESS

1.4.1 Overview and Background

Under NEPA, federal agencies are required to examine the environmental impacts of their proposed actions within the United States and its territories. Major federal actions include activities that federal agencies fully or partially fund, regulate, conduct, or approve. NMFS' issuance of a scientific research permit is a major federal action subject to NEPA; thus, when NMFS receives an application for a permit[11], NMFS reviews the application to determine what level of analysis under NEPA is required to support the decision whether to issue or deny any given permit or permit amendment.

The issuance of permits for research on marine mammals including depleted, threatened, and endangered species generally falls within NOAA's categories of actions that "…do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations" (40 CFR §1508.4). There are two categories associated with NMFS' issuance of research permits involving "take" of animals. One is categorical exclusion (CE) B1

[11]This includes new permits and permit amendments.

"Issuance of permits or permit modifications under Section 10(a)(1)(A) of the ESA for take, import, or export of endangered species for scientific purposes or to enhance the propagation or survival of the affected species, or in accordance with the requirements of an ESA Section 4(d) regulation for threatened species." The other is CE B2 "Issuance of permits or permit amendments under Section 104 of the MMPA for take or import of marine mammals for scientific research, enhancement, commercial or educational photography or public display purposes; and issuance of Letters of Confirmation under the General Authorization for scientific research involving only Level B harassment[12]."

During the review of Mystic Aquarium's application, NMFS initially determined a CE was appropriate under NEPA in accordance with CE B2 and indicated this in the *Federal Register* notice of receipt for Mystic Aquarium's application (84 FR 52072, October 1, 2019). However, at the close of the comment period and upon further environmental review for this action, NMFS determined preparation of an EA is appropriate in this case to allow for additional evaluation of the potential effects of the proposed action. Therefore, in this EA, NMFS analyzed the environmental effects associated with authorizing the import and take of the marine mammals that are the subject of the permit request and described in Mystic Aquarium's application. In making decisions on the issuance of scientific research permits, NMFS relies substantially on the public process required by the MMPA to develop and evaluate relevant environmental information and provide a meaningful opportunity for public participation; refer to Section 1.4.3 for more information regarding public involvement in this permit application.

1.4.2 Consultations and Compliance with Other Environmental Laws

NMFS must comply with all applicable federal environmental laws and regulations necessary to implement a proposed action. NMFS' evaluation of and compliance with environmental laws and regulations is based on the nature and location of the applicant's proposed activities and NMFS' proposed action. This section summarizes applicable consultations and compliance with environmental laws.

1.4.2.1 Consultation with the U.S. Marine Mammal Commission

The MMPA stipulates that NMFS may not issue a scientific research permit without first seeking review of the application by the U.S. Marine Mammal Commission (MMC) and its Committee of Scientific Advisors. The MMC reviewed and provided several recommendations on the permit application, including that NMFS should prohibit breeding. This and additional recommendations made by the MMC are described and addressed in the Recommendation Memorandum for the permit application and, as applicable, within this EA.

1.4.2.2 Consultation with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service and Animal Welfare Act Requirements

Marine mammals held in captivity must be maintained in facilities licensed and/or registered by the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), and held and transported in compliance with the provisions of the Animal Welfare Act (AWA; 7 U.S.C. 2131 – 2156). APHIS has jurisdiction for enforcing the AWA's implementing

[12]NOAA's full list of approved CE categories is in Appendix E of the Companion Manual for NAO 216-6A.

regulations (9 CFR Subpart E: Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals).

In accordance with a 1998 Memorandum of Understanding among APHIS, NMFS, and the U.S. Fish and Wildlife Service (USFWS) to facilitate and promote the consistent implementation of standards governing the humane care, handling, treatment, and transportation of marine mammals, NMFS will inform APHIS of the receipt of permit applications for import or capture from the wild of marine mammals for purposes of public display, scientific research, and enhancement. Concurrent with the public comment period for this scientific research permit application, the application was forwarded to APHIS for review and comment specific to compliance of the facilities with the AWA and APHIS' implementing regulations.

The APHIS commented that they had no objections to the importation of the five beluga whales for the research described. APHIS provided additional comments, which are described and addressed in the Recommendation Memorandum for the permit application and as applicable, within this EA.

1.4.2.3 U.S. Fish and Wildlife Service Requirements for Importation

The USFWS sets regulatory standards for the importation, exportation, and transport of wildlife (50 CFR Part 14). These regulations require all parties transporting live wild mammals to the United States to, among other things, comply with "The Container Requirements of the Live Animal Regulations (LAR), 20th edition, October 1, 1993, published by the International Air Transport Association (IATA)."

The USFWS regulations at 50 CFR Part 23 include requirements for permits under the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) permits. Beluga whales are listed on Appendix II of CITES. The country of export (in this case, Canada) must make findings prior to issuing a CITES export permit regarding: 1) the impact of the export on the survival of that species; 2) whether the collection of an animal was consistent with domestic laws; and 3) whether the shipment of an animal is done in a way that minimizes the risk of injury, damage to health, or cruel treatment.

1.4.3 Public Involvement

The public had opportunity to review and comment on the permit application during a 60-day comment period that began the date that the notice of receipt of Mystic Aquarium's permit application published in the *Federal Register* (84 FR 52072, October 1, 2019). The notice included a summary of the proposed activities, an initial determination that a CE was appropriate under NEPA, and a link to the complete application on the following web site: https://www.fisheries.noaa.gov/action/permit-application-import-5-beluga-whales-scientific-research-file-no-22629-mystic-aquarium.

On November 18, 2019, NMFS held a public hearing on the application (84 FR 58694, November 1, 2019). The public hearing began with a brief presentation by NMFS describing the permit application and decision process. Following the presentation, members of the public had the opportunity to provide oral comments regarding the permit application and could also submit written comments at the hearing.

During the 60-day public comment period (including during the public hearing), NMFS received over 9,500 public comments (available at https://www.regulations.gov/docket?D=NOAA-NMFS-2019-0113). The agency received substantive and relevant comments arguing both for and against the proposed action. Commenters included non-governmental organizations, a member of the U.S. Senate, a member of the House of Commons of Canada, scientific researchers, zoo and aquarium representatives, and individual members of the public.

These comment letters addressed a number of topics, including, but not limited to:

- Incidental public display;
- Permit issuance criteria including whether:
    - The proposed activity by itself or in combination with other activities will likely have a significant adverse impact on the species or stock;
    - Any requested import will likely result in the taking of marine mammals beyond those authorized by the permit.
    - The import and research is humane and does not present any unnecessary risks to the health and welfare of the marine mammals; and
- The status under the MMPA of the whales proposed for import;
- Whether the action qualifies for a Categorical Exclusion under the National Environmental Policy Act;
- The applicability of the research to conservation of wild beluga whale populations including depleted and endangered populations;
- Breeding; and
- The final disposition of the animals and any progeny when research has ended.

A more detailed summary of the public comments, and NMFS' responses to those comments, is included in the Recommendation Memorandum for this permit application.

1.5 DOCUMENT SCOPE

The analysis in this EA addresses potential direct, indirect, and cumulative impacts related to the decision for which NMFS is responsible: whether to issue a scientific research permit to Mystic Aquarium to import and conduct research on the five captive-born beluga whales, and, if issued, the mitigation and monitoring measures to minimize the effects of these activities.
Direct impacts to the subject whales considered in this EA include effects from import (i.e., transport), conducting the proposed research activities, and mitigation measures. Under the MMPA's implementing regulations, NMFS must make several findings related to impacts to wild populations prior to issuance of a permit[13]. While the proposed import and research has potential for direct impacts to the five individual beluga whales, the research conducted on these captive whales would not directly affect the reproduction, numbers, or distribution of any wild

[13]See Section 2.1.1. This includes issuance criteria at 50 CFR §216.34(a)(4) The proposed activity by itself or in combination with other activities, will not likely have a significant adverse impact on the species or stock; §216.34(a)(7) Any requested import or export will not likely result in the taking of marine mammals or marine mammal parts beyond those authorized by the permit; and §216.41(b)(5)(ii) The proposed research, by itself or in combination with other activities will not likely have a long-term direct or indirect adverse impact on the species or stock.

population of beluga whales because these whales were captive-born and cannot be released to the wild under any of the proposed alternatives.

NMFS considers one of the beluga whales to be a member of the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock because both parents are likely from that stock. Four of the whales have mixed-stock parentage (i.e., one parent likely from the depleted stock and the other from a stock that has not been designated as depleted)[14]. NMFS has not formally established the MMPA status of the mixed-stock progeny. For the purposes of this permit application, NMFS has treated all five whales as depleted.

The Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock was designated as depleted due, in part, to impacts from unsustainable live-captures for the aquarium industry (Bettridge et al. 2016). This stock is potentially still subject to the live-capture trade (see Section 3.2.3.2) and there is public controversy over the trade in and captivity of cetaceans (Naylor and Parsons 2019; Parsons and Rose 2018; Wassermann et al. 2018). In addition, the proposed research has the potential to indirectly benefit the conservation and management of wild beluga whale populations, including the endangered Cook Inlet beluga whale stock/DPS and the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock. Thus, this EA considers potential indirect impacts of the proposed action on wild stocks of beluga whales.

The action area for the applicant's proposed import and scientific research activities is the built environment beginning with the facility in Canada (i.e., Marineland) where the five beluga whales originated and are being held pending import[15] and ending with the facilities in the United States (i.e., Mystic Aquarium and potentially later, Georgia Aquarium) over the course of the permit. For these reasons, this EA does not provide an evaluation of the effects to the elements of the human environment listed in Table 1.

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[14]See Table 2. See also the Recommendation Memorandum for the permit application for further explanation regarding the depleted status.

[15]Once whales are in transit for the proposed import, the built environment includes airports and public roadways between the facilities in Canada and the United States.

Table 1. Components of the Human Environment Not Evaluated in this EA.

Biological	Physical	Socioeconomic/Cultural
Amphibians and reptiles	Air Quality	Commercial Fishing
Benthic species (e.g., seagrass)	Ecologically Critical Areas	Historic and Cultural Resources
Fish	Federal Marine Protected Areas	Indigenous Cultural Resources
Humans	Geography	Low Income Populations
Invertebrates	Land Use	Military Activities
Other marine mammals	National Estuarine Research Reserves	Minority Populations
Seabirds	National Marine Sanctuaries	National Historic Preservation Sites
	Oceanography	National Trails and Nationwide Inventory of Rivers
	Park Land	Recreational Fishing
	Prime Farmlands	Shipping and Boating
	State Marine Protected Areas	Public Health and Safety
	Water Quality	
	Wetlands	
	Wild and Scenic Rivers	

CHAPTER 2 ALTERNATIVES

2.1 INTRODUCTION

As indicated in Chapter 1, NMFS' proposed action is issuance of a scientific research permit to Mystic Aquarium, which would authorize the import of five beluga whales from Marineland to Mystic Aquarium (with a possible later transport from Mystic Aquarium to Georgia Aquarium) for the purposes of scientific research, in accordance with the requirements of the MMPA. NMFS' proposed action is triggered by Mystic Aquarium's request for a permit under Section 104 of the MMPA. In accordance with NEPA and the CEQ Regulations, NMFS is required to consider a reasonable range of alternatives to a proposed action as well as the No Action Alternative. Reasonable alternatives are viable options for meeting the purpose of and need for the proposed action. The evaluation of alternatives under NEPA assists NMFS with understanding, and, as appropriate, minimizing impacts through an assessment of alternative ways to achieve the purpose and need. For the purposes of this EA, an alternative will only meet the purpose and need if it satisfies the requirements under Section 104 of the MMPA and 50 CFR Part 216. Therefore, NMFS applied the regulatory criteria outlined below to identify which alternatives to carry forward for analysis.

2.1.1 Considerations for Selecting Alternatives

NMFS' decision to issue or deny a permit is based on consideration of:

- All relevant issuance criteria in 50 CFR §216.34;
- All purpose-specific issuance criteria set forth at 50 CFR §216.41;
- All comments received or views solicited on the permit application; and
- Any other information or data deemed relevant by the Office Director.

The relevant issuance criteria at 50 CFR §216.34 specify that NMFS may issue a permit if the information provided by Mystic Aquarium demonstrates that:

- The proposed activity is humane and does not present any unnecessary risks to the health and welfare of marine mammals;
- The proposed activity is consistent with all restrictions set forth at §216.35 (general permit restrictions) and §216.41 (purpose-specific restrictions);
- The proposed activity by itself or in combination with other activities, will not likely have a significant adverse impact on the species or stock;
- The applicant's expertise, facilities, and resources are adequate to accomplish successfully the objectives and activities stated in the application;
- If a live animal will be held captive or transported, the applicant's qualifications, facilities, and resources are adequate for the proper care and maintenance of the marine mammal; and
- Any requested import will not likely result in the taking of marine mammals or marine mammal parts beyond those authorized by the permit.

Mystic Aquarium must also demonstrate that the proposed activity satisfies the purpose-specific permit criteria set forth in 50 CFR §216.41, including:

- The proposed activity furthers a bona fide scientific purpose;
- For any scientific research involving captive maintenance, the application must include supporting documentation from the person responsible for the facility;
- The proposed research will not likely have significant adverse effects on any other component of the marine ecosystem of which the affected stock is a part;
- For stocks designated as depleted:
  - The proposed research cannot be accomplished using a stock that is not designated as depleted;
  - The proposed research, by itself or in combination with other activities will not likely have a long-term direct or indirect adverse impact on the stock; and
  - The proposed research will either:
    - Contribute to fulfilling a research need or objective identified in a species recovery or conservation plan, or if there is no conservation or recovery plan in place, a research need or objective identified by the Office Director in stock assessments established under Section 117 of the MMPA[16]; or
    - Contribute significantly to understanding the basic biology or ecology of the species or stock, or to identifying, evaluating, or resolving conservation problems for the species or stock; or
    - Contribute significantly to fulfilling a critically important research need.

In addition, Section 104 of the MMPA requires that permits specify any terms and conditions that the Secretary deems appropriate. In accordance with 50 CFR §216.36, the Director, Office of Protected Resources, has the authority to specify any permit conditions deemed appropriate.

2.2 DESCRIPTION OF PROPOSED ACTIVITIES

As described in the permit application, Mystic Aquarium is requesting to import five captive-born beluga whales from Marineland to Mystic Aquarium (and possible later transport to Georgia Aquarium) for the purposes of conducting scientific research.

As discussed in Section 1.5, NMFS considers one of the beluga whales to be a member of the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock because both parents are likely from that stock, and for the purposes of this permit application is treating the remaining four whales with mixed-stock parentage as depleted.

As described in the permit application, Mystic Aquarium requested to import five captive-born beluga whales from Marineland to Mystic Aquarium for the purposes of conducting scientific research over a five-year period. The objectives of the proposed research, as described in the permit application, are to contribute knowledge and inform management and recovery of beluga whale populations in the wild including the endangered Cook Inlet beluga whale distinct population segment (DPS) and the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock. To achieve these objectives, the following studies, are proposed:

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[16] 16 U.S.C. 1386.

- Study 1: Neuroimmunological response to environmental and anthropogenic stressors;
- Study 2: Development of novel non-invasive techniques to assess health in free-ranging, stranded and endangered beluga whales;
- Study 3: Hearing and physiological response to anthropogenic sound;
- Study 4: Photogrammetry body condition studies;
- Study 5: Diving physiology;
- Study 6: Microbiome;
- Study 7: Behavioral and reproduction studies; and
- Study 8: Testing of prototype telemetry and imaging devices before deployment on wild beluga whales.

While maintaining the five beluga whales for scientific research purposes, Mystic Aquarium proposes to display the beluga whales incidental to the research.

Mystic Aquarium stated in the permit application that while beluga whale reproduction (Study 7) is not the purpose of the proposed research, breeding is a natural behavior that would be allowed to occur. The permit application included a statement that artificial insemination would not be used and contraception would not be used unless medically necessary for the health and well-being of an individual beluga whale. In the event of a pregnancy, Mystic proposed to opportunistically sample the pregnant females and up to two calves for the research.

Mystic Aquarium stated that at the termination of research (i.e., at the end of the 5-year permit), the beluga whales participating in the project would continue to reside at Mystic Aquarium or Georgia Aquarium. However, if deemed in the best interest of an individual or the U.S. beluga whale population, Mystic proposed to move the imported animals or their offspring to another professionally-accredited public display facility in the United States that has experience and expertise in the care of beluga whales.

Details for the importation and each of the eight research projects are included in the permit application and summarized below.

2.2.1 Importation and Research Activities

Importation

Mystic Aquarium proposes to import the whales from Marineland to Mystic Aquarium using a combination of ground and air transport. These transports would likely occur in two separate transports (three whales on one flight, two whales on another flight). Each beluga whale would be placed in a stretcher and secured into its own transport cradle. They would be transported via flatbed truck to the Hamilton International Airport in Hamilton, Ontario, Canada, where they would be loaded on a chartered jet aircraft. Upon arrival at Bradley International Airport in Hartford, Connecticut, the transport cradle and the beluga whales would be transferred to a flatbed truck for ground transport to Mystic Aquarium (total transport time including ground and air is expected to be approximately 10 hours). The ground transport vehicles would have a police escort to ensure maximum safety.

During all legs of transport, Mystic Aquarium proposes that experienced veterinary and husbandry staff would accompany the whales with at least one experienced staff member per beluga whale on each transport. International Air Transport Association, Live Animals Regulations (IATA LAR), the *CRC Handbook for Marine Mammal Medicine, 3rd Edition* (Gulland et al. 2018), the *CITES Guidelines for Transport and Preparation for Shipment of Live Wild Animals*, and all other applicable regulations, standards, and conditions set forth under the AWA and MMPA would be followed.

Once at Mystic Aquarium, the beluga whales would be individually lifted by crane out of the transport cradle, placed on a beluga transport cart, wheeled into the habitat, lifted by crane out of the transport cart, and placed into the medical pool (containing a false-bottom beluga lift) to be released from the stretcher.

Should a beluga whale need to be transported from Mystic Aquarium to Georgia Aquarium for reasons described below, similar methods would be employed. This would include transporting the whales by truck from Mystic Aquarium to Bradley International Airport where the whale would be flown to Hartsfield–Jackson Atlanta International Airport in Atlanta, Georgia, and transported by truck to the Georgia Aquarium. Mystic Aquarium does not intend to move any of the whales to Georgia Aquarium unless it is deemed necessary[17].

Additional details of the import/transport are in the permit application.

Research Activities

To support the objectives described above, Mystic Aquarium proposes to train the subject whales to voluntarily participate in the research activities described below. Sampling of calves, if born over the duration of the permit, would only be conducted during medical health exams. The progeny would be trained to participate in research under behavioral control over time.

The research methods are summarized here and described in detail in the permit application.

<u>Biological Sampling</u>

The beluga whales would be trained to present their bodies for various biological sampling, including blood draws, breath, saliva, fecal, vaginal swab, and skin scraping collection.

Blood Samples

Whales would voluntarily station and present their tail flukes for blood collection. Blood would be collected from calves under gentle handling restraint and only in conjunction with blood collection for health assessments. For all blood draws, the tail flukes would be cleaned with isopropyl alcohol and chlorhexidine solution prior to needle insertion.

Breath Samples

Breath samples would be collected by having the whales voluntarily station with their heads on the exhibit beach and exhale into an open petri dish covered with a nylon membrane held 3-4 inches over the blowhole. Breath would also be collected during transport and during any out of

[17]See footnote 1.

water events associated with being lifted out of the water via a hydraulic lift for weights or veterinary examination. For calves, breath samples would be passively collected when they are handled for health assessments.

Saliva Samples
Whales would voluntarily open their mouths for saliva collection with a designated swab. For calves, saliva would be collected opportunistically when they are handled for health assessments.

Fecal Samples
Whales would voluntarily lay out and accept a tube inserted into the rectum for collection of feces, or feces would be collected opportunistically by using a nylon mesh dip-net to scoop the feces from the water. For calves, feces would be opportunistically collected from the water.

Skin Scrapings
A rubberized spatula would be used to collect samples of epidermal skin cells under behavioral control by running the rubber edge of the spatula along the skin of the whale once using single, not overly forceful strokes, on specific locations on the body. For calves, skin samples would be collected opportunistically when they are handled for health assessments.

Orifice Swabs (Anal, Blowhole, Vaginal)
Trainers would condition the whales to hold open the blowhole voluntarily while a sterile tipped applicator is inserted and gently rubbed along the internal mucosa for a few seconds. A sterile tipped plastic stick swab would be inserted 1-2 cm into beluga's anus or vagina to collect samples from whales under voluntary behavior. For calves, swab samples would be collected opportunistically when calves are handled for health assessment.

Other Proposed Research Procedures
Mystic Aquarium proposes that the beluga whales would participate in additional studies including hearing measurements, photogrammetry and morphometrics, diving physiology, natural breeding and monitoring reproduction and calf birth, ultrasound, and testing of telemetry devices and cameras. The whales would be trained to voluntarily participate in these activities except for weighing, which would require restraint in a stretcher. Biological samples described above would also be included in some of the projects described below.

Hearing and Physiological Response to Anthropogenic Sound
Beluga whales would voluntarily station for collection of brainstem auditory evoked potentials (AEPs) under baseline and sound exposure conditions to examine the effect of different sound sources on hearing. Breath samples would be collected before and after experimental sessions to study the physiological response to different sounds.

For AEP measurements, three silicone suction cups containing electrodes coated with conductive gel would be gently placed near the melon, near the beginning of the dorsal ridge and posterior to the maximum girth. Hearing would be tested using standard AEP procedures: using a sound stimuli based on sinusoidally amplitude modulated tones of specific frequencies and amplitudes, whales would be exposed to two types of sound projections: 1) synthetic tones designed to test specific frequencies at specific amplitudes, and 2) real sound sources recorded in the field (e.g.,

ship noise, pile driving, etc.) as described in the permit application. Using tones as masking sounds would allow for exploring what frequencies are more sensitive to masking. Using real recordings of noise sources would allow for exploring how structured sound signals impact hearing.

The maximum exposure at 1 m will never exceed 165 dB (SEL_{cum}) over a 24 hour period (including all sessions within a day) or 210 dB PK. Because the maximum SL cannot exceed 180 RMS dB (transducer physical limitation), it would be impossible to exceed 210 dB PK under any session design, therefore peak values would not be considered for temporary threshold shift (TTS) risk. Masked hearing experiment schedules will be designed to avoid reaching TTS levels following the NOAA Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (NMFS 2018), and as explained in detail in the permit application and additional information provided by Mystic in response to public comments.

Mystic Aquarium proposes that calves would be tested for hearing and monitored throughout development starting at four weeks of age. Calves would be held at the surface in the arms of husbandry personnel for suction cup electrode placement and baseline AEPs.

Photogrammetry and Morphological Measurements (Body Length, Axillary Girth, Body Mass)
Whales would be trained to voluntarily station under a vertically mounted camera for photos and to station for measurements of girth and length using a flexible tape measure. Weights would be taken using a stretcher attached to a hanging scale. Whales would be trained to swim into the stretcher, which is lifted out of the water via a crane to obtain the weight. For calves, morphometrics would be collected opportunistically when calves are being handled for health assessment purposes; weights would be collected regularly; and, if a calf opportunistically swims underneath the camera set-up, a photograph would be taken but the calves would not be trained to swim underneath the camera.

Diving Physiology
For active swimming/dive physiology measurements, beluga whales would target at stations around the habitat to a depth of 6’10”. Following this behavior, blood and breath would be collected. Calves would not participate in this study.

Monitoring Reproductive Hormones and Natural Breeding for Reproductive Research
While beluga whale reproduction is not the purpose of the proposed research, breeding is a natural behavior that Mystic Aquarium proposes to allow to occur. Artificial insemination is not proposed and contraception is only proposed if medically necessary for the health and well-being of an individual beluga whale. Regardless of whether breeding and successful pregnancy occurs, researchers propose to monitor behavior (including via video monitoring), reproductive organs (via ultrasound), and hormones (via blood and other samples) before, during, and after the breeding season of beluga whales in different reproductive states.

If the imported females were to get pregnant, data would be collected throughout the pregnancy, using the methods described herein as feasible, as well as on the females and calves throughout birth and calf rearing. Mystic Aquarium estimates that a maximum of two calves would be born during the duration of the permit. Any progeny born to beluga whales imported under the

proposed permit would be incorporated into the research program as described herein and in the permit application.

Ultrasound Measurements
The beluga whales would voluntarily lay out so that an ultrasound probe may be manipulated around and placed near the reproductive organs. Total testicular volume in males and follicular size in females would be measured. Ultrasound would be conducted on pregnant females to monitor the developing fetus. Calves would not have ultrasound measurements taken.

Testing of Prototype Telemetry Devices and Cameras
Animals would voluntarily station and accept telemetry devices or cameras that adhere via non-invasive suction-cup attachment. Trials would be conducted to test optimal placement, size of device, attachment duration under various behaviors, and behavioral changes post-deployment. Calves would not participate in this study.

2.2.2 Incidental Public Display and Disposition after Research

Incidental Public Display
While maintained at Mystic Aquarium (or Georgia Aquarium) for scientific research purposes, the applicant proposes that the animals would be incidentally displayed to the public for educational purposes. Such incidental public display would be conducted consistent with the requirements of the MMPA, which includes that the facility:

1. Offers a program for education or conservation purposes that is based on professionally recognized standards of the public display community;
2. Is registered or holds a license issued under the Animal Welfare Act;
3. Is open to the public on a regularly scheduled basis and that access is not limited or restricted other than by charging an admission fee.

Disposition after Research
At the termination of research, Mystic Aquarium proposes that the imported beluga whales, including any progeny born, would continue to reside at Mystic Aquarium (or Georgia Aquarium). Alternatively when research ends, Mystic Aquarium proposes that if deemed in the best interest of an individual beluga whale or the U.S. beluga population for social and welfare reasons, the imported whales or their progeny could be transferred/transported to another professionally-accredited facility in the United States that has experience and expertise in the care of beluga whales. Currently, this includes SeaWorld of California (San Diego, California), SeaWorld of Florida (Orlando, Florida), SeaWorld of Texas (San Antonio, Texas), or the Shedd Aquarium (Chicago, Illinois).

2.3 ALTERNATIVE 1 (NO ACTION)

In accordance with the NOAA Companion Manual for NAO 216-6A, Section 6.B.i, NMFS is defining the No Action alternative as not issuing the requested permit for import of the five beluga whales for scientific research. Under the No Action Alternative, NMFS would not issue the permit, in which case Mystic Aquarium would not be able to import the five beluga whales or conduct the research activities on them as described above and in the permit application.

Although the No Action Alternative would not meet the purpose and need to allow the import and direct takes of the five beluga whales under certain conditions (i.e., when the statutory and regulatory requirements are satisfied), the CEQ Regulations and the Companion Manual for NAO 216-6A require consideration and analysis of a No Action Alternative for the purposes of presenting a comparative analysis to the action alternatives. The No Action Alternative serves as a baseline against which the impacts of the action alternatives will be compared and contrasted.

2.4 ALTERNATIVE 2 (PREFERRED ALTERNATIVE) – ISSUANCE OF SCIENTIFIC RESEARCH PERMIT WITH BREEDING PROHIBITION AND STANDARD CONDITIONS

Under this alternative, NMFS would issue the permit to Mystic Aquarium authorizing the import and scientific research as indicated in Section 2.2 and described in the permit application, with the exception of Study 7 including breeding and research on pregnant females and their progeny. NMFS would require that Mystic Aquarium provide safe and effective contraception or other means (e.g., physical separation) to prevent breeding of any of the five imported whales. In addition to a prohibition on breeding, NMFS would also include standard permit conditions related to mitigating impacts from research and conditions related to importation/transportation, supervision, care, and disposition (applicable to the potential transfer/transport of the animals to Georgia Aquarium and at the termination of research). The permitted activities would be subject to the applicable regulatory criteria and restrictions as well as mandatory mitigation, monitoring, and reporting requirements as set forth in the permit to effect the least practicable impact on the subject animals.

2.4.1 Proposed Mitigation Measures (Alternative 2, Preferred)

All activities authorized within a permit must occur by the means, in the areas, and for the purposes set forth in the permit application, except as limited by the terms and conditions of the resulting permit. Mitigation measures identified in the application that would be required by the permit include leveraging voluntary, trained behaviors and husbandry procedures to collect the required samples for the research projects with minimal impact to the subject whales. Additionally, to avoid overwhelming the beluga whales and to minimize the possibility of losing trained, voluntary behaviors, researchers developed the research protocols so that limited samples/procedures are collected/conducted within a single husbandry or research session. Only behaviors that are expected to be feasible for the beluga whales to learn and those that have minimal risk to their health and welfare are proposed.

The beluga whales would be monitored by a trained and experienced husbandry supervisor or curator-level staff member and a licensed veterinarian at all times during sample collection. The whales would also be monitored on a regular basis for any abnormalities, which would be immediately reported, assessed, and treated as necessary.

Under Alternative 2 (preferred), conditions in the permit would include, but not be limited to, the following.

Conditions related to conducting the research:

- Consistent with MMC recommendations on the subject permit application and AWA requirements, the Permit Holder must ensure that the authorized research has been reviewed and approved by the appropriate Institutional Animal Care and Use Committee

(IACUC) in accordance with AWA regulations, and that the IACUC protocols are consistent with the research methods approved by the permit.

- The animals undergoing research must be closely monitored to determine if research activities are having an adverse effect on the individuals. The attending veterinarian must be available for emergencies, illnesses, and for treating any health problems associated with the research procedures.

- Researchers must halt and re-evaluate research should the animals exhibit signs of stress, pain, or suffering resulting from the authorized activities. If the animals are showing adverse reactions or are at risk of injury during the research, Researchers must immediately discontinue the activities.

- For voluntary research procedures, the animals must be able to exit the research session at any time.

- All research activities must be conducted in a humane manner (i.e., that which involves the least possible degree of pain and suffering), and, to the maximum extent possible, concurrent with the routine care and husbandry of the animals.

- For masking hearing studies: Researchers must test the subject animals' hearing as soon as possible after each masking session for full recovery to ensure temporary threshold shift (TTS) has not occurred. If at any point TTS occurs and full recovery is not observed, researchers must discontinue further exposure until recovery to pre-testing levels is observed.

- For blood sampling: Only the attending veterinarians or experienced, qualified personnel trained by and with appropriate oversight from the attending veterinarian may conduct blood sampling. Researchers must use sterile needles for blood sampling and minimize the number of needle insertions per blood collection site (e.g., no more than 2 insertions per site).

Conditions related to methods of importation/transportation, supervision, care, and disposition:

- The marine mammals imported under the authority of this permit must be imported in a humane manner and in compliance with the MMPA and any applicable foreign law.

- The Permit Holder cannot import any marine mammal that is pregnant or lactating at the time of import.

- Consistent with USFWS requirements and regulations, the importation of marine mammals is subject to the provisions of 50 CFR Parts 14 and 23 (i.e., the import of marine mammals must be conducted in accordance with the USFWS regulations for the importation, exportation, and transport of wildlife and no marine mammal may be imported without the required CITES permits).

- Consistent with AWA requirements, the Permit Holder must transport and maintain marine mammals used in captive research in U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) registered research facilities and/or licensed public display facilities; and, marine mammals must be held and transported in compliance with the provisions of the AWA and its implementing regulations "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals" (9 CFR Part 3, Subpart E).
    - A current copy of the APHIS research registration and/or license for any facility to be used must be attached to the permit. All medical records must accompany the animals to the destination facility.
    - Prior to transport, Mystic Aquarium must have the travel plan documented at the receiving facility, and the animals must be accompanied by a health certificate signed by the attending veterinarian stating that each animal was examined within the prior 10 days and found to be in acceptable health for transport.

- To the maximum extent possible, the beluga whales must be trained for voluntary participation in husbandry and medical procedures.

- Any public display of the beluga whales authorized by this permit must be incidental to and not interfere with the research. Such incidental public display may only occur as part of an educational program. A portion of this program must describe the research activities; identify the status of the species and its endangered and depleted stocks; and, provide information regarding their natural history, distribution, population status, and threats.

- The beluga whales must not be trained for performance or included in any interactive program with the public. Public demonstrations in which the whales perform trained husbandry, medical, research-related, and natural behaviors are authorized.

- The beluga whales may not be released into the wild unless such a release has been authorized under an amendment to this permit or a separate scientific research or enhancement permit issued for that purpose.

- Disposition: The Permit Holder shall not transport, transfer, export or otherwise dispose of the marine mammals authorized by this permit except with the approval of the Director, Office of Protected Resources, and subject to such Terms and Conditions as the Director may prescribe[18].

[18]This includes transport of any of the imported whales to the Georgia Aquarium and disposition of the whales at the termination of research. While Mystic Aquarium outlined circumstances under which they would deem it necessary to move whales to Georgia Aquarium, any request to move any of the imported whales from Mystic to Georgia Aquarium (or to any other facility) would be considered on a case-by-case basis.

- In the event a beluga whale authorized by this permit dies, the Permit Holder must:
    - Contact the NMFS Marine Mammal Health and Stranding Response Program (nmfs.mmhsrp.hq@noaa.gov) and follow any recommended necropsy and sampling protocols.

    - Within two weeks, submit an incident report. Gross necropsy findings should be included as part of an incident report. Final necropsy results (e.g., gross findings, histology, and other analyses) must be submitted when complete.

Additional Conditions Specific to Alternative 2:

- This permit does not authorize breeding of the five subject beluga whales. Prior to importation, the Permit Holder must submit a plan to provide safe and effective contraception or other means to prevent breeding of the five subject beluga whales, for approval by the Office Director. Any contraceptive plan must be developed in consultation with the licensed attending veterinarian(s) and other specialists experienced in beluga whale reproductive husbandry.

- In the event that a female becomes pregnant or the male impregnates any female (not just one of the imported females), the Permit Holder must, within two weeks, submit an incident report. This report must identify the whales by NOAA ID[19] and when and how mating proceeded (if observed). In addition, the report must include information on the exact methods used to prevent conception, why the particular methods are hypothesized to have failed, what measures will be taken to prevent future pregnancies, and the plan for pre-natal care of the dam and for birth; and

- Again when the pregnancy ends, either when the progeny is born, delivered stillborn, or miscarried, the Permit Holder must, within two weeks, submit an incident report. This report must include a summary of how the birth proceeded, the status of the calf, and current management of the dam and calf. The disposition of live progeny shall be determined by the Office Director.

2.4.2 Monitoring and Reporting (Alternative 2, Preferred)

As required in all permits, the Permit Holder must submit an annual report at the end of each permit year describing the activities conducted under the permit, as well as incident reports in the event unauthorized take occurs. These reports allow NMFS to evaluate compliance with the permit terms and conditions, assess beneficial and adverse impacts of the research activities, and to develop or further refine mitigation measures. For this alternative, incident reports are required in the event that 1) serious injury or mortality of the subject beluga whales occurs; 2) one of the females becomes pregnant or the male impregnates any female (not just one of the imported females) and again when the progeny is born, delivered stillborn, or miscarried; or 3) authorized take is exceeded (e.g., the animals are taken in a manner not authorized by this permit or the number of takes is exceeded). In addition, the Permit Holder must report inventory changes to the National Inventory of Marine Mammals, as specified in the permit.

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[19]A NOAA ID is a unique identifier assigned by NMFS for marine mammals included in the National Inventory of Marine Mammals that stays with the animal for all time.

2.5 ALTERNATIVE 3 – ISSUANCE OF SCIENTIFIC RESEARCH PERMIT AS REQUESTED WITH STANDARD CONDITIONS

Under this alternative, NMFS would issue the permit to Mystic Aquarium authorizing the import and scientific research as indicated in Section 2.2, as described in the permit application. NMFS would authorize Study 7 including breeding, which could result in up to two progeny over the duration of the permit and opportunistic research on pregnant and lactating females and their progeny. The permitted activities would be subject to the applicable regulatory criteria and restrictions as well as mandatory mitigation, monitoring, and reporting requirements as set forth in the permit to effect the least practicable impact on the subject animals.

2.5.1 Proposed Mitigation Measures (Alternative 3)

The same mitigation measures identified in the permit application and described in the preferred alternative (Alternative 2, Section 2.4.1 above) would be applicable. The same permit conditions would be included above with the exception that the additional conditions specific to Alternative 2 would not be included, and the following conditions pertaining to breeding would be included:

Additional Conditions Specific to Alternative 3:

- Natural breeding is authorized. The Permit Holder may not use artificial insemination or other means (e.g., hormone administration) to affect breeding. If a genetic management plan will be used to determine breeding pairs, this plan must be submitted to the Office Director prior to breeding.

- Research activities cannot interfere with pregnancy, birth, or calf rearing and development. Research on pregnant females and calves must be conducted concurrently with the routine care and husbandry of the animals at the discretion of the attending veterinarian. Calves cannot be handled expressly for the purposes of research.

- In the event that one of the imported females becomes pregnant or the imported male impregnates any female (not just one of the imported females), the Permit Holder must within two weeks, submit a special report. This report must identify the whales involved by NOAA ID, and when and how mating proceeded (if observed), and the plan for pre-natal care of the dam and for birth; and

- Again when the pregnancy ends, either when the progeny is born, delivered stillborn, or miscarried, the Permit Holder must within two weeks submit a special report. This report must include a description of how the birth proceeded, the status and parentage of the calf, and current management of the dam and calf. The disposition of live progeny shall be determined by the Office Director.

2.5.2 Monitoring and Reporting (Alternative 3)

The same monitoring and reporting requirements described in Alternative 2 (Section 2.4.2) would apply here with the exception that special reports pertaining to breeding, pregnancy, and birth would include different requirements as detailed in the conditions above.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION AND APPROACH TO THE ANALYSIS

NMFS considered all possible environmental, cultural, historical, social and economic resources associated with the proposed action and alternatives. As indicated in Section 1.4, certain resource categories are not carried forward for further consideration or evaluation in this EA. The reasons for this are due to the locations where the proposed import, captive maintenance, and research would occur, and the status of the subject whales as non-releasable to the wild. The action area associated with the proposed import, captive maintenance, and research activities is the built environment (aquariums) where the whales will be imported from and to[20]; thus, the resource categories for the external environment listed in Table 1, Section 1.4 are not associated with this action nor would they be impacted by this action. In addition, these whales will not be released to the wild. Thus, these five individual whales would not pose a direct risk to wild beluga whale populations.

The primary component of the environment affected by NMFS' proposed action is the captive beluga whales, which would be impacted directly by the import and scientific research. NMFS' implementing regulations also require the applicant to demonstrate that the proposed activity, by itself or in combination with other activities, will not likely have a significant adverse impact on the species or stock; the proposed research will not likely have significant adverse effects on the marine ecosystem of which the affected species or stock is a part; and that any requested import will not likely result in the taking of marine mammals or marine mammal parts beyond those authorized by the permit. Thus, the information and analysis herein addresses direct effects to these captive beluga whales that are the subject of the permit request as well as potential indirect effects to wild beluga whales.

3.1.1 Approach to the Analysis

In general, NMFS conducts a qualitative review of the best available information, including that received during the public comment period, on the impacts of activities that are the subject of the permit request, as well as an assessment of the degree to which mitigation may avoid or reduce impacts. In this case, NMFS' evaluation of impacts is based on the permit issuance criteria indicated in Section 2.1.1, consideration of the impacts from the import and proposed scientific research, and the mitigation and monitoring measures to avoid or minimize both direct and indirect impacts. Where appropriate, NMFS relied on and incorporated by reference information in the permit application, scientific literature, and other relevant references or documents related to the direct, indirect, and cumulative impacts addressed herein.

In addition, NMFS is assigning a scale of direct impacts to the individual animals (minor, moderate, major) from import and scientific research. Based on the Council on Environmental Quality Regulations (40 CFR §1508.27), differences between direct and indirect effects are primarily linked to the time and place of impact. Direct effects (or impacts) are those that result

[20]Beginning with Marineland, where they are being held pending import, and ending with the facilities in the United States (Mystic Aquarium or Georgia Aquarium) that would be their ultimate destination under the permit.

from the action and occur at the same time and place. Indirect effects are those reasonably foreseeable effects that are caused by the action but that may occur later and farther from the location of the direct effects. To characterize the nature and scale of direct impacts resulting from import and take as evaluated in this EA:

- Minor impacts are those that result in very low risk of injury from which animals can recover in the course of the day (minutes to hours).
- Moderate impacts are those that may result in minor injury or superficial harm to the animal with animals recovering and healing within days to weeks of the event.
- Major impacts are long-lasting, extensive, and severe. This would include serious injury or death.

3.2 ENVIRONMENTAL CONSEQUENCES

This section addresses the status of the affected species/stocks followed by the relevant direct, indirect, and cumulative impacts associated with the import, captive maintenance, and research on the five subject beluga whales as part of NMFS' proposed action and alternatives, as well as potential indirect impacts to wild beluga whale populations.

3.2.1 Affected Species/Stocks

Below is a summary of the status of the beluga whale species and stocks that may be directly or indirectly impacted by the proposed action. For the purposes of this analysis, in addition to addressing impacts to the five subject beluga whales, NMFS is addressing this information in context of the permit issuance criteria, specifically, that the proposed activity, by itself or in combination with other activities, will not likely have a significant adverse impact on the species or stock; and that any requested import will not likely result in the taking of marine mammals (or marine mammal parts) beyond those authorized by the permit.

3.2.1.1 Whales Proposed for Import and Research

Marineland currently has more than 50 captive beluga whales, all of which were either wild-caught, or captive-born to wild-caught beluga whales from Russia. From 1999-2008, thirty-six beluga whales were captured in Russia and imported to Marineland including the parents of the five subject beluga whales[21] identified in Table 2.

The five beluga whales proposed for import were born in captivity at Marineland (Table 2). They are first-generation progeny to females (dams) that were captured from the Sea of Okhotsk and likely from the depleted Sakhalin Bay-Nikolaya Bay-Amur River stock (see Section 1.5). Based on genetic testing, the sires of the beluga whales to be imported were captured either from the Sea of Okhotsk (also likely the depleted Sakhalin Bay-Nikolaya Bay-Amur River stock) or from a population in Russia that has not been designated depleted under the MMPA (see Table 2).

[21]According to Ceta-Base (https://www.cetabase.org/captive/cetacean/marineland-canada/).

Table 2. Description of Beluga Whales Requested for Import and Research

Name	Sex	Origin	Current Life Stage	Stock	Maternal and Paternal Stock[22]
Kharabali	Female	Captive born	Juvenile; Born 07/20/14	Sakhalin Bay-Nikolaya Bay-Amur River Stock	Dam Aurora (wild capture, Sea of Okhotsk, Russia) Sire Kodiak (wild capture, Sea of Okhotsk, Russia)
Mira	Female	Captive born	Adult; Born 07/13/09	Mixed	Dam Oceanna (wild capture, Sea of Okhotsk, Russia) Sire Andre (wild capture, Barents or White Sea, Russia)
Qila	Female	Captive born	Adult; Born 6/6/10	Mixed	Dam Isis (wild capture, Sea of Okhotsk, Russia) Sire likely Andre based on behavioral records (genetics inconclusive; wild capture, Barents or White Sea, Russia)
Frankie	Male	Captive born	Juvenile; Born 6/11/12	Mixed	Dam Sierra (wild capture, Sea of Okhotsk, Russia) Sire Andre (wild capture, Barents or White Sea, Russia)
Havana	Female	Captive born	Juvenile; Born 07/23/15	Mixed	Dam Kelowna (wild capture, Sea of Okhotsk, Russia) Sire Andre (wild capture, Barents or White Sea, Russia)

NMFS considers one of the beluga whales proposed for import (Kharabali; Table 2) to be a member of the depleted population, because both parents are likely from the depleted stock[23]. Four of the whales have mixed-stock parentage (i.e., one parent likely from the depleted stock and the other from a stock that has not been designated as depleted). As previously mentioned, for purposes of this permit application, NMFS has treated all five whales as depleted.

3.2.1.2 Wild Populations

The following summarizes the biology, ecology, distribution, and status of beluga whales with an emphasis on the depleted Sakhalin Bay-Nikolaya Bay-Amur River stock, as well as the Barents Sea and White Sea populations. Additionally, because Mystic proposes that the research activities would inform conservation and research priorities identified with the Recovery Plan for

[22]Mystic Aquarium stated in the permit application that the male named Andre was collected from the Barents Sea and based on genetic analysis, is the definitive sire for three of the whales; and, the likely sire to a fourth whale (based on reproductive behavioral observations). According to Ceta-Base (https://www.cetabase.org/captive/cetacean/marineland-canada/), Andre was captured in the Barents Sea (~1998) and held at Utrish [Dolphinarium] Ltd. before being exported to Marineland in October 1999. However, there is information suggesting that live-captures had ceased in the Barents Sea prior to his captivity and that he may have been collected from the White Sea (NAMMCO 2018; Ceta-Base 2010; See also Exhibit 3 associated with Permit No. 1078-1796 noting other beluga whales captured from the White Sea during this time).

[23]Available information suggests that for the captive-born whales proposed for import, the parents (dams and sires) that are from the Sea of Okhotsk were collected between 2000 and 2008 (according to Ceta-Base (https://www.cetabase.org/captive/cetacean/marineland-canada/). Live-captures of beluga whales from 2000 onward occurred solely in areas of the northwestern Sea of Okhotsk, comprising the Sakhalin Bay and Amur River region (Fisher and Reeves 2005; Shpak and Glazov 2014).

the Cook Inlet Beluga whale (NMFS 2016), the endangered Cook Inlet beluga population is also discussed.

Beluga whales are distributed around the Arctic, inhabiting subarctic regions of Russia, Greenland, and North America. They are found in the Arctic Ocean and its adjoining and neighboring seas, including, among others, the Sea of Okhotsk, the Barents Sea, the Bering Sea, the Gulf of Alaska, the Beaufort Sea, Baffin Bay, Hudson Bay, and the Gulf of St. Lawrence. Beluga whales may also be found in large adjacent rivers during certain times of the year. The pattern for beluga whale distribution and migratory circuits, covering thousands of kilometers in the Arctic and adjoining waters, shows marked seasonal changes between summer feeding grounds and wintering areas that are shared by closely related kin and can persist over decades (O'Corry-Crowe et al. 2018). Generally, beluga whales winter in offshore waters often associated with pack ice. In the spring and summer, the whales migrate to warmer coastal estuaries, bays, and rivers where they may molt, give birth, and care for their calves (O'Corry-Crowe 2018). The widespread natal philopatry of this species, with beluga whales returning to their birthplace to breed, helps maintain demographically discrete beluga stocks that can overlap in time and space (O'Corry-Crowe et al. 2018).

In North America, particularly in Alaska, beluga whales may occur in both offshore and coastal waters (depending on season), with genetically distinct summer concentrations in upper Cook Inlet, Bristol Bay, and the eastern Bering Sea (i.e., Yukon Delta and Norton Sound), eastern Chukchi Sea, and Beaufort Sea (Hazard 1988; O'Corry-Crowe et al. 2018; Muto et al. 2019). The Cook Inlet beluga whale stock was designated as depleted under the MMPA in 2000 (65 FR 34590, 21 May 2000) and the DPS was listed as endangered under the ESA in 2008 (73 FR 62919, 22 October 2008). During ice-free months, Cook Inlet beluga whales are often concentrated near river mouths (Shelden et al. 2015). The fall-winter-spring distribution of this stock is not fully determined; however, there is evidence that most whales in this population inhabit upper Cook Inlet year-round (Castellote et al. 2015; Lammers et al. 2013; McGuire and Himes Boor et al. 2020; Shelden et al. 2015). Large aggregations are found in larger areas such as the Susitna Delta (Beluga to Little Susitna rivers) and Knik Arm. Beluga whale presence also increases closer to rivers with Chinook salmon (*Oncorhynchus tshawytscha*) runs and major spawning migrations of a small, schooling eulachon (*Thaleichthys pacificus*) (Goetz et al. 2012).

Scientists recently estimated that the Cook Inlet population size, as of 2018, is between 250 and 317, with a median estimate of 279; the population is estimated to be smaller and declining at more than 1% per year, more quickly than previously thought (Shelden and Wade 2019). While the early decline was likely due to unrestricted subsistence hunting, it is unknown what has prevented recovery of this stock. There is currently no known direct human-caused mortality; there has not been a subsistence hunt by Alaska Natives in Cook Inlet after 2005, and the mortality and serious injury in commercial fisheries is likely low. However, the Cook Inlet beluga whale population is far below historical levels and for unknown reasons is not increasing. Potential threats to their recovery, as identified by NMFS (2016) include the following:

- High level of relative concern: catastrophic events (e.g., natural disasters, spills, and mass strandings); cumulative effects of multiple stressors; and noise;

- Medium level of relative concern: disease agents (e.g., pathogens, parasites, and harmful algal blooms); habitat loss or degradation; reduction in prey; unauthorized take (e.g., entanglement in fishing gear); and,

- Low level of relative concern: pollution; predation; and subsistence hunting.

In Russia, beluga whales are found throughout the coastal Arctic and much of the Sea of Okhotsk, including Shelikov Bay in the northeast and throughout the western Sea of Okhotsk including the Amur River estuary, the nearshore areas of Sakhalin Bay, in the large bays to the west, Nikolaya Bay, Ulbansky Bay, Tugursky Bay and Udskaya Bay, and among the Shantar Islands. Use of the bays and estuaries in the western Sea of Okhotsk is limited primarily to summer months; the whales move into the ice-covered offshore areas of the western Sea of Okhotsk in the winter (Melnikov 1999). In the Sakhalin Bay and Amur Estuary region, whales' arrivals and departures appear to be linked to fish runs (Solovyev et al. 2015). In this EA, we refer to the beluga whales found in the Amur River estuary and the nearshore areas of Sakhalin Bay during summer as the Sakhalin Bay-Amur River beluga whales. In 2016, NMFS, in consultation with the MMC, determined that the Sakhalin Bay-Nikolaya Bay-Amur River stock was below its optimum sustainable population level with the population reduced to 25-35% of the ecosystem's carrying capacity, mainly from subsistence hunting and live captures for aquariums. As a result, this population was designated as 'depleted' under the MMPA (81 FR 74711, October 27, 2016). At the time of the depleted designation, the best estimate for this stock was 3,961 individuals (minimum 2,891), approximately 20-40% of its historical abundance (Bettridge et al. 2016). Additional threats to this depleted stock include entanglement in fishing gear, vessel strike, climate change, and pollution (Bettridge et al. 2016; Reeves et al. 2011). Within the Russian Arctic, including the adjoining Barents Sea, beluga whale abundance and population structure is not well understood. Beluga whales regularly occur in the Barents Sea during the warmer months associated with feeding; however, there is strong evidence that the Barents Sea is primarily a wintering area for this species (Boltunov and Belikov 2002; Meschersky et al. 2018). Genetic samples of beluga whales from the Russian Arctic are too limited to make any conclusions on stock structure; however, it is likely that there are several different beluga stocks tied to the major bays, estuaries, and archipelago waters (O'Corry-Crowe et al. 2010; O'Corry-Crowe et al. 2018; NAMMCO 2018). The common opinion is that beluga whales of the Barents, Kara, and Laptev Seas, and perhaps at least partially, the White Sea subpopulation, comprise a single population - "the Barents Sea population" (Meschersky et al. 2018; NAMMCO 2018; Glazov et al. 2012; Kuznetsova et al. 2016). While the beluga population in the White Sea may be represented by a spatially isolated group (as supported by satellite tracking data) (Meschersky et al. 2018; NAMMCO 2018) there is some degree of reproductive overlap between the Barents and White Seas (Meschersky et al. 2018). The Barents Sea population is data deficient, making this a population of high or moderate concern (NAMMCO 2018). Little is known of the stock structure and current abundance, though it is thought to be of low abundance due to the large number of past removals (from subsistence and live-captures for cultural [public] display) (NAMMCO 2018). Though no removals have occurred since approximately 1990, the current quotas[24] set by Russian authorities for allowable

[24]The total allowed take of beluga whales in the White Sea, issued annually by the Russian Ministry of Agriculture, was 50 (from at least 2013 through 2018).

removals of beluga whales in this region are reportedly based on abundance data from prior to 1995, and more recent information is not available (NAMMCO 2018). Major anthropogenic threats include energy exploration and development (oil and gas in the Barents and Kara Seas), military activities, increasing vessel traffic (tourism, military vessel traffic, shipping on the Northern Sea Route), and pollutants (chemical and radioactive contamination) from river discharge (NAMMCO 2018). The most recent White Sea population estimates, derived from aerial surveys across different seasons (2005-2011), numbered 5,593 whales, with a slight population decline within this period (Glazov et al. 2008; Glazov et al. 2010a; Glazov et al. 2010b; Solovyev et al. 2012). The White Sea population overall is likely stable and of moderate concern, however there is uncertainty around stock structure (NAMMCO 2018; O'Corry-Crowe et al. 2018). Beluga whale commercial harvests ended in the White Sea in the 1980s (Matishov and Ognetov 2006, as cited in NAMMCO 2018). In recent years, a limited number of beluga whales were live-captured in the Varzuga river mouth and removed for scientific research and 'cultural [public] display' (exact numbers are unavailable, but usually not more than 5-6 during capture operations) (NAMMCO 2018). Threats to the White Sea population include habitat degradation related to pollution (discharge and potential for oil spills), ship traffic, tourist activities, and conflict with salmon fishermen; no information is available on illegal or incidental mortality.

Historically, the majority of beluga whales captured from the wild and brought into captivity remained within their country of origin including in the United States (from Alaska), Canada, or the old Soviet Union (now Russia). After Canada banned captures for export in 1992, a robust international trade emerged due to the easy, relatively low-cost availability of beluga whales from eastern Russia (Fisher and Reeves 2005). Beluga whales found in the Sakhalin-Amur region of the Sea of Okhostk were historically targeted for commercial and subsistence hunts (Bettridge et al. 2016). From 2000 through 2012, 300 beluga whales were live-captured from the Sakhalin Bay-Amur River stock (Shpak and Glazov 2013). More recently, in 2015, the Pacific Research Institute of Fisheries and Oceanography of Russia was fined for issuing Sea of Okhostk capture permits for educational, cultural, or research purposes that were being used for commercial purposes (public display and performance) (Rose and Parsons 2019). The Government of Russia later amended a law to require that cetaceans captured under permits for cultural and educational purposes could not be exported (Rose and Parsons 2019). As a result, in 2019, the South-Sakhalin City Court in Russia declared all catch quotas that the Federal Fisheries Agency issued for beluga and killer whales in 2018 illegal, and Russian officials ordered the release of nearly 80 live-captured beluga whales awaiting sale for entertainment purposes (referred to in the press as the "whale jail"); all of these whales were released as of November 2019 (Daly 2019). Russia reportedly ceased beluga whale capture operations in 2019 and has not, to NMFS' knowledge, issued any capture quotas or permits for 2020 (see Pravda 2018, as cited in Rose and Parsons 2019). While it appears Russia has restricted the capture of beluga whales and other cetaceans at this time, given that Russia does not have a permanent capture ban such as Canada, it is possible that captures from the depleted beluga whale

population could resume at some point in the future based on global demand[25] (e.g., China Cetacean Alliance 2019; Fisher and Reeves 2005; Reeves et al. 2011; Rose and Parsons 2019).

3.2.2 Environmental Consequences of Alternative 1 (No Action Alternative) – Permit Denial

Under the No Action Alternative, NMFS would not issue the permit, in which case Mystic Aquarium would not be able to import the five beluga whales or conduct the research activities on them as described in Section 2.2 and in the permit application. Thus, there would be no impact on the five subject whales and there would be no indirect impacts to wild populations from this alternative.

Under this alternative, the proposed research studies would not be conducted on the five subject whales and thus, a more robust sample size to improve these studies would not be realized. The types of studies proposed were intended to inform conservation of the ESA-listed Cook Inlet beluga whale DPS and MMPA-depleted Sakhalin Bay-Nikolaya Bay-Amur River stock of beluga whales. As described in the permit application, the proposed research could provide such information as developing and validating sample analyses and non-intrusive monitoring techniques that can later be applied to wild whales (e.g., health-related sample analyses of breath, saliva, feces, and skin; validating photogrammetry to monitor body condition; breath sampling to monitor health; and attachment of telemetry devices using suction-cups), and quantifying the effects of masking in beluga whale hearing and assessing physiologic responses from anthropogenic noise. This means that under Alternative 1, this data would not be collected on the five whales that could have been used to address recovery actions in the Cook Inlet Beluga Whale Recovery Plan (NMFS 2016) and to provide information to identify or evaluate conservation problems (e.g., threats) for the depleted Sakhalin Bay-Nikolaya Bay-Amur River beluga whale stock (Bettridge et al. 2016; Reeves et al. 2011). While there may be some biological information of value from scientific studies on breeding and pregnant and lactating females and their calves, it would not be considered significant (see Section 3.2.3).

3.2.3 *Environmental Consequences of Alternative 2*

As described below (Section 3.2.3.1), the proposed action is likely to adversely affect the five subject beluga whales to some degree, as well as the beluga whales currently residing at Mystic Aquarium, potentially resulting in minor or moderate impacts to the individuals. In general, the actions may cause stress due to restraint during transport or out of water events, and minor or moderate wounds from sampling (Schmitt et al. 2010; St. Aubin and Geraci 1988). In addition, the beluga whales may experience minor pain or discomfort from repeated biological sampling and other research activities. The repetition of the trials and procedures could worsen the impacts. However, the beluga whales are acclimated to humans and interact with the attending personnel and veterinarians on a daily basis and their participation would be voluntary (i.e., they would be able to leave the research sessions at any time). The beluga whales would be monitored daily and any abnormal behavior or health concerns would be evaluated and treated, if necessary, without delay. Research would be ceased, as needed, for the animals' well-being.

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[25]Russian beluga whales have been exported to at least 17 countries since 1993 (Fisher and Reeves 2005). In addition to a growing demand in China, in recent years live-captured beluga whales were also reportedly exported from Russia to Thailand, Egypt, Taiwan, Bahrain, and Turkey (Fisher and Reeves 2005; Rose and Parsons 2019).

In addition, the research proposed must be reviewed and approved by an Institutional Animal Care and Use Committee (IACUC), a committee that evaluates animal welfare during research activities as required by the AWA. The proposed permit includes conditions requiring IACUC approval of research protocols and that the IACUC protocols are consistent with the research methods approved by the MMPA permit.

The intrusive procedures could result in infection, but as mentioned above, sampled sites would be monitored daily and any infections would be treated as appropriate. There is no anticipated risk of serious injury or mortality resulting from the procedures, based on the experience of the animal care and training staff, the intended procedures, and the permit conditions to mitigate the impacts. The risk of adverse impacts is further reduced by the animals being acclimated to human presence (and therefore presumably less stressed than animals in the wild), their voluntary participation in research, and the limited sampling conducted during each research session. Thus, overall, the potential adverse impacts from individual sampling procedures are expected to be short-term and minor for the five subject beluga whales.

The five beluga whales were captive-born and cannot be released to the wild population under the proposed permit. While the proposed import and research is likely to adversely impact these individual beluga whales to some degree, the research would not directly affect the reproduction, numbers, or distribution of any wild population of beluga whales. While some of the procedures performed on the captive animals would be used to develop protocols for eventual use on wild animals, any future research on wild beluga whales using such protocols would involve separate permits or authorizations.

Mystic Aquarium currently maintains three beluga whales for the purpose of public display. The animals currently in their collection may be affected by the arrival and assimilation of the imported beluga whales. In order to mitigate potential adverse impacts to either the resident or imported whales, Mystic has developed an acclimation plan to allow for incremental introductions between the two groups of whales, which is consistent with industry procedures for wild mammals in captivity (e.g., Powell 2010). Initially, the imported whales would be maintained in a holding area for monitoring and acclimation, with visual and acoustic exposure to the resident animals. Within a week, the imported whales would be introduced to the two female resident whales; after an acclimation period, the same introduction process would be conducted with the imported whales and the resident male. Once all animals are introduced, a variable social group would be maintained. The introduction schedule would be flexible and dependent on the behaviors of the whales. In addition, potential adverse effects to conspecifics during research activities were considered. In general, other beluga whales are not expected to be adversely affected by another animal participating in research activities. Animals participate voluntarily and behaviors are not forced, reducing concern about the potential for negative interactions or aggression between animals. During the acoustic studies, conspecifics would be moved to a different pool to limit proximity to the sound source. The behaviors of the other beluga whales would be monitored during all research and activities would cease if there were signs that any conspecific was being adversely affected. Trainers and veterinary staff would monitor the whales' behavior daily. Thus, no significant direct impacts are anticipated.

A more detailed assessment of the impacts[26] of the proposed activities for Alternative 2 follows. Direct impacts are those caused by the proposed action and occur at the same time and place. Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.

3.2.3.1 Direct Impacts of Alternative 2

Importation/Transportation

Marine mammals are regularly transported safely and successfully between zoological parks and aquariums due, in part, to specialized transport techniques and equipment and careful monitoring of the health and welfare of individuals (Yip and Dold 2018). Transport, including moving animals from ground transportation and aircraft, however, may result in some stress to the affected animals (Noda et al. 2007; Schmitt et al. 2010; Small and DeMaster 1995; St. Aubin and Geraci 1988; Spoon and Romano 2012; Waples and Gales 2002). St. Aubin and Geraci (1989), cited by Curry (1999), noted that most physiological stress response indices were reported to normalize within the first week of captivity. In studies with captive beluga whales, physiological stress responses from transport and integration into new surroundings with unfamiliar conspecifics returned to baseline as whales adapted to new settings and conspecifics, indicating beluga whales exhibit a healthy physiological response and can adapt to transport, novel environments, and new social groups (Spoon and Romano 2012).

The transport plan proposed by Mystic Aquarium is intended to yield the least amount of stress practical given the logistical requirements. The permit would require the transport to be conducted in accordance with APHIS regulations, "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals" (9 CFR Part 3, Subpart E), as well as the USFWS' regulations for the importation of marine mammals (50 CFR Parts 14 and 23) (See Section 2.4.1). In addition, qualified personnel including an attending veterinarian and experienced husbandry personnel equipped to address any resulting adverse effects would accompany the animals. The whales would be expected to fully recover from effects of transport within the first week of arrival at their final destination. Based on data obtained from previous transports of marine mammals including beluga whales, the types of mitigation measures proposed as part of the application are relatively effective and standard practice for minimizing the potential for stress, pain, injury, and mortality associated with transport (Yip and Dold 2018). Given that stress from transport is transient and expected to dissipate within days to weeks, transportation is expected to result in minor to moderate impacts to the subject beluga whales.

Training for Voluntary Participation and Limited Restraint

Because Mystic Aquarium would train the animals to participate in their own health care behaviors and research behaviors, restraint would not be needed to accomplish the majority of the proposed research. Research samples would be primarily collected in conjunction with routine health sampling under behavioral control with voluntary participation by the whales. Whales would not be required to participate and there would be no negative consequences if they do not participate. Due to this, it is expected that there would be minor, if any, negative effects on the target animals. Because research would be conducted only in the controlled aquarium environment, there is no risk of direct negative consequence to animals in the wild. Conspecifics

[26]See 40 CFR §1508.8 Effects. Under NEPA regulations, effects and impacts are synonymous.

or other species (e.g., seals) at either aquarium are not expected to be negatively impacted when the subject whales are asked to do behaviors and research is occurring (see above). Behaviors that are not performed willingly would not be required so that there is no creation of any anxiety or frustration for the animal or between animals.

Some sampling (e.g., blood, fecal) may occur during out of water events, where the whale would be lifted out of the water via a hydraulic lift for weights or veterinary examinations. Schmitt et al. (2010) recorded physiological changes associated with the collection and handling of beluga whales during out of water events; however, the differences did not appear clinically significant as the changes normalized within 12 hours, indicating short term, minor stress responses. Veterinarians would be kept apprised of the status of each whale daily and have the authority to cease sampling for research at any time if this is in the best interest of a beluga whale's health and well-being.

The following describes the anticipated direct impacts from the proposed research procedures, primarily conducted under behavioral control, as described in the permit application.

Biological Sampling

Blood Samples

Under behavioral control, the beluga whale would voluntarily present its tail flukes for approximately 1-7 minutes. Researchers would stabilize and clean the fluke, and a trained veterinarian would collect the blood. In some cases, the animal may pull away or refuse to present flukes at all. If animal pulls away, superficial abrasions on flukes may occur and the needle insertion site could be mildly irritated. Short-term effects include minor, temporary irritation on the flukes. Complete healing of the site of needle stick typically occurs in a maximum of 30-40 days (Geraci et al. 1987), generally less, approximating 7-14 days. Oral antimicrobial medication may be required in the event the blood collection site develops local infection and inflammation, resulting in local irritation and prolonged healing times. However, while moderate impacts may occur, long-term physical effects are not anticipated. Behaviorally, the whale could develop an aversion to the behavior and become unwilling to participate. The proposed mitigation for this alternative would minimize these potential impacts and as a result, it is expected that blood sampling would result in only minor direct impacts.

Breath Samples

Under behavioral control, the beluga whale will exhale forcefully for sample collection (Thompson et al. 2014). Extreme repetitive sampling in a single day presents minor risk for upper respiratory irritation; however, sampling is limited to prevent this from occurring. There are no other short- or long-term effects expected, and there is no anticipated recovery time (i.e., breathing is a natural behavior). No negative impacts to the animals' health or well-being are anticipated.

Saliva Samples

Under behavioral control, the beluga whale would open its mouth while sterile gauze is rubbed on the upper palate for ~5-10 seconds. There are no short- or long-term effects expected, and there is no anticipated recovery time. No negative impacts to the beluga whales' health or well-being are anticipated.

Fecal Samples
Under behavioral control, the beluga whale would lie ventrally in water and allow researchers to insert and then remove a lubricated tube into anal opening. While there are typically no effects from the behavioral fecal collection as described, it is possible for the skin around the opening of the anus to become mildly and superficially irritated in the short-term. This typically resolves without need for treatment within a few days. Behaviorally, the animal could pull away from trainer during fecal collection or not allow fecal collection. Physically, short-term, minor or moderate irritation is possible. Should this be noted, veterinarians would require cessation of sampling until the irritation in that area has resolved. No long-term impacts are expected, as the sampling would be stopped if any irritation develops.

Skin Scrapings
Under behavioral control, the beluga whale would present their body to allow for gently rubbing of skin with various objects (e.g., swab or spatula) for skin scraping. As skin sloughs naturally, and whales are naturally tactile with conspecifics and other surfaces, there is no consequence to collecting this sample; no pain or distress is expected to occur. No negative impacts to the beluga whales' health or wellbeing are expected.

Orifice Swabs (Blowhole, Anal, Vaginal)
Under behavioral control, the beluga whales would present open blowholes while a sterile swab is inserted and gently rubbed along the mucosa and removed. For anal and vaginal swabs, the beluga whales would lie ventrally at surface of water while a sterile swab is inserted into the anal slit or vaginal opening for a couple of seconds and removed. On a rare occasion, if a whale were to break from their position during the behavior, minor, superficial irritation at the orifice could occur. Should minor or moderate superficial irritation occur, sample collection would be ceased and the irritation would be expected to resolve in 2-3 days. No long-term impacts are anticipated.

Other Proposed Research Procedures
As described in Section 2.2.1, Mystic Aquarium proposes that the beluga whales would participate in additional studies including hearing measurements, photogrammetry and morphometrics, diving physiology, ultrasound, and testing of telemetry devices and cameras. The whales would be trained to voluntarily participate in these methods except for weights, which would require restraint in a stretcher.

Photogrammetry and Morphological measurements (Body Length, Axillary Girth, Body Mass)
Photogrammetry: Under behavioral control, the beluga whales would swim at a slow speed underneath a camera for photographs. No negative impacts on the animals are anticipated from photogrammetry.

Length and girth: Under behavioral control, two length measurements would be taken with the whales stationing in both a dorsal and ventral layout. For girth measurements, the beluga whales would perform a dorsal layout at the surface of water; researchers would wrap a fabric measuring tape around the base of peduncle and at six specific locations along the body. Minor impacts could occur if animals were to break away during measurements, as the sides of measuring tape could cause minor superficial abrasions on the body. In the unlikely event that a minor or

moderate superficial abrasion occurs, this would likely heal within a few days to a week without treatment required.

Weights: Under behavioral control, the beluga whales would enter a pool where a hydraulic lift would be raised up to create a depth of approximately 3 feet of water, where the whale would be guided into a stretcher attached to a crane. Researchers would check the positioning to ensure that the animal is safely secured prior to lifting the stretcher with the crane for weighing. Staff would monitor the behavior of the whale, the position of the whale, and the pectoral flippers to ensure a safe exit of the whale from the stretcher to the pool. A veterinarian would observe the beluga at all times during weighing and for a minimum of 30 minutes following the procedure. If a beluga whale moves too much in the stretcher such that there is risk for injury, the procedure would be stopped. If a beluga whale were to make large movements in the stretcher, it is possible that parts of body (flukes, pectoral flippers) could sustain minor or moderate superficial abrasions or bruising that would heal within a few days to a week without treatment. No long-term impacts are anticipated. Beluga whales may not allow the behavior, in which case behavioral axillary girths in combination with visual assessment of animal condition would be used to monitor beluga condition.

Hearing and Physiological Response to Anthropogenic Sound

Under behavioral control, the beluga whales would be exposed to various decibels and frequencies of noise, which are not expected to cause any damage to hearing or anxiety to whales. Short-term effects may result in the beluga whale refusing to lay out or swim away from the speaker if the sound is undesirable. To ensure temporary threshold shift (TTS) thresholds are not reached, as a precautionary approach, researchers would set a maximum SEL_{cum} equivalent to 20 dB below the TTS threshold. Following the NOAA Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (NMFS 2018), beluga whales fit into the mid-frequency cetaceans hearing functional group, and thus their TTS threshold is 185 dB (SEL_{cum}) and 230 dB (PK). The maximum sound exposure at 1 m will never exceed 165 dB (SEL_{cum}) over 24 hours (including all sessions within a day), or 210 dB PK. Because the maximum SL cannot exceed 180 RMS dB (transducer physical limitation), it will be impossible to exceed 210 dB PK under any session design, therefore peak values will not be considered for TTS risk. Researchers would be required to test the subject animals' hearing as soon as possible after each auditory exposure session for full recovery to ensure TTS has not occurred. If at any point TTS occurs and full recovery is not observed, researchers must discontinue further exposure until recovery to pre-testing levels is observed. Thus, only minor impacts to the subject whales are anticipated from the auditory research.

Non-target animals would be gated or moved to separate pools. The acoustic power of the proposed underwater speakers (both source level and directionality of the projection driven by the size of the speakers and the wattage) is not strong enough to exceed the baseline background noise levels of the facilities in adjacent pools where non-target animals would be. Thus, no adverse impacts to non-target animals at the aquarium are anticipated.

Ultrasound Measurements
Under behavioral control, the beluga whales would lay out at the surface while the ultrasound instrument is rubbed externally along a whale's body. No negative impacts are anticipated from the use of ultrasound.

Preventing Breeding
The permit would require that Mystic Aquarium provide a plan to prevent breeding, which could include safe contraception or physical separation. This would allow Mystic Aquarium's veterinarians and beluga whale experts to assess the safest methods and husbandry management for the individual whales as well as for the entire social group. In the event contraception would be used, this would impact the proposed Study 7 to monitor normal reproductive hormonal cycles, and physical separation would impact the proposed collection of reproductive behavioral data (e.g., mating behavior). However, biological sampling and ultrasound would still be permitted as part of normal husbandry to allow monitoring of the reproductive status of any whales placed on contraception or physically separated.

Contraceptive use in cetaceans is relatively safe, effective, widely obtainable, easy to administer, and has been used extensively over the last two decades to synchronize estrus and prevent pregnancy in female cetaceans; however, bottlenose dolphins and killer whales have conceived while on contraceptives (Robeck et al. 2018). For seasonally breeding species, such as beluga whales, contraception can be achieved through limited intervention at the onset of, or during, the reproductive season; strategic administration can minimize adverse effects associated with contraceptive use (Calle 2005). Adverse effects have been noted when administered to those with preexisting conditions (e.g., uterine infection) and pregnant animals, leading to abnormal fetal development, early fetal death and abortion. In general, some contraceptives are likely to cause weight gain, though this can be easily managed in zoos and aquariums with diet adjustments (Robeck et al. 2018). Less is known of male contraceptives, but GnRH (gonadotropin releasing hormone) agonists have been used to manage fertility and aggression in males (Robeck et al. 2018). These have been noted to suppress testosterone production, reduce testicular size, with the only negative effect noted to be a single large granuloma at the injection site (Johnson, pers. comm. as cited in Robeck et al. 2018). In general, the utility of GnRH agonists shows promise as a successful birth control for males (Robeck et al. 2018).

Physical separation (e.g., isolating males and females into discrete social groupings) is an alternative to veterinary contraceptives. Public display facilities typically mimic this social dynamic by maintaining associations and appropriate groupings of age and sex classes in managed care, which is thought to reduce stress and behavioral stereotypy, and promote optimal social development and welfare (Brando et al. 2018; Hill and Nollens 2019; Waples and Gales 2002). In the wild, outside of the breeding season beluga whales typically live in large social groups that often appear to be organized by age and sex. Adult males are frequently grouped with other males; and related adult females, juvenile males and females, and calves may be found in larger groups (Colbeck et al. 2013; Heide-Jørgensen and Lockyer 2001; Krasnova et al. 2009; Loseto et al. 2006; Smith et al. 1994; Turgeon et al. 2012). Also, because captive beluga whales are seasonal breeders, with periods of peak fertility typically between February and May (Glabicky et al. 2010; O'Brien et al. 2008; Richard et al. 2017; Robeck et al. 2018) separating

males from females during these seasonal reproductive windows, rather than year-round, may aid in preventing breeding without significant disruption to social groups.

Testing of Prototype Telemetry Devices and Cameras (Attached with Suction Cups)
Under behavioral control, the beluga whales would lay out at the surface of the water while researchers place a telemetry device on the flat surface of the back via suction cups. The whales would swim and dive and perform other behaviors to monitor the attachment of the instrument. It is possible that suction cups could cause local minor or moderate skin irritation/inflammation. In this case, further attachment would cease and the irritation would likely resolve without treatment within a week. No long-term impacts are anticipated from the suction cup attachment.

Dive Physiology
Under behavioral control, the beluga whales would voluntarily hold their breath for up to 5 minutes while they modify their swim behaviors (i.e., stationary and active) before providing above mentioned biological samples (e.g., blood and exhaled air). As belugas can hold their breath underwater for periods much longer than 5 minutes, no negative effects on the belugas are anticipated with this behavior. See potential effects from post-behavior sampling above. No short- or long-term negative impacts are anticipated from performing this behavior.

Based on the analysis above, we do not anticipate significant direct impacts to the five subject beluga whales under Alternative 2.

3.2.3.2 Indirect Impacts of Alternative 2

As mentioned above, indirect impacts are those impacts caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. The Sakhalin Bay-Nikolaya Bay-Amur River stock was designated as depleted due, in part, to impacts from unsustainable live-captures for the aquarium industry (Bettridge et al. 2016). Given the continued demand for beluga whales in zoos and aquariums, this stock is potentially still subject to live-captures for trade in captive cetaceans, which is considered controversial (Naylor and Parsons 2019; Parsons and Rose 2018; Wassermann et al. 2018)[27]. Thus, we consider potential indirect impacts to this population from the import of the five beluga whales from Marineland. In addition, the proposed action has the potential to indirectly benefit wild beluga whale populations, by producing information to help with conservation and management of belugas in the wild.

For the importation of these five whales, the applicant submitted a signed affidavit from the president of Marineland, Marie Holer (see permit application, Appendix 16: Marineland Assurance) that Marineland does not intend to acquire more beluga whales from any other facility or from capture from the wild. In the affidavit, Ms. Holer stated that the population at Marineland has reached a level that makes further acquisitions unnecessary. The affidavit also confirms that Marineland has adopted a new policy to reduce the size of its captive beluga whale population in an effort to improve the beluga whales' welfare. The affidavit also states that the

[27]Public controversy over the live trade in cetaceans is primarily focused on cetaceans used for entertainment purposes (i.e., public display). For this application, public comments were received alleging that the proposed permit was for public display and not scientific research because the whales would be on display incidental to the proposed research.

current management at Marineland supports the transport of five beluga whales for research purposes. In addition, Canada finalized Bill S-203 (https://www.parl.ca/DocumentViewer/en/42-1/bill/S-203/royal-assent), prohibiting import and export of cetaceans or their parts with certain exceptions for cetaceans already maintained in captivity, those that may be rehabilitated (following an injury or other distress) and for scientific research purposes. Canada ceased capture of beluga whales within their waters in 1992; any future captures are officially banned under the new law. Thus, in this case NMFS finds that the requested import will not likely result in captures of marine mammals from the wild to replace the five subject whales at Marineland.

In 2013, NMFS denied an application from the Georgia Aquarium to import 18 wild-caught beluga whales from Russia for purposes of public display. In that case, NMFS cited concerns with the effects of ongoing commercial captures on the population from which those beluga whales had been taken. NMFS' permit denial was upheld in *Georgia Aquarium, Inc. v. Pritzker*, 135 F. Supp. 3d 1280 (N.D. Ga. 2015). The Georgia Aquarium permit application can be distinguished from Mystic's application in several ways. The Georgia Aquarium permit application involved a proposed import of 18 wild-captured beluga whales. Because the whales were removed from the wild population as part of an ongoing commercial capture operation, NMFS examined the proposed importation in combination with other past, present, and foreseeable future actions affecting the stock, including ongoing live captures from this stock. In the case of Mystic's proposal to import captive-born whales for purposes of research, the analysis is somewhat different. No beluga whales are being captured from the wild for import and the purpose of the proposed research is to benefit the conservation and management of wild stocks of this species. Furthermore, authorizing importation of the captive-born whales from Marineland could potentially lessen impacts to wild populations by providing existing animals that can be used for conservation research (Fisher and Reeves 2005).

As discussed in Section 3.2.1, while it appears Russia has restricted the capture of beluga whales and other cetaceans at this time, Russia does not have a permanent capture ban such as Canada and it is possible that captures from the depleted beluga whale population could resume at some point in the future based on global demand[28] (e.g., China Cetacean Alliance 2019; Fisher and Reeves 2005; Reeves et al. 2011; Rose and Parsons 2019), regardless of the proposed action and issuance of the permit under this alternative. While demand from nations other than the United States for beluga whales from the Russian stock may continue regardless of the proposed action, NMFS' jurisdiction over those actions is limited. It is possible that other U.S. facilities may apply for a permit to import captive beluga whales from Marineland for scientific research purposes, which would be considered a separate federal action. As already noted, depleted marine mammals cannot be imported for public display purposes but can be imported for scientific research or enhancement purposes. It has been suggested that any trade in live beluga whales could potentially increase the demand for beluga whales around the world (China Cetacean Alliance 2019; Fisher and Reeves 2005; Rose and Parsons 2019). However, it is difficult to quantify supply-and-demand factors that demonstrate how importation of captive-born whales might contribute to increased demand for beluga whale removals from the wild. At this time, there is no available scientific literature, or other relevant references or documentation

[28]See footnote 25.

that actually support such a link. Based on the analysis above, we do not anticipate significant indirect effects from Alternative 2.

3.2.4 Environmental Consequences of Alternative 3

Under Alternative 3, impacts would be the same as Alternative 2 with the exception that breeding would be allowed to occur naturally and research would be authorized on pregnant and lactating females and their progeny. Therefore, the discussion regarding direct and indirect impacts focuses on potential impacts associated with allowing natural breeding and research on pregnant and lactating females and their progeny.

3.2.4.1 Direct Impacts (Alternative 3)

The direct impacts of Alternative 3 would be the same as in Alternative 2, except in Alterative 3, natural breeding to produce offspring and opportunistic research on pregnant and lactating females and their calves would be authorized[29].

Regarding breeding, captive beluga whales typically reach sexual maturity between 6 –7 years of age, with age at first conception at around 9 years (Robeck et al. 2005). Beluga whale socio-sexual behaviors and mating in captivity is seasonal, as found in wild populations (Glabicky et al. 2010; Hill et al. 2015; Robeck et al. 2018). Distinguishing between agonistic and mating behaviors can be challenging depending on context (Hill et al. 2015). Some researchers have recognized that biting and fighting, typically perceived as agonistic behaviors, can also be a precursor to mating (Connor et al. 2000; Hill et al. 2015). In addition, Hill et al. (2015) found that across three captive beluga whale populations, agonistic and mating interactions were not mutually exclusive. In some cases, socio-sexual behaviors initiated by males led to agonistic and evasive behaviors, including flight, by females (Hill et al. 2015, Richard 2016); one interaction was described as non-coercive (Richard 2016). Thus, breeding could result in moderate direct impacts.

Regarding pregnancy and birth, captive beluga whale gestation ranges from 444 – 507 days, with male calves gestating longer than females (Robeck et al. 2015; Robeck et al. 2018). Reproductive-related problems can occur such as embryonic loss (i.e., miscarriage), difficult birth (potentially resulting in death of the dam), or stillbirth. Robeck et al. 2018 reported two cases of stillborn beluga whales. Following birth, the calf could fail to thrive and nurse and/or suffer from poor maternal care (Robeck et al. 2018). In both wild and captive beluga whales, calves nurse between 1 – 3 years and calving intervals are typically three years or more (Matthews and Ferguson 2015; Robeck et al. 2018). Regarding captive beluga whale breeding within the United States, according to the National Inventory of Marine Mammals (NIMM)[30], the first beluga whale birth in a U.S. zoo or aquarium was reported to NMFS in August 1981 and

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[29]The permit application stated that if breeding were successful, no more than two calves may be born over the duration of the permit.

[30]In accordance with Section 104(c)(8) of the MMPA, U.S. zoos and aquariums must report births of marine mammals to NMFS within 30 days of the date of birth; and, in accordance with Section 104(c)(10), the date and cause of death of a marine mammal must also be reported. However, NMFS has not developed a clear policy on reporting deaths and stillbirths and thus, such occurrences have not been consistently reported (84 FR 4443, February 15, 2019).

a total of 45 beluga whale births have been reported. Of these, according to NIMM, 24 of the whales have died, 11 of which were under 1 year of age at time of death, including two reported stillbirths. The Alliance of Marine Mammal Parks and Aquariums has reported that 69% of beluga whale calves held in North American facilities survived past their first year (Willis 2012). Finally, at least one adult female is reported (to NMFS) having died from reproductive-related complications. Thus, parturition could result in major direct impacts (i.e., if the calf or dam were not to survive).

The impacts of conducting research on pregnant and lactating females and calves would be similar to those discussed in Section 3.2.3.1 regarding impacts to the imported whales (i.e., minor or moderate impacts); however, due to the reproductive status of the females and sensitive life stage of calves, more moderate impacts from research could result, such as increased stress (e.g., Schmitt et al. 2010). The mitigation proposed in Section 2.5.1 would require that the research not interfere with these sensitive life stages and that it could only occur concurrently with the routine care and husbandry of the animals at the discretion of the attending veterinarian. Calves could not be handled expressly for the purposes of research. Based on the mitigation under this alternative, no direct impacts from carrying out the research activities would be anticipated over that which would be necessary for the normal veterinary care and husbandry of the animals. However, pregnancy could result in the loss of some research sampling if the attending veterinarian determined it was not safe for the pregnant female or her calf to participate in the research. In that case, pregnancy could result in the loss of a more robust sample size to improve the studies. Any research on calves that would participate in the studies would be opportunistic when they were handled for health assessment purposes, and the calves would not participate in all of the studies (e.g., calves would be excluded from masking hearing studies, diving physiology, and attachment of telemetry devices); therefore, this data would also be limited.

Mitigation measures would be in place to require monitoring of the animals and veterinary care, and research on pregnant females and calves would be limited in scope such that it could not interfere with pregnancy, birth, lactation and calf development. In addition, Mystic Aquarium indicated in the permit application that breeding may not occur at all. While major direct impacts could result during pregnancy and birth (e.g., stillbirth or miscarriage), the risk of mortality is anticipated to be low based on the mitigation measures proposed by the applicant, experience of the husbandry and veterinary staff, as well as the permit conditions to mitigate the effects. Thus, no significant direct impacts are anticipated under this alternative.

3.2.4.2 Indirect Impacts (Alternative 3)

The indirect impacts of Alternative 3 would be the same as Alternative 2, with the exception that under Alternative 3, breeding, pregnancy and birth of progeny and their opportunistic participation in research would be permitted. As mentioned in Section 3.2.3.2, there is no available scientific literature, or other relevant references or documents, to support a link between importation of the five subject captive-born beluga whales and an increase in demand for removals of beluga whales from the wild. This also applies to breeding of the subject whales and production of up to two progeny. Also discussed in Section 3.2.3.2, breeding of the captive-born whales could potentially lessen impacts to wild populations (Fisher and Reeves 2005).

Consistent with Alternative 2, no significant impacts are anticipated to wild populations from this alternative.

3.3 CUMULATIVE EFFECTS

In reviewing the definition of cumulative effects (40 CFR §1508.7[31]) and the information provided in the application, this assessment focuses on the preferred alternative and the conduct of the scientific research activities on individual whales in a captive setting and the beluga whale species and stocks in the wild.

3.3.1 Scientific Research Activities

As reported to the National Inventory of Marine Mammals, there are 32 beluga whales currently maintained in captivity in aquariums in the United States, the majority of which are held under public display status, with only one beluga whale (from the Cook Inlet DPS) being held pursuant to a scientific research and enhancement permit[32] at SeaWorld of Texas. No other permits for research on beluga whales at Mystic Aquarium, Georgia Aquarium or other facilities in the United States have been issued, and NMFS is not aware of other proposals to import beluga whales from Marineland or other facilities for scientific research purposes.

For the current permit request under consideration, significant cumulative effects to the five individual beluga whales are not expected to result from the short-term, minor or moderate impacts associated with scientific research activities over the duration of the permit. This is primarily because research protocols proposed by Mystic Aquarium and the mitigation measures that will be required under the permit are designed to avoid or minimize potential effects to animals. For example, for all procedures except weighing, individual whales would not be restrained and would be able to exit the research sessions if they did not want to participate; research involving sound exposure (i.e., masking studies) is designed to ensure hearing is not negatively impacted. The number of research activities performed is dictated by the whales' willingness to participate. Researchers and husbandry personnel would monitor the behavior and well-being of the animals daily; the attending veterinarian(s) would conduct health assessments and treat animals, as necessary, for any injuries (e.g., scrapes, infections) that may arise from the research procedures. Researchers, husbandry personnel, and veterinarians would advise if research should be halted, and research would cease if there were any indications of significant negative effects on the health and welfare of the animals from individual research actions or cumulatively over the duration of the permit. The research procedures overall are expected to result in short-term minor or moderate impacts[33] that would not be considered collectively

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[31]"Cumulative effects is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

[32]Scientific research pursuant to MMPA Section 104 and ESA Section 10(a)(1)(A) and enhancement pursuant to ESA Section 10(a)(1)(A) only.

[33]As defined in Section 3.1.1, minor impacts are those that result in very low risk of injury from which animals can recover in the course of the day (minutes to hours), and moderate impacts are those that may result in minor injury or superficial harm to the animal with animals recovering and healing within days to weeks of the event.

significant due to the monitoring and mitigation required and the fact that the research activities would be conducted at a pace that the whales dictate through their own volition.

3.3.2 Wild Populations

As discussed in Section 3.2.1, a number of threats exist to wild populations of beluga whales which could have cumulative impacts. These include natural disasters, oil spills and other pollution, anthropogenic noise, disease, harmful algal blooms, habitat degradation, entanglement in fishing gear, vessel strikes, climate change, subsistence hunting, and live-captures for the aquarium trade. However, based on the analysis in Section 3.2.3.2 (Indirect Impacts of Alternative 2), NMFS does not anticipate significant cumulative impacts to wild populations associated with NMFS' issuance of the permit authorizing import and research.

CHAPTER 4 LIST OF PREPARERS AND AGENCIES CONSULTED

Prepared By:
NOAA National Marine Fisheries Service
Office of Protected Resources
Permits and Conservation Division

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