

June 18, 2020

State Controller Betty T. Yee
Chair, California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento CA 95825

RE: 2021-2025 California State Lands Commission Strategic Plan (Agenda Item 63)

Dear Chair Yee,

I am writing today to request that the California State Lands Commission (Commission) consider including an update to Commission regulations governing seabed mining on California Submerged Lands as an objective in the Commission's 2021-2025 Strategic Plan. Specifically, Pew recommends consideration of a prohibition on seabed mining for hard minerals (including but not limited to phosphorite, metals, and metal-enriched sands) on or under California Submerged Lands, and requests that the Strategic Plan update prioritize this proactive reform.

Our previous correspondence to the Commission in April of this year provided background on Pew's marine program on the West Coast and an introductory overview of the precautionary approach to hard mineral seabed mining that we recommend, including our belief that the sensitive and economically important nearshore area under state jurisdiction is fundamentally incompatible with invasive new industrial development like seabed mining.¹ In that correspondence we note that while there are likely no hard mineral reserves off California that are economically viable at this time, nor plans for large-scale industrial exploration or extraction, there are potentially valuable hard mineral resources in and near California's state waters. The purpose of this letter is to provide the Commission with information on one of these resources: marine phosphorite.

Marine phosphorite beds are seaward extensions of onshore phosphorus-rich rock, typically the result of sedimentation in ancient marine environments.² Significant seafloor deposits of phosphorite can be found off California "in a variety of topographic environments" and are "found to range from a few miles off shore to the edge of the continental borderland area."³ The most intriguing deposits are composed primarily of phosphorite nodules- accreted rocks with a smooth black or brown surface, rounded protuberances, and an average diameter of two inches, though much larger ones are found as well.⁴ Extensive nodular deposits are found off southern California in a wide range of depths ranging from 100 to 1,300 feet, and are often in areas relatively free of overlying sediment.⁵

¹ See [Pew letter](#) submitted to the Commission on 4/23/20

² U.S. Congress, Office of Technology Assessment, [Marine Minerals: Exploring Our New Ocean Frontier](#), OTA-O-342 (Washington, DC: U.S. Government Printing Office, July 1987), at p.10

³ Mero, John, California Division of Mines and Geology Mineral Information Service, [Sea Floor Phosphorite](#), 1961, at pp. 7-8

⁴ *Ibid*, at p. 5

⁵ U.S. Congress, Office of Technology Assessment, [Marine Minerals: Exploring Our New Ocean Frontier](#), OTA-O-342 (Washington, DC: U.S. Government Printing Office, July 1987), at p.12

Phosphate rock is a commercially important product, with the vast majority of the \$1.6 billion-dollar annual U.S. production ultimately used in agriculture (manufacture of fertilizer and animal feed supplements).⁶ Our previous letter referenced the growing demand for minerals as one of several factors increasing interest in seabed mining, and phosphorus is no exception, with global consumption expected to increase more than 1.5% annually through 2023.⁷ Long-term demand projections are striking: global crop inputs of phosphorus via fertilizer could increase by up to 86% by 2050.⁸

Southern California's phosphorite nodules have attracted commercial attention before: while ultimately an unsuccessful venture, a lease was granted by the federal government for 30,000 acres on Forty-Mile Bank off San Diego in 1961.⁹ Elsewhere, interest is more recent, with marine phosphorite deposits off Namibia, New Zealand, and Mexico all the subject of active consideration and bruising policy debates since 2010.¹⁰

All these proposed mining ventures would utilize a technique known as trailing suction hopper dredging (TSHD).¹¹ TSHD in this application would utilize large ships (e.g. over 700 feet) with one or two suction pipes each equipped with a drag head that has been compared to "a giant vacuum cleaner" and is pulled along the seafloor.¹² In the interest of space we will not provide a detailed description of the significant detrimental physical and ecological impacts of TSHD in this type of seabed mining, but they are perhaps adequately captured in this passage from the record of decision in the New Zealand proposal: "*it is unavoidable that all benthic organisms (both flora and fauna) to the depth mined by the drag-head would be killed, or at the very least displaced. This is an inevitable consequence of the proposed mining technique.*"¹³

Our review of these previous proposals for large-scale mining of phosphorite from the seabed reveals a variety of instructive parallels to the possibility of mining off California. These include the geographic and geological similarities of the southern California and Baja California phosphorites and the citation of regulations prohibiting bottom trawl fishing gear in support of

⁶ U.S. Geological Survey, 2020, *Mineral commodity summaries 2020: U.S. Geological Survey*, 200 p., <https://doi.org/10.3133/mcs2020>, at p. 122

⁷ *Ibid.*, at p. 123

⁸ Mogollón, J.M, A.H.W.Beusen, H.J.M van Grinsven, H.Westhoek, A.F.Bouwman, "Future agricultural phosphorus demand according to the shared socioeconomic pathway", *Global Environmental Change*, Volume 50 (2018), at pp.149-163 (<https://doi.org/10.1016/j.gloenvcha.2018.03.007>)

⁹ See U.S. Congress, "*Part 2 of Outer Continental Shelf: Hearings Before the Special Subcommittee on Outer Continental Shelf of the Committee on Interior and Insular Affairs*", Ninety-first Congress, Senate Committee on Interior and Insular Affairs, U.S. Government Printing Office, 1970. See also U.S. Bureau of Ocean Energy Management, "[Status of Leases and Qualified Companies-Pacific OCS Region](#)", June 2020, at p.21

¹⁰ Inter-American Association for Environmental Defense, "[10 Things You Should Know About Don Diego](#)", fact sheet accessed 6/17/20 at <https://aida-americas.org/en/10-things-you-should-know-about-don-diego>

¹¹ A) Odyssey Marine Exploration, "[Exploraciones Oceanicas Phosphate Dredging Project, BCS, Mexico Environmental Impact Assessment Non-Technical Executive Summary](#)", 2018, at p.9. B) New Zealand Environmental Protection Authority, "[Decision on Marine Consent Application: Chatham Rock Phosphate Limited](#)" 2015, at p. 2. C) Namibian Marine Phosphate LTD., "[Environmental Impact Assessment for the proposed dredging of phosphate enriched sediments from Marine Licence Area No. 170](#)", 2012, e.g. at p.vi

¹² *Ibid* (C, at p.3-32) See also International Association of Dredging Companies, "[Facts About Trailing Suction Hopper Dredges](#)", fact sheet, accessed 6/18/20

¹³ New Zealand Environmental Protection Authority, "[Decision on Marine Consent Application: Chatham Rock Phosphate Limited](#)" 2015, at p. 75

the project denial in New Zealand (many areas in the Southern California Bight where phosphorites are found are also closed to bottom trawl gear).¹⁴

In conclusion, we hope that this information on marine phosphorites contributes to the Commission's body of knowledge on the potential emergence of seabed mining industry interest in California, as well as the benefits of a precautionary approach that would ensure such an industry could not develop in state waters. We recognize that the Commission is facing unprecedented challenges due to the public health emergency and its associated economic impacts, and we greatly appreciate the Commission continuing to advance development of the new strategic plan despite these challenges. We look forward to continued collaboration, including efforts to synthesize and share information on other aspects of the seabed mining issue in the months ahead. We respectfully request that you incorporate this information into the development of the new strategic plan and consider the development of precautionary rules for seabed mining of hard minerals, including a prohibition in state waters, as an objective of the new plan.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tom Rudolph".

Tom Rudolph
Officer, Conserving Marine Life in the U.S. and Canada, Pacific
The Pew Charitable Trusts

¹⁴ Ibid, at p. 73