



## Mid-Atlantic Fishery Management Council

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Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman

Christopher M. Moore, Ph.D., Executive Director

April 13, 2015

Delaware Coastal Programs  
Ms. Sarah W. Cooksey, Administrator  
5 E. Reed St., Suite 201  
Dover, DE, 19901  
(302) 739- 9283

Dear Ms. Cooksey,

Please accept these comments from the Mid-Atlantic Fishery Management Council (Council) on the Federal Consistency Determinations for the Spectrum Geo Inc. and GX Technology Corporation proposals to conduct two dimensional (2D) geophysical seismic surveys, in order to assess the potential oil and gas resources in the Outer Continental Shelf (OCS) of the Mid-Atlantic.<sup>1</sup> The Council has management jurisdiction over 13 marine fishery species in federal waters of the Mid-Atlantic region, and members from the coastal states of New York to North Carolina (including Pennsylvania). The Council develops fishery management plans to ensure its vision, “Healthy and productive marine ecosystems supporting thriving, sustainable marine fisheries that provide the greatest overall benefit to stakeholders,” is achieved.

Marine fisheries are profoundly important to the social and economic well-being of Mid-Atlantic communities, and provide numerous benefits to the nation including domestic food security. In 2012, the commercial seafood industry in the Mid-Atlantic region supported 137,000 jobs, \$18 billion in sales, \$4 billion in income, and \$6.5 billion in value added impacts across the Mid-Atlantic.<sup>2</sup> Commercial fishermen landed 751 million pounds of finfish and shellfish, earning \$488 million in landings revenue. More than 2.3 million recreational anglers took 14 million fishing trips and spent nearly \$3.5 billion on trip and equipment expenditures across the Mid-Atlantic region in 2012.

Although the Council’s focus is on sustainable fisheries management, this objective is only feasible in the context of a healthy and resilient ecosystem. It is clear that geological and geophysical (G&G) activities can have substantial impacts on marine ecosystems. While the seismic surveys proposed are limited to specific areas off Delaware and Maryland, the loud persistent sounds associated with these surveys are not restricted to these survey grids and their impacts may be broad.

There is insufficient information about how the seismic surveys affect fish, marine mammals, benthic communities, and ecosystem structure and function. Therefore, the Council is concerned these proposed surveys do not consider a complete evaluation of ecological and marine resource impacts related to seismic surveys. We understand that these impacts are difficult to predict or quantify, but given the existing value of marine resources to our region and to the nation, these impacts should be more carefully considered. The Council believes it is important to fund the types of research that will allow us to understand the implications seismic surveys and other G&G activities in our region. Ecological and fisheries surveys, conducted in a

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<sup>1</sup> Bureau of Ocean Energy Management (BOEM) application E14-006 and E14-009.

<sup>2</sup> National Marine Fisheries Service. 2014. Fisheries Economics of the United States, 2012. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-F/SPO-137, 175p. Available at: <https://www.st.nmfs.noaa.gov/st5/publication/index.html>.

rigorous research framework, should be considered to evaluate pre- and post-seismic survey fish and benthic invertebrate abundance, movement, and productivity.

Over the past decades the Council has implemented management strategies to maintain sustainable levels of fishing and, in some cases, rebuild overfished stocks. These efforts have necessitated sacrifice from both the commercial and recreational fishing sectors in the form of economic losses and foregone fishing opportunities. All of the Council's managed species are found within the seismic survey region proposed: summer flounder, scup, black sea bass, bluefish, spiny dogfish, Atlantic surfclam, ocean quahog, golden tilefish, Atlantic mackerel, longfin and shortfin squids, butterfish, and monkfish. The fisheries for these species are prosecuted in the Mid-Atlantic exclusive economic zone, and many extend into deep water areas of the OCS and canyon areas, including golden tilefish, squid, black sea bass, summer flounder, bluefish, spiny dogfish, and monkfish. In addition, the deep waters of the OCS are also the focus of other important fisheries for highly migratory species (including marlin, tuna, dolphin, and wahoo), shellfish (sea scallops, red crab, Jonah crab, lobster), and deepwater species in the snapper/grouper complex. After many years of working to rebuild Mid-Atlantic fisheries to sustainable levels, the potential negative impacts of G&G activities, including seismic surveys, on these rebuilt resources are extremely troubling.

In June 2013, the Council was briefed by Dr. Chris Clark and Dr. Aaron Rice from Cornell University on the physical propagation of sound from seismic airgun surveys and the potential for negative impacts of acoustic surveys on fish and fish populations. Their presentation suggested that highly mobile fish are able to easily relocate within 50 meters to avoid lethal effects of an airgun array. They may also avoid sub-lethal damage by maintaining even greater distances from areas subject to noise disturbance from the survey. However, the extensive (months long) survey timeframe makes it likely that prolonged avoidance of the arrays will be necessary and could lead to interruptions in fish spawning and access to forage. The proposed regional survey grid off the coast of Delaware and Maryland is extensive. Much of the shelf is at a depth (< 50 m) that would place the entire water column within the "lethal range" of the array.

Regionally important species such as black sea bass, which have an affinity for structure, would be expected to be displaced to non-preferred habitats. Depending on the timing of the surveys, this could have negative consequences for the reproductive potential of the stock if black sea bass are dispersed during the spring spawning season when they form structured social groups called "leks/harems". In the case of pelagic species which have the ability to move, they might also be dispersed during times when they form spawning aggregations or their foraging activities may be altered. At the very least, dispersal of fish aggregations by seismic surveys is likely to disrupt fishing activities which could have negative economic consequences for commercial and recreational fisheries throughout the region.

In addition to the dispersal of mobile species in the marine environment, the Council is concerned about the potential impact of seismic surveying on sessile benthic and epibenthic communities which have limited or no ability to move. For example, valuable fisheries for Atlantic sea scallops exist in relatively shallow waters. The public and Council members provided anecdotal reports of sea scallop mortalities in the vicinity of seismic surveys conducted in the past in the Atlantic. While there is limited scientific evidence of direct mortality to marine organisms as a result of seismic survey activities, some recently published research on the potential impact of seismic surveying on squid is troubling. Researchers recently observed strandings of the giant squid off the coast of Spain in waters adjacent to seismic surveying activities<sup>3</sup>. Subsequent laboratory experiments revealed the development of lesions in the statocysts of squid exposed to sound in

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<sup>3</sup> MacKenzie, D. 2004. Seismic surveys may kill giant squid. New Scientist.com news service, 22 Sept., [www.newscientist.com/article.ns?id=dn6437](http://www.newscientist.com/article.ns?id=dn6437).

the range and the levels associated with seismic surveys which could have substantial effects on the behavior and survival of these organisms<sup>4</sup>.

The Council also remains concerned about the potential and unknown adverse impacts of seismic surveys on marine mammals. The Council has participated in the development of Take Reduction Plans under the Marine Mammal Protection Act for Atlantic Large Whales, Harbor Porpoise, and Bottlenose Dolphin. These efforts have resulted in area and gear restrictions for several fisheries within the Council's jurisdiction. In the case of north Atlantic right whales, which are among the most endangered whales in the world, protection measures have been extended to include seasonal vessel speed restrictions along the U.S. East Coast where endangered right whales travel to protect them from being injured or killed by ships. Seismic surveys could harm or endanger marine mammals by disrupting their ability to hear, echolocate, forage, etc., and could counteract many of the conservation measures that have taken years to enact.

Deep water canyons and areas within the seismic survey area of the OCS contain ecologically sensitive habitat-forming organisms, such as deep sea corals and sponges. The Council is in the process of identifying areas on the OCS where these coral habitats and associated species are in need of protection. The Council is considering the precautionary approach of restricting fishing, to ensure these activities do not expand into these areas in the future. Oil and gas activities may not be compatible with these most sensitive habitats; therefore, these activities should consider the coral areas identified as needing protection in the Council's deep-sea coral amendment (available at: <http://www.mafmc.org/actions/msb/am16>). This amendment includes discrete zone alternatives to protect corals in 15 incised and shelf-slope canyons within the Council's jurisdiction, in addition to broad zone measures ranging from 200 to 500 meter depth contours. Three of the Council's proposed discrete zones currently under consideration for protection in the deep-sea coral amendment fall within the seismic survey area: Accomac Canyon, Baltimore Canyon, and Wilmington Canyon.

Time and area restrictions on seismic survey activities should be designed to minimize impacts on marine mammals and sea turtles, as well as minimize the impacts on fish populations and fisheries. The Council notes that when and where specific seismic surveying activities occur could greatly influence the extent and severity of impacts on the marine ecosystem. Careful, seasonal planning of seismic surveys should be undertaken to reduce any potential impacts to the resources and fisheries under our jurisdiction. For example, the Mid-Atlantic recreational fisheries, and some of the commercial fisheries (small fishing vessels in particular) are predominately prosecuted during the warmer months. Seismic surveys could consider restricting their activities to the winter months when there is less potential for disruption to fisheries. In addition, as water temperatures warm in the spring, many sea turtles begin to migrate northward into the Mid-Atlantic and arrive in Virginia waters as early as April/May, a trend that is reversed in the fall. However, time/area restrictions may not be sufficient to minimize impacts for all species. While some mobile species undergo seasonal movements in and out of our region, others take up year round residence as part of the Mid-Atlantic ecosystem.

While the Council recognizes the importance of energy exploration to U.S. economic security, the Council also notes that the offshore canyons of the Mid-Atlantic region are ecologically sensitive areas that are rich in biodiversity and highly important in social, economic, and cultural currency to the fishing communities in the region. We note that offshore renewable energy is most compatible with our vision for a healthy and productive marine ecosystem in the region. We suggest that the seismic surveys should consider the issues identified above, and give careful consideration to time and area limitations to minimize impacts on marine

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<sup>4</sup> Solé M, Lenoir M, Durfort M, López-Bejar M, Lombarte A, et al. 2013. Ultrastructural Damage of *Loligo vulgaris* and *Illex coindetii* statocysts after Low Frequency Sound Exposure. PLoS ONE 8(10): e78825. doi: 10.1371/journal.pone.0078825

resources. We appreciate the opportunity to comment on the proposed seismic surveys to ensure that offshore energy development in the Mid-Atlantic region advances the Nation's energy priorities in a manner that ensures the future health of the marine ecosystem and the associated communities in our region.

Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "C Moore". The signature is written in a cursive style with a large initial "C" and a stylized "Moore".

Christopher M. Moore, PhD  
Executive Director, Mid-Atlantic Fishery Management Council