

**Testing of a Cellulose-Based Technique for Seaweed Bed Generation Begins in Chiba**  
**(Potential for blue carbon credit certification)**

Japan Renewable Energy Corporation (Head office: Minato-ku, Tokyo; President and CEO, Representative Director: Kazuhiro Takeuchi; “JRE” below), as part of its initiative to combat the sea desertification (loss of seaweed beds) that plagues ocean waters around Japan, has identified what it believes will be an effective method of regenerating seaweed beds by using a polymer solution based on cellulose and other materials that have proven successful in the kelp beds of Hokkaido (“Method”). Demonstration testing of the Method (“Demonstration”) will begin in the Uchibo area of Chiba and will be the first testing in waters outside Hokkaido.

Research into the Method is led by Professor Norishige Yotsukura of the Field Science Center for Northern Biosphere at Hokkaido University (Location: Sapporo, Hokkaido; President: Kiyohiro Houkin). The research has demonstrated the effectiveness of spraying the ocean with a mixture of kelp zoospores (spores for self-propagation) and a viscoelastic polymer solution based on cellulose and other materials to deliver the spores to the ocean floor with minimal dissipation. The Method is effective in establishing and fostering kelp and other seaweed within a specific targeted area and has demonstrated its success in creating seaweed beds in Hokkaido.

JRE worked with Okabe Co., Ltd. (Head office: Sumida-ku, Tokyo; Representative Director and President: Hirohide Kawase), a company that has been in the forefront of experiments with the Method in its own facilities, to spray a mixture of *Ecklonia cava Kjellman* (*Laminariales*) zoospores and cellulose-based polymer solution in the Uchibo area of Chiba. (Cellulose is a naturally derived material that places little burden on the environment, is inexpensive, and requires no special technology.) JRE will continue to monitor the growth of the beds and identify the effectiveness of and any problems with the Method, and will explore the potential for application in ocean waters around Japan.

In recent years, rising ocean temperatures and sea desertification have become a significant challenge for the fishing industry around Japan due to the loss of fishery resources. JRE, as a developer of offshore wind power, investigates initiatives that it can take to contribute to better marine environments, and it decided to conduct this Demonstration as part of those efforts. The creation of seaweed beds in this Demonstration will not only help improve the marine environment and restore fishery

resources but also lead to the production of blue carbon\*, facilitating the absorption of carbon dioxide into the ocean. JRE sees the potential for blue carbon credit certification in the future, and views the project as beneficial to both offshore wind power and local communities, as well as contributing from the ocean to the prevention of global warming.

\* “Blue carbon” refers to carbon that is stored by marine ecospheres (mangrove, kelp, seaweed, etc.) as they absorb carbon dioxide in the process of growth. It has garnered much attention around the world as a new means of absorbing carbon dioxide, and Japan has begun blue carbon-related initiatives.

About Okabe Co., Ltd.

Involved in construction-related products, automotive products, and marine businesses under the management philosophy of “contributing to society by providing safety and security.”

URL: <https://www.okabe.co.jp/english/>

(Follow the “Sustainability” link for an overview of marine businesses and other SDG initiatives)

For inquiries about this matter, please contact:

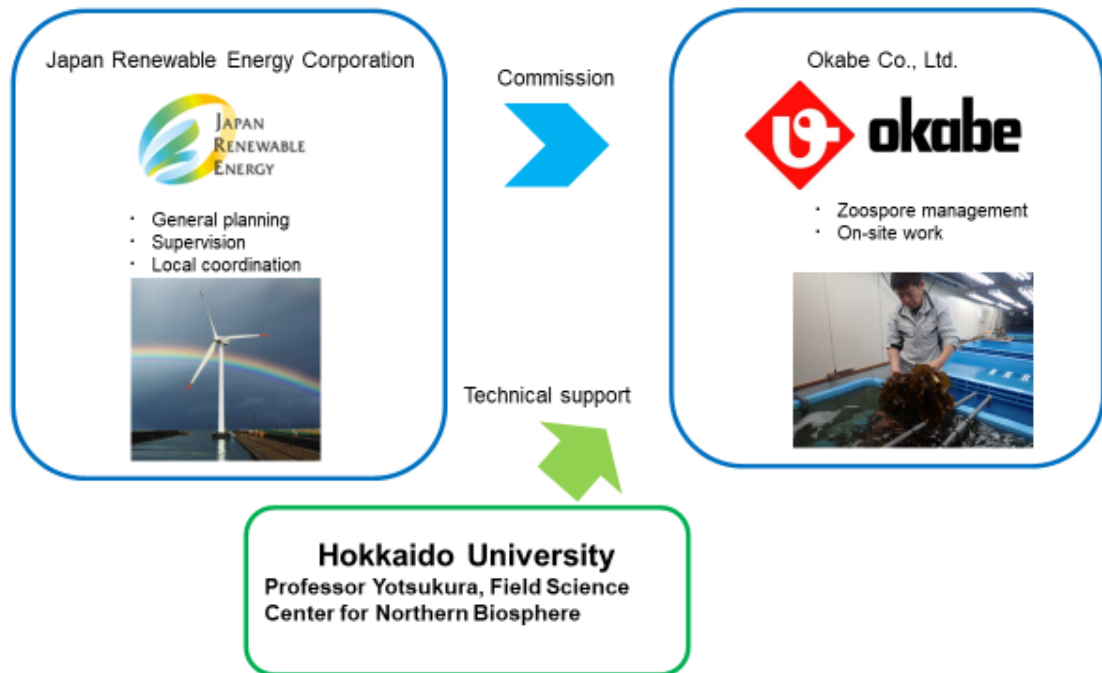
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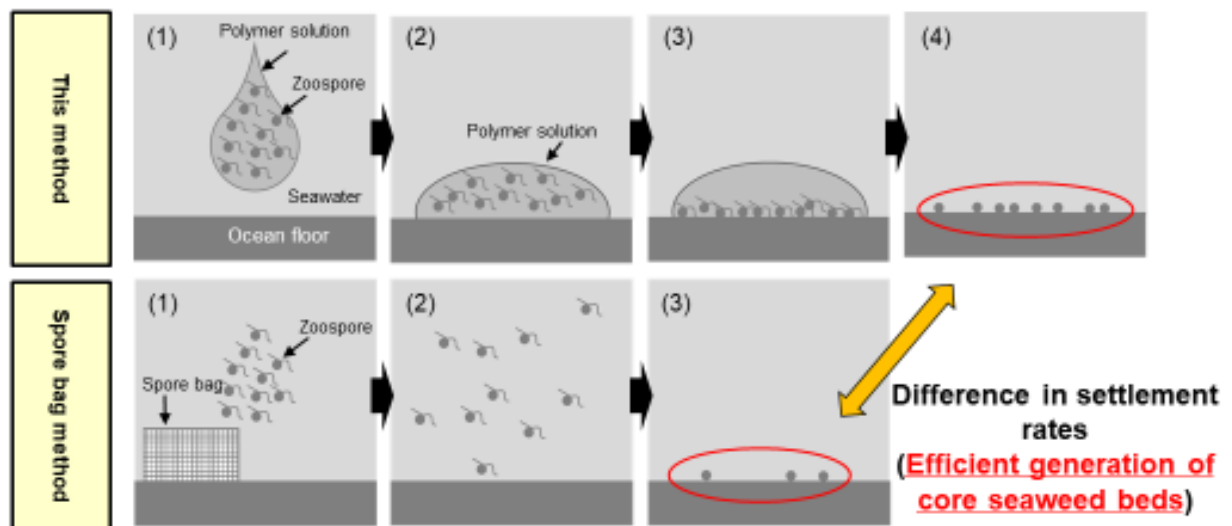
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Attachment

【Structure】



【Method】



JRE edit of Fig. 1 found in Regional Studies in Marine Science 43 (2021) 101663

Zoospores are delivered to the ocean floor covered in polymer solution, which enables a greater number of zoospores to affix themselves to areas of the ocean floor suitable for growth.

【At work】



Extracted *Ecklonia cava* Kjellman zoospores are mixed with a cellulose-based polymer solution



The polymer solution is sprayed on the ocean floor

【Ref: Growing kelp in Hokkaido using the Method】

