



CSA Ocean Sciences Inc.

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30 June 2023

General Michael W. Lodge  
Secretary-General of the International Seabed Authority  
14-20 Port Royal Street  
Kingston, Jamaica

Subject: Consideration of Request for Observer Status for CSA Ocean Sciences Inc. with the  
International Seabed Authority

Dear General Lodge:

CSA Ocean Sciences Inc. (CSA) is requesting the consideration of Observer Status with the International Seabed Authority (ISA). CSA is a marine environmental consulting group headquartered in Florida, USA with branch offices in Brazil, Cyprus, Israel, Suriname, and Trinidad. CSA is also interested in attending ISA's 28<sup>th</sup> Session of the ISA Assembly in late-July as an Observer.

CSA is pleased to provide our enclosed application (**Enclosure 1**) for consideration of Observer Status with the ISA, as well as consideration to attend the 28<sup>th</sup> Session of the ISA Assembly.

Thank you in advance for your consideration, and please do not hesitate to contact me with any questions.

Respectfully,

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Vice President, Science and Technology  
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# Enclosure 1

## Application for Observer Status for CSA Ocean Sciences Inc. with the International Seabed Authority

### Part A: Information about the organization

**1. Name of Organization**

CSA Ocean Sciences Inc.

**2. Address of headquarters**

8502 SW Kansas Ave  
Stuart, Florida 34997  
USA

**3. Addresses of all branches and/or regional headquarters**

CSA Ciências Oceânicas Ltda.  
Av. Carlos Moreira Lima, 90  
Bento Ferreira Vitoria/ES  
29.050-652  
Brazil

CSA Ocean Sciences (Trinidad) Ltd.  
Suite 108, Fitt Court  
9-11 Fitt Street, Woodbrook  
Port of Spain, Trinidad W.I.

CSA Ocean Sciences Suriname N.V.  
Dr. Sophie Redmondstraat no. 139  
Paramaribo  
Suriname

Continental Shelf Associates MED Ltd  
Christodoulou Sozou 2  
Eiffel Tower, 3<sup>rd</sup> Floor, Flat/Office 301  
1096, Nicosia, Cyprus

CSA Ocean Sciences (Israel) Ltd.  
147 Bar-Yehuda Road  
Nesher, Israel 3688206

**4. Telephone number**

Main Headquarters in Stuart, Florida: +1 772 219 3000

**5. Fax number**

Main Headquarters in Stuart, Florida: +1 772 219 3010

**6. *Email Address***

Dr. Christopher Kelly  
[ckelly@conshelf.com](mailto:ckelly@conshelf.com)

**7. *Name, title and contact details of focal point***

Dr. Christopher Kelly  
Vice President, Science and Technology  
[ckelly@conshelf.com](mailto:ckelly@conshelf.com)  
Office: +1 772 219 3059  
Mobile: +1 610 329-2963

**8. *Background information on the organization***

CSA is a prominent environmental consulting firm specializing in marine and coastal sciences. CSA offers a wide range of services related to the assessment, management, and monitoring of marine environments, with a focus on providing sustainable solutions to industry, government agencies, and non-profit organizations.

Founded in 1970 as a marine environmental consulting firm, CSA specializes in multidisciplinary projects concerning potential environmental impacts of activities in coastal and marine ecosystems and offers a wide variety of desktop and field survey services to support our clients worldwide. CSA is headquartered in Stuart, Florida with international offices in Brazil, Trinidad, Suriname, and the Eastern Mediterranean.

CSA has successfully conducted thousands of studies for more than 600 clients in 76 countries. Our more than five decades of experience in marine studies from local rivers to the deep ocean includes sampling, monitoring, mapping, permitting, baseline surveys, impact assessment, and mitigation. The CSA team is composed of leaders in research and the environmental consulting industry with specialties in water quality monitoring, water and sediment sampling, deep water imaging, sampling design, statistical analysis, protected species assessments, habitat characterization, monitoring studies, impact assessments, environmental permitting, and land and hydrographic surveying.

CSA is also certified by TRACE International Inc. and conducts business ethically and in compliance with the U.S. Foreign Corrupt Practices Act, U.K. Bribery Act, and other anti-bribery legislation.

Additional information about our organization can be found on our website:  
<https://www.csaocean.com/about>

**9. *Is the organization a member of, affiliated to, or otherwise associated with another organization that has been granted observer status with the Authority?***

One of CSA's subject matter experts, Mr. Ted Brockett, has interacted with the Authority on several occasions, including participation in ISA Sessions, consultation, and guest lecturing.

CSA Scientists Dr. Christopher J. Kelly and Mr. Edmund Hughes also have personal memberships to the International Marine Minerals Society

CSA has no other affiliations with other organizations that have been granted observer status with the Authority per the list accessed from <https://www.isa.org.jm/observers/> on 26 June 2023.

**10. *Is the organization affiliated to consultants of the Authority, contractors with the Authority, entities in connection with the law of the sea, the offshore and deep-sea mining industry, research institutes or the mineral marketing and processing industry?***

CSA has been contracted by The Metals Company since 2019 to design, deploy, service, and retrieve three deepwater moorings within the NORI-D Lease Block located within the Clarion-Clipperton Zone (CCZ), Pacific Ocean. CSA scientists have also analyzed data from the acoustic Doppler current profilers, conductivity-temperature-depth (CTD) sensors, sediment traps, still cameras, and hydrophones associated with the three mooring over the entire 3 years of their deployment and still ongoing.

As a marine environmental consulting firm specializing in metocean mooring systems, deepwater sampling (sediments, seawater, biological), and environmental impact analyses, CSA expects to work with many entities within the deep-sea mining industry, research institutions, and non-governmental organizations as the marine mining field develops and the need for objective scientific sampling and analysis matures.

CSA's reputation is built on a "following the science" method that allows it to be an honest broker among industry, regulators, and academic/NGO organizations. It approaches all efforts objectively and with robust scientific and operational rigor that will withstand peer-review.

CSA is not an advocacy institution, and CSA scientists do not participate in advocacy programs.

**11. *Relationship with intergovernmental organizations***

CSA conducted work with the United Nations Environment Programme Mediterranean Action Plan from 2013 to 2014. CSA was contracted to provide consultancy services to support the Drafting of the Mediterranean Action Plan for the implementation of the Offshore Protocol to the Barcelona Convention. CSA conducted the preliminary phase of implementing Decision IG.20/12 involving the preparation of materials to be considered by the Contracting Parties of the Offshore Protocol in developing the Action Plan for the Mediterranean Sea.

CSA was contracted to fulfill two main tasks associated with the implementation of the Offshore Protocol. The objective of Task 1 was to identify and analyze existing recognized international Best Practices and regulations, either from a legislative or an industry point of view, relevant to the implementation of the Offshore Protocol, with particular emphasis on the main activities and installations listed in the Offshore Protocol. The objectives of Task 2 were to compile responses to a questionnaire on the implementation of the Offshore Protocol and to carry out a comparative analysis of existing legislative and administrative framework in the region in order to highlight potential gaps between the Offshore Protocol requirements and the existing laws or practices. In support of these Tasks, CSA participated in the Workshop on Regional Response Capacity and Coordination for Major Oil Spill in the Mediterranean Sea (MEDEXPOL, 2013) held in Athens, Greece. CSA presented the Study of Best Practices and Recommendations for Drafting of the Marine Action Plan for the Implementation of the Offshore Protocol. CSA presented summaries of the material developed under Task 1 (Best Practice Recommendations for Implementation of the Offshore Protocol) and under Task 2 (National Questionnaire Analysis). The project team consisted of CSA, Watson Energy Consulting Pty Ltd., and Epsilon Consulting Ltd.

CSA also regularly conducts studies on behalf of U.S. national organizations such as the Bureau of Ocean Energy Management (for offshore energy, renewables, and critical minerals) and the U.S. Navy (for coral restoration and mitigation activities).

In the early 1990's, the National Oceanic and Atmospheric Administration (NOAA) contracted with Sound Ocean Systems, Inc. (SOSI; which was subsequently acquired and brought into the family of companies with which CSA is associated) to design, build, and operate a deep ocean sediment resuspension device that became known as the Benthic Disturber. A successful disturbance phase of a deep ocean mining Benthic Impact Experiment (BIE) was conducted by NOAA in the CCZ. SOSI operators were aboard the RV *YUZHMOREGEOLOGIYA* and were responsible for the sediment resuspension task using the Benthic Disturber. Other participants in the NOAA BIE included the Metal Mining Agency of Japan (MMAJ) and Interoceanmetals (IOM) of Poland. During the following 2 years, SOSI conducted similar sediment suspension operations for MMAJ (now JOGMEC) and IOM in the CCZ. Additionally, a fourth BIE was conducted for the Indian NIO in the Indian Ocean. Here too, SOSI provided and operated the Benthic Disturber during the operation.

## ***12. List of publications and/or other relevant documentation***

A list of selected, relevant publications, presentations, and patents by CSA scientists and subject matter experts on topics pertinent to marine mining and impact assessment are provided below. Authors affiliated with CSA are emphasized in **bold** lettering.

### *Selected Publications*

**Balcom, B. J.**, Biggs, D. C., Hu, C., Montagna, P., & Stockwell, D. A. (2011). A comparison of marine productivity among Outer Continental Shelf planning areas. (No. OCS Study BOEMRE 2011-019).

**Continental Shelf Associates.** (1993). Synthesis and Analysis of Existing Information Regarding Environmental Effects of Marine Mining: Final Summary. (MMS No. R0684).

Cordes, E. E., McGinley, M. P., Podowski, E. L., Becker, E. L., Lessard-Pilon, S., **Viada, S. T.**, & Fisher, C. R. (2008). Coral communities of the deep Gulf of Mexico. *Deep Sea Research Part I: Oceanographic Research Papers*, 55(6), 777-787. 10.1016/j.

**CSA Ocean Sciences Inc.** (2019). White Paper: Marine Mining in Japan's Exclusive Economic Zone.

**CSA Ocean Sciences Inc.** (2019). Large Submarine Canyons of the United States Outer Continental Shelf Atlas. (No. CSA-BSEE-FL-19-80931-3401-08-REP-01-FIN).

**CSA Ocean Sciences Inc.** (2022). Submarine Canyons of the United States Exclusive Economic Zone Atlas. (No. CSA-BSEE-FL-22-81794-3748-09-REP-01-FIN).

**Hammer, R. M., Balcom, B. J.**, Cruickshank, M. J., & Morgan, C. L. (1993). Final report. Synthesis and analysis of existing information regarding environmental effects of marine mining. (No. OCS Study MMS 93-0006).

**Viada, S. T.** (2008). Characterization of Northern Gulf of Mexico deepwater hard-bottom communities with emphasis on *Lophelia* coral -- an introduction. U.S. Department of the Interior, URL:<http://www.mms.gov/ooc/newweb/productservices/products.htm>].

**Barkaszi, M.J., and C.J. Kelly.** In review. Analysis of protected species observer data: Strengths, weaknesses, and application in the assessment of marine mammal responses to seismic surveys in the northern Gulf of Mexico. PLOS ONE. Manuscript #: PONE-D-22-04680.

#### *Selected Presentations*

**C.J. Kelly.** 2023. Establishing a Long-term Hydrographic Monitoring Program for a Polymetallic Seabed Mining Program in the Clarion-Clipperton Zone, Pacific Ocean. 11<sup>th</sup> Annual Deep Sea Mining Summit. London, United Kingdom.

**T. Brockett.** 2008. “Updated Analysis of the Capital and Operating Costs of a Manganese Nodule Deep Ocean Mining System Developed in the 1970s”. International Seabed Authority Workshop on Polymetallic Nodule Mining Technology – Current Status and Challenges Ahead. Kingston, Jamaica.

**T. Brockett.** 1999. “Nodule Collector Subsystem II” presented at the International Seabed Authority Workshop on Proposed Technologies for Deep Seabed Mining of Polymetallic Nodules, Kingston Jamaica.

#### *Selected Patents*

**K. Peterson & J. Harney;** U.S. Patent No. 10,472,032, “Autonomous Water Column Profiler”, 12 Nov 2019.

**K. Peterson, C. Hart, & J. Adamson;** U.S. Patent No. 8,920,073. “Method and Apparatus for Remediating Organic Loading of Marine Sediments”, 30 Dec 2014.

**K. Peterson;** U.S. Patent No. 6,776,559, “Method and Apparatus for Deploying a Communications Cable Below the Surface of a Body of Water”, 17 Aug 2002.

**T. Brockett;** U.S. Patent No. 3,945,394, “Pressure Responsive Valve”, Mar. 23, 1976.

**T. Brockett;** U.S. Patent No. 3,972,566, “Solids Concentrator”, Aug. 3, 1976.

**T. Brockett;** U.S. Patent No. 3,973,575, “Mining Concentrator”, Aug. 10, 1976.

**T. Brockett;** U.S. Patent No. 3,975,054, “Undersea Mining and Separating Vehicle Having Motor-Powered Water Jet”, Aug. 17, 1976.

**T. Brockett;** U.S. Patent No. 3,988,843, “Mining Transition Chamber”, Nov. 2, 1976.

## **Part B: Interest in matters under consideration by the Assembly**

**13. Briefly outline how your organization intends to demonstrate its interest in matters under consideration by the Assembly, including by answering questions 14 to 17 and by providing any other relevant information related to the application for observer status.**

CSA is a marine environmental consultancy that specializes in deep-sea sampling design and survey execution, including for active marine mining projects within the CCZ.

CSA would provide objective guidance as an expert consultant for designing and executing scientific studies in the deep-sea environment to address current and future research and permitting requirements as outlined by the Authority. This consultancy experience will be especially important as the industry moves from academic baseline research to investigations into baseline characterization which is more typically an industry action to meet regulatory requirements as development of the resource matures.

**14. Briefly outline whether and how the purposes or activities of the organization relate to the work of the Authority.**

Through its subject matter experts and current projects, CSA also has deep roots in all aspects of ocean mining from exploration, survey design, data collection and interpretation, statistics, collector design, pilot mining systems and operations, and environmental impact assessments.

CSA is currently assisting The Metals Company with complying with the Authority's recommendations for long-term water quality monitoring of the deep-sea environment within the NORI-D lease block through the deployment, servicing, and retrieval of three environmental moorings; and the scientific analysis of data collected from those moorings.

More broadly, CSA, with its long history of deep ocean work for offshore energy is one of the few marine environmental consulting companies that has the scientific, operational, and sampling experience and equipment capabilities necessary to conduct and monitor deep-sea environmental programs through the entire lifespan of a lease block (i.e., from exploration, through development/extraction, to decommissioning/abandonment).

**15. Briefly outline whether and how your organization intends to contribute to the work of the Authority, for example by providing specialized information, advice or expertise, or by identifying or helping to procure the services of experts or consultants.**

CSA scientists were instrumental in the providing valuable consultation that led to the development of offshore energy marine environmental regulations within the U.S. Gulf of Mexico through its work consulting for both industry and governmental institutions. Also, within the U.S. waters, CSA continues to provide scientific products that help guide U.S. regulations pertaining to protected species, wind farm development, seismic surveys, carbon sequestration, and critical minerals resource allocation.

Internationally, CSA scientists have been influential by providing purpose-fit survey design, conforming to robust and defensible statistical models. CSA's analysis, and sampling consultation has resulted in the development of robust marine environmental regulations for offshore energy activities offshore Israel, Cyprus, and Suriname. In these all of these instances, CSA has acted as a trusted consultant by both industry and national regulatory agencies that resulted in environmental monitoring regulations that are both appropriate for the relevant

regional ecosystem and sufficiently robust to endure the most scrutinized peer review by academic and NGO communities.

Specific to contributing to the Authority, CSA feels that its role within the marine mining space would be similar to its role to its contributions in the offshore energy regulatory realm. CSA scientists have an exceptionally strong background in designing and implementing statistically rigorous environmental research and survey designs for baseline studies, monitoring programs, and other field investigations. CSA works towards addressing the specified scope of a particular program by only implementing a survey design that is appropriate to achieve the goals of that program. In tandem with the survey design, and prior to any data collection, CSA also identifies a method of statistical analysis so that replicates are designated in order to provide the correct statistical inference to interpret the results of the program. This is especially important because it ensures that results are conveyed in an unbiased and vigorous scientific manner that will hold-up to scrutiny by stakeholders and regulatory agencies.

To summarize, CSA is confident that given its experience and rigor, can provide valuable insight and expertise that contributes to the work of the Authority by providing specialized information, advice, and experience specific to the deep-sea environment, statistically sound survey designs, environmental impact assessment, and environmental regulations pertaining to the marine mining industry.

***16. Briefly outline whether and how your organization has the expertise and the capacity to contribute, within its field of competence, to the work of the Authority, in particular in connection with the law of the sea, the protection of the marine environment, the offshore and deep-sea mining industry, technology, minerals processing and marketing, activities in the Area and marine scientific research in the Area.***

CSA has more than five decades of experience in marine studies from local rivers to the deep ocean that includes sampling, monitoring, mapping, permitting, baseline surveys, impact assessment, and mitigation. In that time CSA has increased its capacity, technology, and expertise for studies in the deep ocean environment.

Specific to marine mining CSA has been involved with activities since the 1990's (please see response to question #11). More recently, since 2019, CSA continues to conduct long-term monitoring support of ongoing metocean studies in NORI-D lease block within the Clarion Clipperton Zone, to ultimately provide environmental and modeling services as part of a feasibility study for seafloor polymetallic nodule mining activities in water depths of approximately 4,000 to 4,200 m.

CSA has the scientific and operational experience, particularly in the context of adherence to regulatory requirements, to consult with the Authority, NGOs, and industry on items ranging from baseline characterization studies, marine monitoring programs, sampling technologies, and environmental impact assessments.

As highlighted in question #10, CSA's reputation is built on a "following the science" method that allows it to be an honest broker among industry, regulators, and academic/NGO organizations. It approaches all efforts objectively and with robust scientific and operational rigor that will withstand peer-review. CSA is not an advocacy institution, and CSA scientists do not participate in advocacy programs.



**17. Briefly outline whether and how your organization intends to contribute to the capacity-building programmes and initiatives of the Authority (e.g., Secretary-General's award, voluntary commitments of the Authority).**

As a private marine environmental consultancy CSA is focused on providing robust and defensible scientific and operational services for marine environmental programs to our world-wide clientele, which includes industry, governmental agencies, NGO, and academic institutions.

CSA is headquartered in Florida, which is relatively close to the ISA Secretariat located in Jamaica. Initially, CSA would be pleased to contribute subject matter presentations during break-out sessions of council meetings, as applicable. Additionally, if there are opportunities to provide other advice and consultation which the Authority would find useful then CSA would be interested in assisting, as applicable and appropriate. We welcome further discussions with the Authority regarding potential contributions and collaborations.