

Development Stage

(Fiscal Year 2006-2008)

Hakodate Area

Formation of Network of Local Industries with Marine Innovation

Hakodate Regional Industry Promotion Organization
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Project Promotion

- Project Director.....Yoshiaki Maita
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- Chief Scientist.....Kohei Yamauchi
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- Deputy Chief Scientist...Katsumi Miyajima
(Director, Research and Development Dept., Hokkaido Industrial Technology Center)
- Science and Technology Coordinator...Shigeru Ikeda (full-time)
Kimihiisa Takada (part-time)

Core Research Organizations

Faculty of Fisheries Sciences Hokkaido University, Hokkaido Industrial Technology Center

Major Participating Research Organizations

- Academia...Faculty of Fisheries Sciences Hokkaido University,
Hakodate national College of Technology, FUTURE UNIVERSITY-HAKODATE,
Kitami Institute of Technology, Asahikawa Medical College
- Government...Hokkaido Industrial Technology Center, Hokkaido Food Processing Research Center

Industry...Kyowa Concrete Industry Co.,Ltd., Readjust, NIPPON CHEMICAL FEED Co., Ltd., i JARD., S. K.K.Co.,Ltd., SEC Corporation Ltd., DOHSUI Co.,Ltd., MARUKICHI SHOKUHIN CO.,LTD., Northigen Co.,Ltd., BIO CREATE Co.,Ltd., Kamada Shouten Co.,Ltd., Matsunaga Shouten Co., Ltd., Youki Co., Ltd., TOKIKANE CHIKUHAN Co., Ltd., Hakodate Sobaya Communications, KAJIWARA KONBUTEN Co.,Ltd., FURUTA SHOUTEN Co., Ltd., KYUNO Co.,Ltd., WAKI SHOUJI, Co., Ltd., Hokkaido Conf.Co.,Ltd., Dounan Shokuhin Co., Ltd., Fuji Ocean Works CO.,LTD., Yamada Foods Processing Co., Ltd., Notosuisan Inc, Yoshida Shokuhin Unlimited Partnership, MICHIBA, Sushidokoro KIHARA., Ishikawaseimenjo, Hakodate Yanagiya Co., Ltd., Handa Co., Ltd., CHIBASUISAN Co.,Ltd., Towa Denki Seisakusho Co., Ltd., MARUNAMA KOSEI Cooperation Co.,Inc, Touro Kudo (Fishery), TAIYO SEISAKUSHO Co.,Ltd., TERASHIMA SHOUKAI Co., Ltd., YAMAICHI SHOKUHIN Co.,Ltd., ISHIO SHOKUHIN Co., Ltd., DEGUCHI SEIMEN Co., Ltd., SUGA CO.,LTD., Miyakawa Co., Ltd., Tanaka Reiki Industry Ltd., Oshimarezou Co.,Ltd, Nichiryo Baking Co., LTD. Hakodate Office, INST OF FISHERIES MANAGEMEN TECHNOLOGY, Hokkaiyamato Co.,Ltd., DENSEI, INC., KITANIHON KOUWAN CONSULTANTS Co., Ltd., Nippon Data Service Co., Ltd., Alpha Hydraulic Engineering Consultants Co., Ltd., Tetsugumi Underwater Operation Co., Ltd., JOKKI CO., LTD., Maruhachi Muramatsu Inc., Nissui Pharmaceutical CO., LTD., Fuyo Ocean Development & Engineering Co., Ltd., Kamiso-gun Fishermen's Cooperative Association, Japan Fisheries Cooperatives Minamikayabe, Japan Fisheries Cooperatives Esan, Toi-Town Fisheries Cooratives, Japan Fisheries Cooperatives Zenikamezawa, Japan Fisheries Cooperatives Hakodate TAMAMOYA, Inc.TAKAHASHISHOKUHIN, Inc., CHIKARAZUSI Co., Ltd., MRC-POLYSACCARIDE CO., LTD.,KASIZI MIZUNOYA, Screen-pro Shimoda, Ink., IKEMI SEKIYU-TEN CO.,LTD, MIURA SUIJAN CO., LTD, TENGUDOU TAKARABUNE CO., LTD., SHOUWA FREEZING PRANT CO.,LTD, Nikko Ltd., Nissui Pharmaceutical Co., Ltd.

Aim of research and development

By uniting the science and technology of the rich originality related to the fishery and the ocean in the Hakodate area and promoting a "Basic Stage" project that aimed at the adding further value by the brand power and the advanced use of kelp and squids that were representative ocean resources of this area, more than 50 companies have participated in the project for creation of industries with the cooperation of industries, universities and the government, which contributed to rapidly make a new technological innovation and the new project creation encouraged in the region. With further strengthening the industry -university-government cooperation in the region as "Development Stage" project in the background of such an opportunity, it aims to create the center of innovated technology industry in home and abroad based on the revolutionary seeds and corporate needs and developing the added value technology and quality assurance through advanced use of competent regional fishery resources and search-extraction-purification of specialized functional ingredient and through a consistent industrial function from production to processing, distribution and consumption in the region mainly for fishery and the food processing sector.

Contents of research

No. 1 Composition of special elements, genome analysis, and chain type Marine Garden System construction

- Clarification of lifestyle disease prevention functions of alga of composition
- Development of medical raw material and functional foods
 - * Fucoxanthin (anti-obesity compound)
 - * Prostaglandin (living body adjustment)
- High density, sustainable production and propagation system development
 - * Underwater or land cultivation (co-existence with abalone etc.)



Point: Find of alternative products to Kjellmaniella crassifolia or Gagome

No.2 Effective utilization of functional components as medical, pharmaceutical, fine chemical, and food materials
Utilization of seaweed viscous-polysaccharides in food and medical fields Application to food supplement and wound coating treatment material
Development of particle control-technology for manufacturing high-quality squid ink

Point: Advanced utilization of squid ink through developing high-quality edible biomaterial and enhancing UV absorption activity

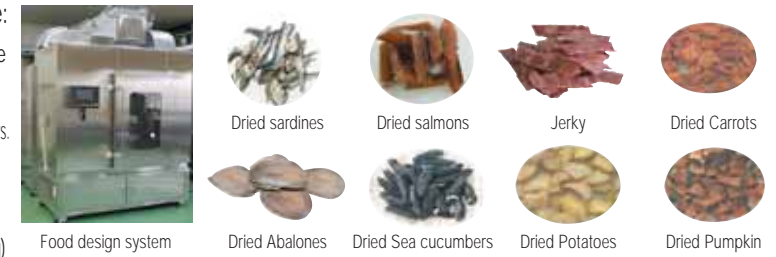


No.3 Food design system based on functionality and texture:

- Development of processing to emphasize tastes and texture
 - * Flavor and taste control processing such as dried salmons and dried sardines.
 - * High class Chinese foods processing such as dried abalones and dried sea-cucumbers.
 - * Addition processing of functional ingredients and flavoring.

Point: Control and design of quality for dried foods

Collaboration with Tokachi area (farm products drying processing)



No.4 Research and application for the function preservation technology for biological tissue

- Development of freshness keeping technology for various fish and shellfish
 - * Oxygenation, seawater immersion, and control of energy metabolism
 - * Suspended animation and hibernation keeping of biological tissue
 - * Development of related equipment and business creation

Point: Application of freshness, and function preservation technology for biological tissues



No.5 High sensitive bacterial monitoring system based on molecular ecology that is superior to official bacterial method.

- Development of bacterial detection system that is superior to official methods in simplification, rapidity and sensitivity.
 - * The bacterial testing time would be shortened to 8 hours (traditional methods are needed for 1-6days)
 - * The system would be able to detect injured bacteria (The bacteria between live and dead = In case of intake of the bacteria, there is possibility of multiplication of the bacteria in intestine).
 - * Injured bacteria could not be detected by official bacterial method.

Point: Establishment of rapid specific bacterial test for food processing and the circulation



No.6 Species identification, home judgment, and traceability by biological substance information and information technology

- Development of home judgment technology for falsification prevention
 - * Development of species identification classification technologies using DNA analysis
 - * Home judgment by a small amount of component analysis
 - * Traceability supply of (tracking information from producers to consumers)

Point: Establishment of safety, reliability, and establishment of regional brand of food

