



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

December 23, 2020

Stephen M. Coan, Ph.D.
President and CEO
Mystic Aquarium
55 Coogan Boulevard
Mystic, CT 06355

Dear Dr. Coan:

Per Condition III.B.6.e of Permit No. 22629, as amended, I approve the breeding prevention plan (hereafter the 'plan') submitted by Mystic Aquarium on December 1, 2020, to be safe and effective in preventing breeding of any of the imported beluga whales with the following conditions hereby incorporated:

1. Prior to importation, the female beluga whales authorized by the permit must be examined to confirm they are not pregnant.¹
2. Once at Mystic Aquarium, reproductive monitoring must immediately be initiated on the female beluga whales authorized by the permit that are age 6 and older.² This monitoring must be conducted via ultrasound and, if determined appropriate by the attending veterinarian, via other sampling³. The timing and frequency of ultrasounds and other sampling must be conducted to account for the possibility of multiple reproductive cycles⁴ over the entirety of each breeding season (typically January through June⁵). Once ovarian cycling is confirmed complete via ultrasound, the females authorized by the permit can rejoin a social group containing any reproductive male no sooner than three days after ovulation or resorption.

¹50 CFR §216.35(d) and Permit Condition III.B.6.d.

²Sexual maturity in free-ranging and captive female beluga whales is estimated at 6–7 years (Robeck et al. 2005; Robeck et al. 2018).

³In addition to ultrasound, which is effective for monitoring reproductive status in both males (Richard et al. 2017) and females (Steinman et al. 2012), to implement the plan the attending veterinarian may utilize sampling described in Study 7 and as authorized in Appendix 1, Table 1 (see footnote 1) of the permit, as amended. Urinary endocrine monitoring has also been included in Appendix 1, Table 1 as an indicator of beluga whale reproductive cycles (Steinman et al. 2012).

⁴Female beluga whales may spontaneously ovulate and have been observed to have an inter-estrous interval of approximately 34 days during the breeding season (Steinman et al. 2012).

⁵As defined by Robeck et al. 2005.

3. Physical separation of any male imported under the permit from any reproductively viable female at Mystic⁶ must begin at age 8⁷ or, if testicular ultrasound or other sampling will be performed, when he is first determined to be sexually mature, whichever is earlier.

Mystic Aquarium must implement the protocols described in the plan, including the above conditions, to be compliant with the terms and conditions of the permit, as amended. The authority to conduct certain activities specified in the permit, including but not limited to implementation of and compliance with the plan, is conditional and subject to authorization by the Office Director.⁸ Any changes to the plan as amended by the conditions above, must be approved by the Office Director. You must submit any changes no later than October 1 annually for approval. In addition, annual reports must include a summary of the implementation of the plan during the previous breeding season.

We expect the plan will be effective, but in the unlikely event that the plan should fail and any of the imported beluga whales breed, this would be a violation of the Marine Mammal Protection Act. Breeding the imported beluga whales could subject Mystic Aquarium to civil and criminal penalties; seizure and forfeiture of the imported beluga whales and their progeny; and permit modification, suspension, or revocation.

Please contact Amy Sloan (Amy.Sloan@noaa.gov) of my staff, if you have any questions.

Sincerely,

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Donna S. Wieting
Director
Office of Protected Resources

Enclosure

cc w/ enclosure: Anna Barry, USFWS
Barbara Kohn, D.V.M., USDA/APHIS
Peter Thomas, Ph.D., Marine Mammal Commission

⁶Including those held for public display purposes that are not subject to the permit.

⁷Sexual maturity in free-ranging and captive male beluga whales is estimated at 8–9 years (Robeck et al. 2005; Robeck et al. 2018).

⁸Permit Condition III.J.1.b.

Enclosure: References

- Richard, J. T., Schmitt, T., Haulena, M., Vezzi, N., Dunn, J. L., Romano, T. A., and Sartini, B. L. 2017. Seasonal variation in testes size and density detected in belugas (*Delphinapterus leucas*) using ultrasonography. *Journal of Mammalogy*, 98(3), 874-884.
- Robeck, T. R., Monfort, S. L., Calle, P. P., Dunn, J. L., Jensen, E., Boehm, J. R., Young, S., and Clark, S. T. 2005. Reproduction, growth and development in captive beluga (*Delphinapterus leucas*). *Zoo Biology*, 24(1), 29-49.
- Robeck, T., O'Brien, J., and Atkinson, S. 2018. Reproduction. In: F.M. Gulland, L. A. Dierauf, and K. L. Whitman (Eds.), *CRC Handbook of Marine Mammal Medicine, 3rd Edition* (pp. 169-207). CRC Press.
- Steinman, K. J., O'Brien, J. K., Monfort, S. L., and Robeck, T. R. 2012. Characterization of the estrous cycle in female beluga (*Delphinapterus leucas*) using urinary endocrine monitoring and transabdominal ultrasound: evidence of facultative induced ovulation. *General and Comparative Endocrinology*, 175(3), 389-397.



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

April 15, 2022

Stephen M. Coan, Ph.D.
President and CEO
Mystic Aquarium
55 Coogan Boulevard
Mystic, CT 06355

Dear Dr. Coan,

Thank you for the request for temporary authorization under Permit No. 22629 to revise the breeding prevention plan, approved on December 23, 2020, to add the use of the oral contraceptive altrenogest (Regu-mate®) administered once daily in the fish diet to the female beluga whale Sahara (NOAA ID NOA0010683) on a short-term basis. This temporary authorization is subject to conditions and contingent upon submission of a more comprehensive revision to the breeding prevention plan for approval by our office (see #3 below).

We understand this is a matter of some urgency, since separation of the whales has resulted in Sahara not eating her full diet and not performing medical husbandry behaviors including ultrasound for reproductive monitoring and other behaviors for health monitoring, which could negatively impact her health if it persists. Physical separation is also causing some behavioral and social disruption within Mystic's entire beluga population, as bonded whales are now being isolated from one another.

The purpose of the short-term administration of a contraceptive medication to Sahara is to mitigate the effects from gender separation and have the ability to adjust the social groups for optimal animal health and management. I hereby approve your request with the following conditions:

1. Sahara must be physically separated from the adult male for at least 24 hours post-administration of the contraceptive.
2. If any adverse reactions are observed from administration of the contraceptive, you must cease its use, separate Sahara, and contact our office (amy.sloan@noaa.gov) immediately.
3. As soon as possible, and no later than April 22, 2022, you must submit a more comprehensive revision to the breeding prevention plan for approval by our office. Please include justification for the continued contraceptive use, a summary of its use in Sahara and any noted reactions (physical and behavioral), timing/duration of the contraceptive use, monitoring protocols, anticipated adverse reactions, mitigation measures, and emergency management of possible adverse drug reactions or other adverse reactions during breeding prevention.

As we noted in our November 13, 2020, letter to Mystic Aquarium, and in the administrative record for issuance of the permit, progesterin-based contraceptive methods have been shown to be



safe and effective in most species for decades, including cetaceans. For more than twenty years the AZA-recommended synthetic progestin altrenogest (Regu-mate®) has been the primary contraceptive for breeding management of captive cetaceans, including beluga whales. Thus, we consider the short-term use of this contraceptive a safe alternative to physical separation under Permit No. 22629.

Sincerely,

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For Kimberly Damon-Randall
Director
Office of Protected Resources



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

May 24, 2022

Stephen M. Coan, Ph.D.
President and CEO
Mystic Aquarium
55 Coogan Boulevard
Mystic, CT 06355

Dear Dr. Coan,

Thank you for the request for temporary authorization under Permit No. 22629 to revise the breeding prevention plan, approved on December 23, 2020, to add the use of the oral contraceptive altrenogest (Regu-mate®) administered once daily in the fish diet to the female beluga whale Kharabali (NOAA ID NOA0010671) on a short-term basis. This is in addition to the emergency authorization we issued on April 15, 2022, for the beluga whale, Sahara (NOAA ID NOA0010683), while we are reviewing the more comprehensive revision to the breeding prevention plan submitted on May 18, 2022, to our Office for approval.

The purpose of the short-term administration of a contraceptive medication to Kharabali is to mitigate the effects from gender separation and have the ability to adjust the social groups for optimal animal health and management. I hereby approve your request with the following conditions:

1. Kharabali must be physically separated from the adult male for at least 24 hours post-administration of the contraceptive.
2. If any adverse reactions are observed from administration of the contraceptive, you must cease its use, separate Kharabali, and contact our office (amy.sloan@noaa.gov) immediately.

As we noted in our November 13, 2020 and April 15, 2022, letters, to Mystic Aquarium and in the administrative record for issuance of the permit, progestin-based contraceptive methods have been shown to be safe and effective in most species for decades, including cetaceans. For more than twenty years the AZA-recommended synthetic progestin altrenogest (Regu-mate®) has been the primary contraceptive for breeding management of captive cetaceans, including beluga whales. Thus, we consider the short-term use of this contraceptive a safe alternative to physical separation under Permit No. 22629.

Sincerely,

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Kimberly Damon-Randall
Director
Office of Protected Resources





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

October 28, 2022

Ms. Katie Cubina
Acting President and CEO
Mystic Aquarium
55 Coogan Boulevard
Mystic, CT 06355

Dear Ms. Cubina,

Thank you for the request for authorization under Permit No. 22629-02 to amend the breeding prevention plan to add the use of the oral contraceptive altrenogest (Regu-mate®), administered once daily in the fish diet to the female beluga whales, Jetta (NOA0010684), Kharabali (NOA0010671), and Sahara (NOAA ID NOA0010683) on a short to medium-term basis for the duration of the permit.

The purpose of this update is to authorize the use of contraception at any time of year for these three whales at the discretion of the Attending Veterinarian. This includes situations where the whales are not voluntarily allowing ultrasound of the ovaries and gender separation is not preferred, or in any other case where Mystic Aquarium believes pregnancy prevention steps are necessary and the Attending Veterinarian determines contraception will pose no health concerns to the animal(s).

After reviewing the information Mystic Aquarium provided about the health and status of the three whales, including the lack of observed adverse effects of contraceptive use in Karabali and Sahara during the previous breeding season, I hereby approve your request for the duration of the permit with the following conditions:

1. Each female whale must be physically separated from any sexually reproductive male for at least 24 hours following the initial administration of the contraceptive.
2. If any adverse reactions are observed from administration of the contraceptive in any of the whales, you must cease its use and implement gender separation or ultrasound monitoring for that animal. You must also contact our office (amy.sloan@noaa.gov or 301-310-1062) within two business days.
3. If the Attending Veterinarian determines contraception may be detrimental to the health of an animal, you must implement gender separation or ultrasound monitoring instead of oral contraception.



All other conditions of the breeding prevention plan, as previously authorized,¹ remain in effect.

As we noted previously, progestin-based contraceptive methods have been shown to be safe and effective in most species for decades, including cetaceans. For more than twenty years, the Association of Zoos and Aquariums' recommended synthetic progestin altrenogest (Regumate®) as the primary contraceptive for breeding management of captive cetaceans, including beluga whales. Thus, we consider the short to medium-term use of this contraceptive a safe alternative to physical separation under Permit No. 22629-02.

Please contact Amy Sloan if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kimberly BQ', followed by a long horizontal line extending to the right.

Kimberly Damon-Randall
Director
Office of Protected Resources

cc: Deborah Fauquier, DVM, MPVM, PhD, MMHSRP
Carolyn McKinnie, DVM, USDA/APHIS
Peter Thomas, PhD, MMC

¹ As described in Mystic Aquarium's December 1, 2020, letter and as authorized by NMFS on December 23, 2020, and amended on April 15, 2022, and May 24, 2022.