1 July 2019

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

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Lamont-Doherty Earth Observatory (LDEO)[1] seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (the MMPA) to take small numbers of marine mammals by harassment incidental to conducting a marine geophysical survey in the northeast Pacific Ocean in summer 2019. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 10 June 2019 notice[2] announcing receipt of the application and proposing to issue the authorization, subject to certain conditions (84 Fed. Reg. 26940).

Background

LDEO proposes to conduct a 3D and 2D geophysical survey in international waters off Oregon and Washington. The purposes of the surveys are to (1) investigate the main and satellite magma reservoirs that determine the Axial Seamount's framework, (2) investigate the fracture network and how it influences the magma bodies, and (3) associate the subsurface observations to surface features. The 3D survey would be conducted with an 18-airgun array[3] and four 6-km hydrophone streamers along approximately 3,916 km of tracklines, and the 2D survey would be conducted with a 36-airgun array[4] and one 15-km hydrophone streamer along approximately 564 km of tracklines. The R/V *Marcus G. Langseth* (*Langseth*) would operate the airgun arrays at a tow depth of 10 m during the 3D survey and 10 to 12 m during the 2D survey. The surveys would occur in waters 1,400 to 2,800 m in depth. In addition, the *Langseth* would (1) operate a 12-kHz

[1] And funded by the National Science Foundation (NSF).
[2] The Commission noted multiple typographical errors, inconsistencies, and omissions in the preamble and proposed authorization. NMFS indicated it would fix those issues for the final authorizations. As one example, Table 5 in the *Federal Register* notice included typographical errors for various Level A harassment zones for the 36-airgun array and incorrect notation of N/A for source levels for the mitigation airgun for mid-frequency cetaceans and otariids. Table 6 also included a typographical error for the 18-airgun array. In addition, the bow-riding mitigation exception was inconsistent between the preamble and proposed authorization and incorrectly included various genera. Further, pilot whales and Risso's dolphins were omitted from the 30-minute clearance time requirement and pinnipeds were omitted from the 15-minute clearance time requirement in certain measures stipulated in the preamble. Similar omissions were noted in the proposed authorization as well.
[3] With a maximum discharge volume of 3,300 in^3.
[4] With a maximum discharge volume of 6,600 in^3.

multibeam echosounder, 3.5-kHz subbottom profiler, and acoustic Doppler current profiler continuously during the surveys[5] and (2) deploy eight ocean bottom seismometers (OBSs) during the surveys. The 3D survey could occur on up to 16 days and the 2D survey on up to 3 days, with an additional 5 days[6] for operational contingencies (i.e., weather delays, equipment failure, etc.).

NMFS preliminarily has determined that the proposed activities could cause Level A[7] and/or B harassment of small numbers of numerous species or stocks of marine mammals and that any impact on the affected species would be negligible. NMFS does not anticipate any take of marine mammals by death or serious injury. It also has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks. Those measures include (1) using protected species observers to monitor the Level A and B harassment zones for 30 minutes before, during, and for 60 minutes[8] after the surveys, (2) implementing speed and course alterations, and (3) using power-down, shut-down[9], and ramp-up procedures[10]. In addition, LDEO would shut down the airguns immediately if (1) a North Pacific right whale[11], (2) a large whale[12] with a calf, or (3) an aggregation[13] of large whales is observed regardless of the distance from the *Langseth*. Ramp-up procedures would not be initiated until the animal(s) has not been seen at any distance for 30 minutes. LDEO would report any injured or dead marine mammal to NMFS's Office of Protected Resources and the West Coast Regional Stranding Coordinator using its phased approach.

Pinniped density data

Although LDEO proposed to use density estimates from Barlow (2016), NMFS used density estimates associated with the Navy's Northwest Training and Testing (NWTT) study area

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[5] These devices would not be used during transits.
[6] The Commission informally noted that the preamble incorrectly specified 3 rather than 5 days for LDEO's assumed 25-percent contingency. NMFS indicated it would revise the preamble accordingly for the final authorization.
[7] The Commission informally noted errors in the estimated numbers of Level A harassment takes of sei whales, which should have been increased to an average group size of two with a corresponding decrease to six Level B harassment takes. NMFS included multiple typographical errors in the various take estimates for right whale dolphins, *Kogia* spp., and Dall's porpoises. NMFS plans to fix all these issues in the final authorization.
[8] The Commission informally noted that this requirement was included in the preamble but was omitted from the proposed authorization. NMFS indicated the requirement would be included in the final authorization.
[9] Shut downs would not be required for small delphinids (*Delphinus* spp.*, Tursiops* spp.*, Stenella* spp., *Lissodelphis* spp., and *Lagenorhynchus* spp.) that are traveling and voluntarily approaching the source vessel to interact with the vessel and/or airgun array. Power and shut downs would be required if observers are able to localize a marine mammal acoustically within the exclusion zone.
[10] The Commission informally noted that NMFS omitted the standard mitigation measure to implement a shut down if a species for which authorization was granted but the takes have been met or a species for which authorization has not been granted approaches the Level A or B harassment zones. NMFS indicated it would include this measure in the final authorization.
[11] The Commission informally noted that NMFS omitted this standard measure in the preamble and proposed authorization. NMFS indicated the measure would be included in the preamble and final authorization.
[12] A sperm whale or mysticete. The Commission informally noted that this measure was omitted in the preamble and the definition of the term was omitted in the proposed authorization. NMFS indicated the measure with the appropriate definition would be included in the preamble and final authorization.
[13] Six or more individuals that do not appear to be traveling and are feeding, socializing, etc. The Commission informally noted that this measure was omitted in the preamble and the definition of the term was omitted in the proposed authorization. NMFS indicated the measure with the appropriate definition would be included in the preamble and final authorization.

from Department of the Navy (2019). The Commission agrees that the density data from NWTT generally represent best available science. However, as noted in its 15 April 2019 letter regarding the Navy's density estimates, the Commission had a few concerns regarding the underlying abundance data that were used to estimate various pinniped densities in Department of the Navy (2019). The abundance estimate for northern fur seals was based on pup count data from 2014 and did not include the more recent data from Bogoslof Island in 2015. In addition, abundance estimates for Guadalupe fur seals and northern elephant seals from 2015 were adjusted based on relevant population growth rates only up to 2017. Those growth rates should have been adjusted up to 2019.

The Commission conveyed these informal comments to NMFS. NMFS has since adjusted the densities and revised the numbers of takes accordingly. NMFS plans to increase the numbers of Level B harassment takes to 201 for northern fur seals, 65 for Guadalupe fur seals, and 629 for elephant seals in the final authorization.

Modeling methodology

Flaws in LDEO's model—For more than 9 years, the Commission has raised concerns regarding LDEO's model to estimate the extent of the Level A and B harassment zones and the numbers of marine mammal takes and has provided extensive comments regarding the inappropriateness of that model[14]. LDEO uses the Nucleus source model and a simple ray trace–based modeling approach[15] that assumes spherical spreading, a constant sound speed, and no bottom interactions for surveys in deep water (Diebold et al. 2010). Environmental conditions, including the presence of a surface duct, in-water refraction, and bathymetry and sediment characteristics are not accounted for in LDEO's modeling approach. Many studies, including multiple LDEO-associated studies[16], have emphasized the importance of incorporating site-specific environmental[17] and operational parameters into estimating Level A and B harassment zones that could very well be underestimated in deep water by LDEO's model[18]. Unfortunately, more than 35 Commission letters on this matter have yet to sway NSF to follow methods that are widely agreed to constitute the best available science. LDEO's modeling approach has not changed in more than a decade and the refusal to change appears to contradict NSF's mission to *advance the progress of science*. In more recent

[14] Which should be reviewed in conjunction with this letter (see the Commission's 2 May 2016 letter) and are not reiterated herein.
[15] Essentially a MATLAB algorithm that truncates the radii at 2,000 m in depth. The survey would occur in waters up to 2,800 m in depth.
[16] Tolstoy et al. (2004), Diebold et al. (2006), Tolstoy et al. (2009), Diebold et al. (2010), and Crone et al. (2014 and 2017).
[17] For example, Tolstoy et al. (2009) noted the effect that the sound speed profile had on refracting the sound downward in the Gulf of Mexico.
[18] Tolstoy et al. (2009) indicated that only the direct arrivals were included in the analysis of the deepwater site and seafloor reflections, which may become significant at greater distances, were not considered. Thus, the harassment zones may in fact not be sufficient, which is alluded to in Diebold et al. (2006) as well. In shallow water (> 100 m), LDEO uses in-situ measurements obtained in the Gulf of Mexico at a tow depth of 6 m scaled to the relevant tow depth of each survey and applies those measurements to all ocean basins. LDEO's assumptions and methods in shallow water overestimate the Level A and B harassment zones (Barton et al. 2006, Diebold et al. 2006, Crone et al. 2014 and 2017). Those same LDEO scientists have indicated that the simple modeling approach is insufficient when geophysics become more complex (Diebold et al. 2006) and depths are shallow with varying sound speed profiles (Barton et al. 2006).

years, several stakeholders[19] have expressed similar concerns regarding the inappropriateness of LDEO's modeling methods to no avail (80 Fed. Reg. 67713).

Three years ago, these issues were further complicated with finalization of NMFS's updated acoustic thresholds for permanent threshold shift (i.e., Level A harassment). LDEO continues to claim that its model cannot incorporate more than a single shot and thus cannot readily estimate ranges to the cumulative sound exposure level (SEL_{cum}) thresholds. To estimate the Level A harassment zones, LDEO computed 'modified' frequency-weighted, farfield source levels[20], which are essentially back-calculated source levels[21] based on the relevant frequency-weighted threshold. The Commission is unaware of any other seismic operators using such a circuitous approach to estimate harassment zones for either metric. Generally, source levels are inputs to models rather than products of those models, and the sound field from spatially-distributed sources (e.g., airgun arrays) is modeled as sums of point sources, under the assumption that individual airgun pressures do not substantially influence each other. Such an approach is straightforward, easy to implement, and accounts for both the 'near-field' and 'far-field' effects. Another shortcoming of LDEO's modeling approach is that its source model cuts off spectral levels at 2.5 to 3 kHz. Since airguns emit energy above 3 kHz, the frequency limits of Nucleus would affect the estimated ranges to the Level A harassment thresholds for various species (including mid-frequency (MF) and high-frequency (HF[22]) cetaceans). Other source models (including Gundalf Optimizer[23] and JASCO's Airgun Array Source Model (AASM)) provide sound levels into the HF range and should have been used[24].

The use of modified farfield source levels and truncated spectra further supports the Commission's continued recommendation that NMFS require LDEO and other affiliated entities[25], to revise their source and sound propagation modeling methodologies. The Commission again underscores the need for NMFS to hold LDEO, NSF, and affiliated entities to the same standard as other action proponents (e.g., Bureau of Ocean Energy Management, the oil and gas industry, the renewable energy industry, U.S. Navy, U.S. Air Force), as LDEO's model does not represent the best available science. Thus, the Commission again recommends that NMFS require LDEO to re-estimate the proposed Level A and B harassment zones and associated takes of marine mammals using (1) both operational (including number/type/spacing of airguns, tow depth, source

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[19] Natural Resources Defense Council and Whale and Dolphin Conservation.

[20] LDEO similarly estimated modeled source levels based on modified farfield received levels for peak sound pressure levels (SPL_{peak}). For the 36-airgun array and the mitigation airgun, the SPL_{peak} source levels were within approximately 1 dB or less for each of the five functional hearing groups. However, for the 18-airgun array, the SPL_{peak} source levels for the five functional hearing groups differed by more than 8 dB. It is unclear why that phenomenon is prevalent in the SPL_{peak} source levels given that the thresholds are unweighted, unlike SEL_{cum} thresholds that are adjusted based on the relevant weighting function. In addition, NMFS denoted the SPL_{peak} source levels for the mitigation airgun as N/A for mid-frequency cetaceans and otariids in Table 5 of the *Federal Register* notice but indicated that the range to Level A harassment for SPL_{peak} was 0.51 m for mid-frequency cetaceans and 0.4 m for otariids. Thus, SPL_{peak} source levels do in fact exist and should be specified accordingly in the preamble to the final authorization.

[21] Assuming spherical propagation loss.

[22] Particularly since the Level A harassment threshold is 155 dB re 1 μ Pa^2-sec.

[23] https://www.gundalf.com/environmental/

[24] Alternatively, LDEO could use scenario C or D for extending the spectra to 10 kHz as described in its response to Commission's concerns (83 Fed. Reg. 44581), where it noted that those scenarios increased the isopleths by up to 20 m. Given that the extent of the Level A harassment zone for MF is 13.6 m, it is unclear whether that zone has been underestimated.

[25] Including U.S. Geological Survey (USGS) and Scripps Institution of Oceanography (Scripps).

level/operating pressure, operational volume) and site-specific environmental (including sound speed profiles, bathymetry, and sediment characteristics[26] at a minimum) parameters, (2) a comprehensive source model (i.e., Gundalf Optimizer) and (3) an appropriate sound propagation model (i.e., BELLHOP) for the proposed incidental harassment authorization. Specifically, the Commission reiterates that LDEO should be using the ray-tracing sound propagation model BELLHOP—which is a free, standard propagation code that readily incorporates all environmental inputs listed herein, rather than the limited, in-house MATLAB code currently in use. Although the Commission has recommended that LDEO use BELLHOP for multiple years, NMFS has yet to address the Commission's assertion that BELLHOP should be used in lieu of LDEO's model.

Sound source verification—LDEO will be using multiple hydrophone streamers that would transfer the acoustic data to an on-board processing system and, more importantly, OBSs that would receive and store additional acoustic data for analysis. Both of those could, and more importantly should, be used to determine whether the extents of the Level A and B harassment zones are accurate[27]. LDEO's own scientists have supported such an approach in Barton et al. (2006), Diebold et al. (2006), and Crone et al. (2014 and 2017). Crone et al. (2017) specifically stated that resolving the 3D acoustic field generated by a seismic source would aid in the development of an automated streamer-based, real-time mitigation system. That type of approach would in fact support NSF's mission to *advance the progress of science*.

Moreover, NMFS has been including in numerous authorizations the requirement that sound source verification studies (SSVs) be conducted for a myriad of activities, including seismic surveys, high-resolution geophysical surveys[28], confined underwater blasting, and various construction-related activities. SSVs have been required when action proponents use proxy source levels, as well as, proxy sound propagation assumptions. In response to the Commission's recent recommendation for NMFS to require LDEO to conduct SSVs, NMFS indicated that use of the L-DEO model is supported by 10 years of successful operations with no observed harm to marine life. Thus, NMFS did not believe additional SSV efforts were warranted at this time (84 Fed. Reg. 27248). The Commission finds that justification puzzling, as *none* of the activities for which NMFS has required SSVs have resulted in observed 'harm to marine life'. Furthermore, many of the activities for which NMFS requires operators to conduct SSVs (i.e., pile driving and removal, drilling, high-resolution geophysical surveys, etc.) emit much lower source levels than airguns, particularly the 6,600-in^3 array proposed for use by LDEO. Given the shortcomings associated with LDEO's source and sound propagation modeling, the requirements that other action proponents are obliged to fulfill, and the lack of justification for not requiring SSVs, the Commission recommends that NMFS require LDEO to archive, analyze, and compare the in-situ data collected by the hydrophone streamers and OBSs to LDEO's modeling results for the extents of the Level A and B harassment zones.

[26] Those data can be obtained from the National Geophysical Data Center, Leviticus, and the U.S. Navy Oceanographic and Atmospheric Master Library's databases including Generalized Digital Environmental Model, Digital Bathymetric Database Variable-Resolution, Surface Marine Gridded Climatology.
[27] Lack of accuracy includes both underestimates and vast overestimates.
[28] Generally, for subbottom profilers.

Mitigation measures

The Commission is encouraged that NMFS is striving for consistency regarding mitigation measures for the same type of activities (i.e., geophysical and seismic surveys; 84 Fed. Reg. 27248). However, the Commission continues to believe that the use of power downs and the mitigation airgun should be prohibited, as they were in the incidental harassment authorizations issued by NMFS for geophysical surveys in the Atlantic Ocean (83 Fed. Reg. 63350 and 63351). The Commission is unaware of any studies to verify the efficacy of those measures since NMFS issued the authorizations with the relevant prohibitions six months ago. Thus, there should be no reason[29] not to require the same prohibitions for LDEO's activities. Given that the efficacy of the measures has not changed and the energy emitted would not be substantially reduced by implementing those measures, the Commission recommends that NMFS require *all* geophysical and seismic survey operators to abide by the same general mitigation measures, including prohibiting LDEO from using power downs and the mitigation airgun during its geophysical surveys.

Monitoring measures

The Commission maintains that the monitoring and reporting requirements adopted under section 101(a)(5) of the MMPA need to be sufficient to provide a reasonably accurate assessment of the manner of taking and the numbers of animals taken incidental to the specified activity. Those assessments should account for all animals in the various survey areas, including those animals directly on the trackline that are not detected and how well animals are detected based on the distance from the observer, which is achieved by incorporating g(0) and f(0) values[30]. In response to previous Commission letters regarding this matter, NMFS requested that the Commission develop a method to improve LDEO's post-survey reporting requirements—the Commission provided NMFS with that method in 2016 (see the Addendum in the Commission's most recent 1 May 2019 letter).

Since that time, NMFS agreed to use the Commission's method to better estimate the numbers of marine mammals taken by Level A and B harassment during geophysical activities in the Atlantic Ocean (83 Fed. Reg. 63361) and proposed to use the same approach for geophysical activities in the Gulf of Mexico (83 Fed. Reg. 29287). More recently, NMFS indicated that it welcomed LDEO's input on a method to generate a similar quantitative method but, in the absence of a new method, recommended that LDEO use the Commission's method for its geophysical surveys (84 Fed. Reg. 27249). NMFS also required that LDEO provide an estimate of total takes, including marine mammals that were not detected visually, as it had in previous authorizations[31] (84 Fed. Reg. 27249).

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[29] That is, developing protocols for standard measures should not preclude NMFS from requiring operators to implement the measures in the interim, similar to all the other standard measures that NMFS requires geophysical and seismic operators to implement (see the mitigation measures stipulated herein).

[30] These values vary based on, among other things, platform characteristics, observer skill, environmental conditions, and sightability and detectability of the species.

[31] Similar to 6(a)(vii) in the proposed authorization that requires LDEO to include an estimate of those marine mammals that were not detected in consideration of both the characteristics and behaviors of the species that affect detectability, as well as the environmental factors that affect detectability.

Although NMFS has included similar requirements to refine the total numbers of animals taken for quite some time, LDEO and other NSF-affiliated entities[32] do not appear to have complied with those requirements, particularly in recent years. For example, LDEO was required to estimate the numbers of animals taken (including those on the trackline but not detected) in its authorization to conduct multiple geophysical surveys in New Zealand in 2017 and 2018 (see the final authorization for specifics). In reporting the numbers of marine mammals taken, only those marine mammals that were observed were tallied and the numbers were not increased to account for those on the trackline that were not detected (RPS 2018). The monitoring report for the New Zealand survey also indicated that the issue of under-reporting was not limited to failing to account for animals not observed on the trackline. The report noted that beyond the hours of dawn, dusk, and darkness, there were several occasions in which the entire Level B harassment zone, 1,000-meter buffer zone, 500-meter exclusion zone, and 100-meter exclusion zone were not fully visible, which would have prevented sightings of protected species within those areas around the vessel (RPS 2018). The monitoring report additionally acknowledged that due to the large extent of the Level B harassment zones in shallow water (22 km for the 36-airgun array and 10.6 km for the 18-airgun array; RPS 2018) the entireties of those zones were never visible. During the New Zealand survey, the full extents of the Level B harassment zones were not visible for more than 334 hours, the 1,000-m buffer zone was not visible for more than 32 hours, the 500-m exclusion zone was not visible for more than 11 hours, and the 100-meter exclusion zone was not visible for more than 4 hours. Those limitations resulted from both the extents of the various zones and weather conditions (RPS 2018). Thus, the full extents of the various zones were not visible for nearly 213 hours of the South Island 2D survey (RPS 2018)[33] and the numbers of marine mammals reported to be taken were vastly underestimated. This is readily apparent given the few marine mammals reported as taken during a survey that lasted more than 100 days[34] (see Table 30 in RPS 2018).

The numbers of marine mammals reported to be taken should include extrapolations based on relevant f(0) and g(0) values, the actual extents of the Level A and B harassment zones relative to the observable extents, and the periods the airguns are active during nighttime (including dawn and dusk) relative to daylight hours. Until such time that a better method is developed or LDEO and other NSF-affiliated entities derive geophysical survey-specific f(0) values, the Commission recommends that NMFS require LDEO to use the Commission's method as described in the Addendum to its 1 May 2019 letter *and* apply relevant corrections for airgun activity in daylight vs nighttime (including dawn and dusk) to better estimate the numbers of marine mammals taken by Level A and B harassment in the incidental harassment authorization. The Commission further recommends that NMFS require LDEO to specify in the final monitoring report (1) the number of days the survey occurs and the array is active and (2) the percentage of time and total time the array is active during daylight vs nighttime hours (including dawn and dusk).

[32] Including USGS, Scripps, etc.
[33] Or 40 percent of the estimated survey time off the South Island.
[34] LDEO estimated that the surveys would occur on up to 90 days (82 Fed. Reg. 56120). The monitoring report indicated that visual observations occurred on 103 days but did not stipulate if the source was active on each of those days (RPS 2018). The number of days that the survey occurs and the array is active should be reported in all final reports in addition to the percentage of time and total time the source is active across all days.

Proposed one-year authorization renewals

NMFS has indicated that it may issue a second one-year[35] incidental harassment authorization renewal for this and other future authorizations if various criteria are met and after an expedited public comment period of 15 days (see 84 Fed. Reg. 26978 and the proposed authorization for details). The Commission is concerned that the renewal process proposed in the *Federal Register* notice is inconsistent with the statutory requirements—section 101(a)(5)(D)(iii) clearly states that proposed authorizations are subject to a 30-day comment period—and Congressional expectations regarding the length of the comment period when it passed that provision[36].

Another potentially significant issue with the proposed 15-day comment period is the burden that it places on reviewers, who will need to review the original authorization and supporting documentation[37], the draft monitoring report(s), the renewal application or request[38], and the proposed authorization and then formulate comments very quickly. Depending on how frequently NMFS invokes the renewal option, how much the proposed renewal or the information on which it is based deviates from the original authorization, and how complicated the activities and the taking authorization is, those who try to comment on all proposed authorizations and renewals, such as the Commission, would be hard pressed to do so within the proposed 15-day comment period. Therefore, the Commission recommends that NMFS refrain from using the proposed renewal process for LDEO's authorization. The renewal process should be used sparingly and selectively, by limiting its use only to those proposed incidental harassment authorizations that are expected to have the lowest levels of impacts to marine mammals and that require the least complex analyses. Notices for other types of activities, such as the LDEO's proposed geophysical surveys, should not include the possibility that a renewal might be issued using the proposed foreshortened 15-day comment period. If NMFS intends to use the renewal process frequently *or* for authorizations that require a more complex review (such as LDEO's authorization) or for which much new information has been generated (e.g., multiple or extensive monitoring reports), the Commission recommends that NMFS provide the Commission and other reviewers the full 30-day comment opportunity set forth in section 101(a)(5)(D)(iii) of the MMPA.

Ongoing general concerns

The Commission has repeatedly expressed concern over errors, inconsistencies, and omission's in applications, *Federal Register* notices, and proposed authorizations involving LDEO and other NSF-funded and -affiliated surveys. Many of those issues affect the numbers of Level A and B harassment takes to be authorized and mitigation and monitoring measures to be required.

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[35] NMFS informed the Commission that the renewal would be issued as a one-time opportunity, after which time a new authorization application would be required. NMFS has yet to specify this in any *Federal Register* notice detailing the new proposed renewal process but should do so.

[36] See, for example, the legislative history of section 101(a)(5)(D), which states "…in some instances, a request will be made for an authorization identical to one issued the previous year. In such circumstances, the Committee expects the Secretary to act expeditiously in complying with the notice and comment requirements." (H.R. Rep. No. 439, 103d Cong., 2d Sess. 29 (1994)). The referenced "notice and comment requirements" specify a 30-day comment period.

[37] Including the original application, hydroacoustic and marine mammal monitoring plans, take estimation spreadsheets, etc.

[38] Including any proposed changes or any new information.

The Commission and the public rely on the accuracy of the applications, and the proposed authorizations developed from them by NMFS, in formulating comments and recommendations.

The Commission also repeatedly has expressed concern regarding the amount of time that NMFS has to consider comments provided by both the Commission and the public regarding authorizations issued to LDEO. In this instance, the public comment period would close the day before the *Langseth* is scheduled to leave port on 11 July. The Commission understands that NMFS had to revise the density estimates and recalculate the numbers of takes and appreciates that NMFS took the time and effort to do so. Unfortunately, that reduced the time available to consider public comments. As such, the Commission again recommends that NMFS (1) more thoroughly review applications, *Federal Register* notices, and proposed authorization prior to submitting any authorization to the *Federal Register* for public comment and (2) require earlier submission of applications and other documentation so that it has sufficient time to review and provide comments on the adequacy and accuracy of the application, allow applicants to make necessary revisions or additions to the application, draft its proposed authorization, and consider the comments received from the public. LDEO and NSF schedule geophysical surveys far enough in advance, generally a year or more, to enable them to submit applications with greater lead time. Thus, it should not be an impediment for NMFS to require that LDEO and other NSF-affiliated entities submit their applications earlier.

Please contact me if you have questions concerning the Commission's recommendations.

Sincerely,

Peter O. Thomas, Ph.D.,
Executive Director

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