



# MARINE MAMMAL COMMISSION

22 December 2017

Ms. Jolie Harrison, Chief  
Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Re: Permit Amendment Application Nos.  
14450, Southeast Fisheries Science Center  
14856, Bruce Mate, Ph.D., Oregon State University  
16239, Dan Engelhaupt, Ph.D., HDR EOC  
17312, Scripps Institution of Oceanography  
18636, Iain Kerr, D.H.L., Ocean Alliance

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit amendment applications with regard to the goals, policies, and requirements of the Marine Mammal Protection Act (the MMPA). The various applicants are requesting to amend their permits to authorize the taking of Gulf of Mexico Bryde's whales<sup>1</sup> due to the National Marine Fisheries Service's (NMFS) proposed rule to list that subspecies as endangered under the Endangered Species Act (ESA, see the applications for details). The various activities would be valid until each respective permit's current expiration date.

If the proposed ESA listing becomes final, NMFS plans to conditionally authorize the taking by Level A harassment<sup>2</sup> of Gulf of Mexico Bryde's whales to be no more than the population estimate<sup>3</sup> across all permits combined<sup>4</sup> each year. The currently authorized numbers of Level A harassment takes are much greater than the population estimate. Through an adaptive management process, NMFS may re-authorize or re-allocate takes among the permits on an annual or other specified basis after evaluation of the status of the species, management needs, researchers' plans, and takes reported by all permit holders during the previous year. The Commission acknowledges that increasing the understanding of the population structure, distribution, and overall health of

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<sup>1</sup> The various activities had been authorized relative to the species as a whole for most of the permits.

<sup>2</sup> Via biopsy sampling and tagging. Each animal could be intentionally sampled no more than two times per year (no more than two samples collected each time) and/or could be intentionally instrumented with no more than two tags per year (no more than one tag attached with suction cups and one with a dart(s)).

<sup>3</sup> Which currently is 33 whales.

<sup>4</sup> Which also includes permits issued to Robin Baird and the Marine Mammal Health and Stranding Response Program (permits 20605 and 18786, respectively). Those permits already authorize takes specific to the Gulf of Mexico population of Bryde's whales.

Bryde's whales in the Gulf of Mexico is critically important to inform management decisions. However, obtaining the relevant information should be conducted in a measured manner.

### **Biopsy sampling**

All of the permit holders currently have, and all except Southeast Fisheries Science Center (SEFSC) request to retain, authorization to biopsy sample an individual Bryde's whale once in a given year. SEFSC is requesting to collect up to four biopsy samples per year from any individual. Two samples could be collected by SEFSC during a single sampling event with up to two sampling events per year to conduct both genetic and various contaminant, hormone, and stress analyses. Although SEFSC aims to collect up to two samples during a single approach, that may not be possible due to biopsy dart misses, biopsy dart bounces, crossbow or airgun/rifle misfirings, or insufficient sample acquisition. Thus, it would be prudent for NMFS to condition SEFSC's permit to ensure that the whales are not unduly harassed during the collection of multiple biopsy samples. The Commission recommends that NMFS condition SEFSC's permit to cease biopsy sampling activities if any whale exhibits evasive behavior.

### **Deep-penetrating, implantable tags**

Of the seven permit holders currently authorized to conduct research on Bryde's whales in the Gulf of Mexico, Dr. Mate is the only permit holder that has requested authorization to use deep-penetrating, implantable tags<sup>5</sup>. The Commission has concerns regarding using those tags on a population that numbers only 33 individuals. As the Commission noted in its [18 June 2012 letter](#) on Dr. Mate's original permit application, those tags would penetrate the muscle layer more deeply in smaller animals<sup>6</sup> and therefore are likely to cause more damage than when used in larger animals.

Data regarding blubber depth are scant for Bryde's whales, let alone the population in the Gulf of Mexico<sup>7</sup>. However, blubber depth in Bryde's whales from the western North Pacific Ocean has been shown to range from 2.6 to 6.9 cm in mature males and 3.6 to 9.3 cm in pregnant females<sup>8</sup> (Konishi et al. 2009). NMFS has prohibited the use of deep-penetrating, implantable tags for minke whales<sup>9</sup> based on, among other reasons, the species having a thinner blubber layer and thus there are penetration depth concerns. Blubber depths ranged from 1.5 to 6.6 cm in mature male minke whales and 2.2 to 7.7 cm in pregnant female minke whales (Konishi et al. 2009), which are only slightly less than the blubber depths of Bryde's whales. Since the deep-penetrating implantable tags are intended to anchor just below the blubber-muscle interface, the potential for damage to the underlying muscle layer and any underlying structures (i.e., bone or organs) could be significant for a tag that is approximately 3 to 10 times longer than necessary to reach the muscle layer.

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<sup>5</sup> The tags are almost fully implantable, with only the antenna protruding, and penetrate up to 29.5 cm passing through skin and blubber into the muscle layer. Dr. Mate did not specify which version of the tag would be used, but penetration depths of these tags currently range from 24.5 to 29.5 cm. He, however, did indicate in his application that a decision regarding the tag size would be made based upon the best available information on the blubber-muscle interface.

<sup>6</sup> Including either smaller species or younger animals.

<sup>7</sup> Which would be expected to have a thinner blubber depth than species in the North Pacific based on animals in warmer waters having a thinner blubber layer than counterparts in colder waters.

<sup>8</sup> Similar blubber depths were noted for sei whales, ranging from 2.7 to 7.8 cm in mature males and 3.7 to 9.3 cm in pregnant females.

<sup>9</sup> Their use also is prohibited on killer whales for similar reasons.

In 2015, Dr. Mate tagged a Bryde's whale in southern California with the longest version of the deep-penetrating, implantable tag. The tag was retained for 87 days. Although that length of time is longer than most LIMPET tag<sup>10</sup> retention times<sup>11</sup>, it is less than retention times for the deep-penetrating tags in other mysticetes (e.g., a maximum of 306 days deployed via crossbow and 504 days deployed via air rocket transmitter system (ARTS) in blue whales based on Irvine et al. (2014)). Dr. Mate did indicate in his original application that only 60 percent of the ARTS-deployed tags transmit for 2 months or more and only 30 to 50 percent of the tags last longer than 6 months. While deep-penetrating tags are intended to exhibit long-term retention, it is difficult to ascertain the cause of what appears to be limited retention in Bryde's whales with a sample size of one and a whale that was not resighted. However, limited retention time or tag failure in general could be due to a foreign body reaction/rejection or tag breakage (Robbins et al. 2013).

Norman et al. (2017) recently indicated that swellings and other lesions associated with the deep-penetrating tags were more common in gray than blue whales<sup>12</sup> (i.e., 74 vs 33 percent of gray and blue whales, respectively, exhibited swelling). Tissue swelling was first noted as early as 11 days post-tagging in gray whales. The longer deep-penetrating, implantable tags also were significantly associated with gray whales having a reaction (i.e., swelling or depression) as compared to shorter tags<sup>13</sup> (see Figure 7 as well in Norman et al. (2017)). In addition, for one of those blue whales, Gendron et al. (2015) suggested that swelling associated with long-term retention of attachment material<sup>14</sup> from deep-penetrating, implantable tags may have resulted in reduction in the reproductive rate<sup>15</sup>, as the whale was not seen with a calf in nine of the years it was observed post-tagging.

Given the limited published data and the uncertainties regarding how Bryde's whales—that have a thinner blubber layer than gray whales—could be impacted by the deep-penetrating tags, the Commission believes that NMFS should take a precautionary approach. With a population of so few individuals in the Gulf of Mexico, any adverse consequence could be quite significant. Walker et al. (2011) recommended that the possible long-term consequences of tagging should be weighed against tagging program goals, especially for endangered species. The Commission agrees and also understands that the Cetacean Tagging Best Practices Guidelines<sup>16</sup> that are to be finalized in the coming months likely will take a similar stance, that invasive tags should not be used on populations of concern until impacts are well understood on 'model' or surrogate species.

Moreover, the Commission contends that tags should not be longer than necessary to fulfill the intended purpose, which in this instance involves anchoring below the blubber-muscle interface. For all these reasons, the Commission recommends that NMFS prohibit Dr. Mate from using the deep-penetrating, implantable tags on Bryde's whales in the Gulf of Mexico—this would not prohibit Dr. Mate from using other external dart tags or implantable tags that do not penetrate deeper than necessary (i.e., a few centimeters below the blubber-muscle interface). Further, NMFS

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<sup>10</sup> That penetrate up to approximately 6 cm.

<sup>11</sup> Mean of 37 days for fin, blue, and minke whales and maximum of 239 days for fin whales (Baird, pers. comm.).

<sup>12</sup> Blue whales rarely had swellings with the newer versions of the tags.

<sup>13</sup> Approximately 26 to 28 cm in length compared to 23 cm in length with  $p=0.03$ .

<sup>14</sup> In this instance for more than 10 years but was one of the earlier versions of the tag.

<sup>15</sup> This was referenced in Dr. Mate's amendment application as well.

<sup>16</sup> Developed by various international cetacean researchers including Dr. Mate and funded by NMFS, the International Whaling Commission, and the Office of Naval Research.

should reassess the use of deep-penetrating, implantable tags on Bryde's whales in general and potentially on other species as well, including sei whales.

For the other proposed permit amendments, the Commission recommends that NMFS issue those amendments, provided that the current conditions in each permit remain in effect. Kindly contact me if you have any questions concerning the Commission's recommendations.

Sincerely,



Rebecca J. Lent, Ph.D.,  
Executive Director

## References

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