

KU Today

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学部紹介
特集

Special Issue
Faculty of Fisheries



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KUToday is a biannual publication to present information about Kagoshima University to a wider international audience. Each edition will feature one faculty for prospective overseas students as well as other topics such as educational programmes, research and alumni information. Some articles are translations from the Japanese-language publication, *Kadai Journal*, upon which *KU Today* is loosely based. Any comments or suggestions about *KUToday* will be warmly received.

PDF files on *KUToday* can be downloaded from
<https://www.kagoshima-u.ac.jp/en/about/newsletter.html>

A Note on Names

Following convention East Asian names appearing in *KU Today* are written family name followed by given name.

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Faculty of Fisheries



Dr. Sakuma Yoshiaki, Dean

The Faculty of Fisheries accommodates education and research on science and technology relevant to the nature and human activities in the aqua-sphere, including fisheries. There is an increasing importance of this field in response

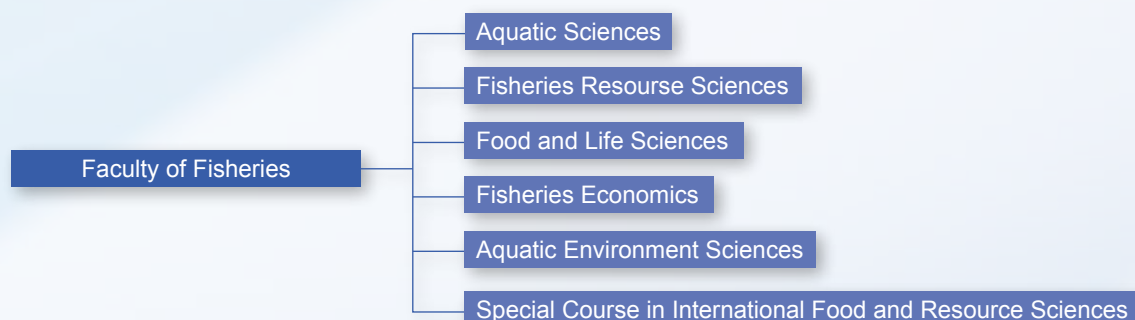
to societal needs for food security, food safety and environmental conservation. Our faculty is one of the rare tertiary institutions in Japan, which accomplishes comprehensive education and research in these fields. The faculty has one department, Fisheries, which is composed of five divisions namely: Aquatic Sciences, Fisheries Resource Sciences, Food and Life Sciences, Fisheries Economics, and Aquatic Environment Sciences. The faculty has developed its capability in both manpower production and basic and applied research ranging from the aquatic environment and resources to their industrial utilisation and consumption. The Faculties of Agriculture and Fisheries jointly offer the Special Course in International Food and Resource Sciences, which intends to educate students so that they will be able to participate in the globalising industrial society and contribute to the international community. Its masters and doctoral programmes provide enriched education and research.

The objectives of the faculty's education and research are the sustainable development and rational utilisation of fishery resources, conservation of the aquatic environment on

aquatic ecosystems and international contribution and engagement in local fisheries. The principle of the faculty has been field-oriented education and research. In order to achieve this, the faculty is equipped with well-balanced facilities such as the training vessels, Kagoshima-maru and Nansei-maru together with the Education and Research Centre for Marine Resources and Environment. The Kagoshima-maru, built in 2012, is one of the most up-to-date training vessels and her capability is now devoted to our education and research. She is accredited as the Educational Core of on-Board Training in Tropical and Sub-Tropical Waters and accepts students from regional universities. Being a student-friendly faculty, we have developed a unique education management system and one of the global quality assurance standards in industries providing exciting education.

While we endeavour to link with the Southeast Asian and South Pacific regions, we have conducted, in particular, a variety of international activities such as collaboration with the University of the Philippines and the Southeast Asian Fisheries Development Centre, which is the world's largest fishery organisation. In doing so, we are leading the enhancement of the international credibility of higher education in Japan. In addition to conventional academic activities, we offer international technical dissemination and transfer and participate in official development assistance projects, which are renowned over world. On the other hand, we conduct local community service programmes based on the needs of local fisheries with particular emphasis on those in remote islands.

The faculty strives to maintain its status as a world-renowned fisheries education and research institution encompassing the tropical and sub-tropical aquatic belt.



Education

Aquatic Sciences



Students receive instruction and training covering a broad range of techniques and subjects, including biodiversity, ecology, ecophysiology, systematics and environmental studies. Our interest covers the full diversity of marine and freshwater life, from microscopic algae to marine fish and mammals. We produce marine biologists with knowledge and skills who can be successful on a global scale.

Fisheries Resource Sciences



The students joining our group study the biological and technological aspects of fisheries resource management and advanced aquaculture technology through comprehensive teaching and training at the undergraduate level. Our goal is to foster students to have a broad range of knowledge on fisheries and aquaculture so they can contribute to the field of fisheries resource management, fisheries technology, aquaculture technology, and sustainable development of fisheries industries through teaching and research.

Food and Life Sciences



We mainly provide education on the effective and safe utilisation of marine resources as food and biomass, and on the biochemical properties of fishery products and their biologically active substances. Students are expected to gain special knowledge and techniques in the field of fisheries food sciences and resource utilisation sciences, and to play an active part in the industrial world related with food, chemistry and pharmaceuticals.

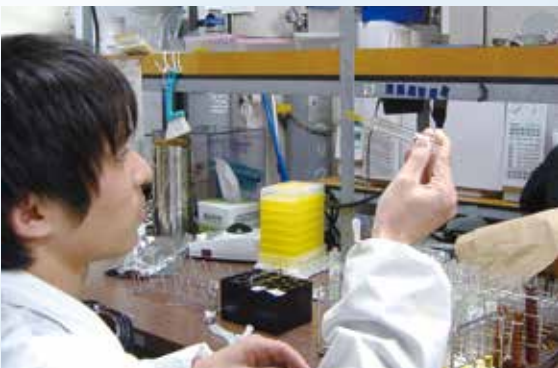


Fisheries Economics



The mission of our group is to foster students who have strong interests, responsibility and enough knowledge about seafood marketing and fisheries industry management. We want to develop human resources in the field of food business (e.g. international trading companies, food processing companies, distributors and retailers) and fisheries administration (e.g. national or local government offices, fisheries cooperative associations and fisheries companies).

Aquatic Environment Sciences



Because of the conservation of biodiversity and the steady supply of seafood for our food, strict conservation and management in aquatic environments in both fresh and sea water areas is required in the world. We especially train students with holistic knowledge for red tides, eutrophication, environmental pollution by chemicals (negative impacts), environmental conservation, and environmental remediation and aim to turn them into researchers and experts, who will be active all over the world.

Special Course in International Food and Resource Sciences



This special course intends to educate students who can participate in the globalisation of industrial society and contribute to the international community with a focus on Southeast Asia, the South Pacific and Africa.

Students will acquire expertise in the field of sustainable production and the rational use of food resources while enriching their world view and ethical sense. The faculties of Agriculture and Fisheries collaborated to establish this course, which consists of an agriculture-based sub-course and a fisheries-based sub-course, where students can study both agriculture and fisheries sciences.

Facilities

Training Vessels

The fishery training vessels, Kagoshima-maru and Nansei-maru, are advanced mobile platforms capable of conducting various hands-on practical and research activities related to fishery, oceanography and environmental studies at sea. The Kagoshima-maru (67m length overall) is designed to perform hands-on training on extensive education areas provided by the Faculty of Fisheries and multidisciplinary research, from the littoral zone to open ocean. The training also includes navigation, ship-handling and seamanship to prepare students to pass the national licensing examination for maritime officers and to become excellent marine specialists for safe and efficient operation of large-sized vessels. Furthermore, the Kagoshima-maru is accredited as Jointed-Use Educational Core by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Taking full advantage of the Jointed-use programme of Kagoshima-maru, undergraduate and graduate students from universities in Japan and Southeast Asian countries have had opportunities to implement hands-on practical at sea and to share shipboard life together with KU's students. The Nansei-maru (42m length overall) is a midsize multi-purpose

training vessel and devotes much of her ship time to conduct a variety of educational and research activities, from the littoral region to islands area of Kagoshima Prefecture. Our training vessels also accept study-tours by school children at ports of call, and offer them an opportunity for better understanding of and deeper interests in the oceans.



Jointed hands-on practical with students from the University of Philippines Visayas on T/V Kagoshima-maru

Education and Research Centre for Marine Resources and Environment

Azuma-chō Field Station is located on the island of Nagashima, close to the Yatsushiro Sea, in the northwest of Kagoshima Prefecture and serves as a seaside satellite facility for researchers from our university and other institutions. The station was

established in 1972 and rebuilt in 2016. Facilities include large-scale water tanks (600t × 2, 30t × 3, 8t × 2, 4t × 4), several small research boats like the Azuma (9t) and a dormitory for up to 30 people.



Student Voice

Vo Khanh Linh (Vietnam), PhD student



Initially I was an exchange student in the Postgraduate (Master) Programme on Tropical Fisheries with International Linkage (ILP) for 42 days in September 2016.

During this time, I started my research on the identification of bacterial virulence factors in fish diseases. It was an interesting research theme, which gave me exposure to the advanced and modern analytical techniques related to genetics research. My professor and lab-mates were very kind and very willing to assist whenever I needed help. This gave me the zeal and commitment to work hard in my research. Besides studying, I was taken to visit famous places around Kagoshima, and I was also introduced to the impressive Japanese culture. Kagoshima is a very peaceful, tranquil and fresh city with amazing natural beauty. Furthermore, I also had a chance to meet people from different countries and I was able to make new friends from all over the world. The programme provided me with advanced knowledge and left me with great memories for Kagoshima during my short stay as an ILP student. I came to realise that Japan is a very good place for studies with its high-quality education. Therefore, with that advance knowledge and wonderful memories that I gained, I was inspired to come back and study in Japan, particularly Kagoshima. Immediately after I finished my master's degree

in September 2017, at Nha Trang University, I came back to Japan and I was enrolled as a research student with a MEXT scholarship provided by the Japanese government. I am very grateful for this opportunity and I would like to thank my professor, Shiozaki Kazuhiro, who has tirelessly provided guidance to me since the ILP programme.

I am currently a PhD student in the United Graduate School of Agricultural Sciences, Kagoshima University in the Biological Science and Technology Division. My current research is focusing on identification of the mechanism for bacterial infection via glycoconjugates.

I strongly recommend students to take this opportunity and join the ILP programme. Through this opportunity students have a chance to gain advanced knowledge and accumulate unforgettable memories in Kagoshima University and Kagoshima in general. Hope to see you in Kagoshima!



Student Voice

Nguyen Xuan Truong (Vietnam), BSc student

I am currently in the third year of my studies in the Faculty of Fisheries. This year is my fifth year since I came to Japan. I studied Japanese for two years in Osaka. Then I moved to Kagoshima and started college life in April, 2017. Up to now, in addition to the lessons, I have had a lot of interesting experiences in my field of study. I went on the Nansei-maru training vessel for a fishing trip to evaluate biomass in Kinkō Bay. I was able to visit the fish market, a fish processing factory and flounder aquaculture farms. Being told about industrial fish farming techniques was an extremely valuable opportunity to me. Have you ever thought of making your own canned fish? If you ask me, I can be proud to say I have. I was involved in dissecting a 50kg tuna and processing it up to the canning stage. It was an unforgettable experience for any student.

Not only that, improving your English skills is also heavily promoted in the faculty. There are many native English speakers - teachers, exchange students - who I can learn from. In the summer of my second year, I was able to participate in a two-week student exchange programme in the Philippines. It was really a memorable experience

having to use English to interact with native speakers and participate in activities. Thanks to this good learning environment, my TOEIC score has increased by nearly 400 points compared to 3 years ago!

Now, I belong to the larval rearing management lab of Professor Kotani Tomonari. This laboratory conducts studies concerning the nutritional improvement of live feeds for larvae and juvenile fish and the development of larval rearing technology. At the moment, I am taking steps to prepare for a study of glass eels in Indonesia next year. I am planning to catch and raise glass eels for about 40 days to study their digestive enzymes.

In the future, after graduating, I want to work on seed production in Japan for three years and then return to Vietnam to serve my country.





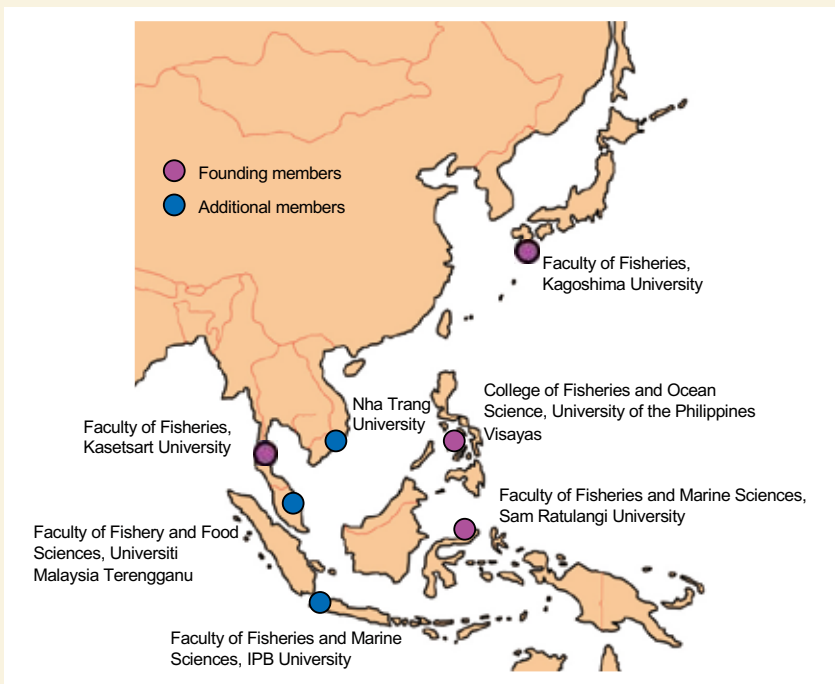
Progressive effort towards globalising society

Kitō Keiko, Assistant Professor



Closing Ceremony of Summer Session 2019

The Graduate School of Agriculture, Forestry and Fisheries has been participating in Postgraduate (Master) Programme on Tropical Fisheries with International Linkage (ILP) since 2015 with the aim of producing talented graduates who are equipped with theoretical and applied knowledge in sciences and technologies relevant to tropical and sub-tropical fisheries and can participate actively in our globalising society. This programme is comprised of seven graduate schools from six countries.

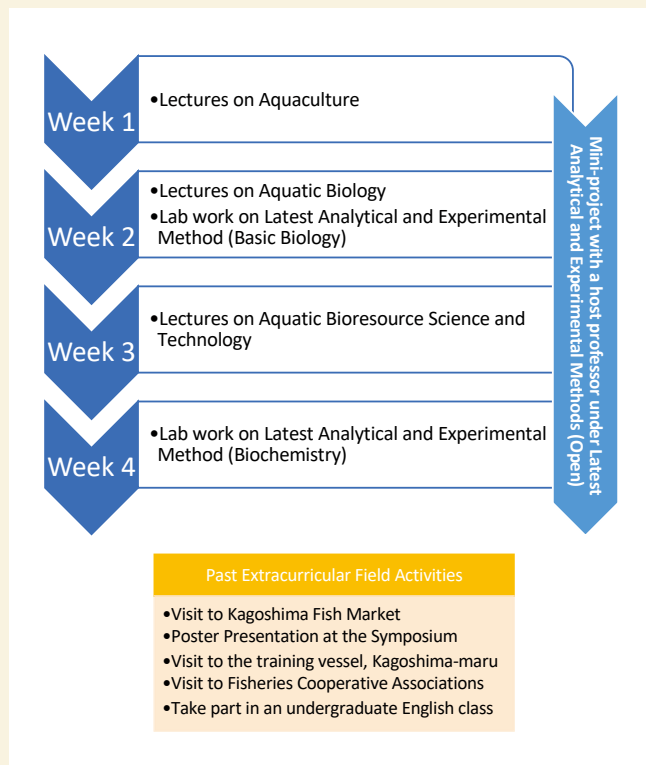


The programme forms its curriculum by sharing the characteristic subjects offered by the member schools and assumes all the students registered in the programme at their home university as programme students. The member schools are able to provide education services equal in quality to all the programme students and the students can be exposed to education would not be realised by one university with no additional cost. The outcome is acknowledged by being awarded credits at their home university, which evaluation is delivered by the lecturers of the subjects taught at the member school. In practice, member schools send and/or receive students to/from other member schools just like a short-term student exchange programme.

Our graduate school offers other ILP member schools an intensive programme called Summer Session every August and

September. Summer Session starts with an opening ceremony and orientation session and Japanese ILP students take those from other member schools on a city tour of Kagoshima.

Summer Session



Visiting Kagoshima Fish Market

Field trip to Kita-Satsuma Fisheries Cooperative Association

Number of students in the Summer Session at Kagoshima University

Institutions	2015	2016	2017	2018	2019
Sam Ratulangi University	4	3	3	4	4
University of the Philippines Visayas	5	4	3	3	2
Kasetsart University	5	4	3	4	2
Universiti Malaysia Terengganu	-	4	4	2	4
Nha Trang University	-	3	4	3	2
TOTAL	14	18	17	16	14



Opening Ceremony of Summer Session 2019



Summer Session lecture



Learning the Latest Analytical and Experimental Methods in Biochemistry



ILP Governing Council meeting at Kagoshima University in September 2018

Japanese ILP students also experience study at one of the member schools and they choose the school or the country they would like to study in at the beginning of their master's programme. Japanese students who supported students from other member schools during Summer Session go to one of the other member schools to this exchange programme. Since ILP students meet and get to know each other in Kagoshima in the summer, students at other member schools are ready to support Kagoshima students in October.

Through this international programme, almost all ILP students experience administrative processes, such as visa application at the embassy of the country they intend to study in. Out of the 120 students registered for ILP, 102 have experienced campus life including taking classes worth more than 6 credits at other member schools and 39 students have successfully completed the programme as of November 2019. Among the students who completed this programme, some have pursued further studies in their field in United Graduate School of Agricultural Sciences.

For management of the programme, two representatives from each school meet annually at the two-day governing council meeting. This is mainly to certify students for programme completion, to update the curriculum according to the changes in each graduate school and to share the ILP students' status. Currently, three graduates of Kagoshima University are working as faculty members in their countries and are actively involved in this programme as governing council members. This proves the acceptance of international students leads to the building of a successful and continuous relationship even after graduation, at the same time it is great to witness such graduates being successful in their careers. We hope continuous efforts for the ILP will lead to its branching out to further cooperation in the future.

The programme has been run with the support of Japan Student Services Organization (JASSO) and the management expense grants for national university corporations.



Nha Trang University

Department of External Affairs, Nha Trang University

Nha Trang University (NTU) is located on Lasan Hill, overlooking Nha Trang Bay - one of the most beautiful bays in Vietnam. Over 60 years of development, NTU has made significant achievements in training, scientific research, and international cooperation to contribute to the socio-economic development of Vietnam, particularly in the fisheries sector. In addition to its strength in fisheries, NTU also focuses on training in other key disciplines to provide high quality human resources serving the socio-economic development of both the local province of Khanh Hoa and the country of Vietnam, including economics, tourism, foreign languages, and a range of engineering and technology degree programmes. With a yearly enrollment of approximately 16,000 students across about 50 undergraduate, graduate



and doctoral degree programmes, NTU is attracting more and more students, including international ones via the international master's degree programmes (affiliated with foreign universities) and short term programmes tailored to the needs of students.

With a strong background in training and research, NTU has become a partner of choice for many international organisations. We have successfully cooperated to implement international degree programmes including the NOMA-FAME programme - an MSc programme in Fisheries and Aquaculture Economics (with Norwegian partners), the NORHED programme - an MSc program in Marine Ecosystem Management and Climate Change (with Norwegian partners), French-Vietnamese bilingual bachelor and master's programmes in Business Administration and Tourism (with French partners), and a master's programme in Food Technology (with Belgium partners), etc. Alongside the degree programmes, short-term training courses designed by NTU based on partner's specific requirements have also gained popularity. These programmes have been implemented on a regular basis since 2009 and have attracted many students from universities in the US, Australia, the Czech Republic, South Korea, etc. We are proud to have set the corner stone for many to succeed in different walks of life. Our

international students have published their research with prestigious scientific journals, received scholarships for



Graduates from NORHED international master programme



Exchanged students from Southern Cross University, Australia

further studies in developed countries or become leaders of associations. By continuing to promote and diversify the contents as well as the format of training programmes, NTU is determined to remain a unique, interesting and rewarding education destination for international students.

Since 2016, NTU joined the ILP - International Linkage Programme - an associate cooperation initiated by Kagoshima University. Becoming one of the seven members of the ILP is a valuable opportunity for us to contribute our strengths for the network to train human resources in the tropical fisheries sector. Through the programme, numerous opportunities for learning and conducting research have been granted to NTU's



NTU student (white T-shirt) exchanged at KU

students. Up to now, 14 students from NTU have received the programme's scholarships, and six of these have been granted completion certificates. Several students from Kagoshima University have also undergone

study at NTU. NTU is ready to receive students from sister universities in the network including University of the Philippines Visayas (Philippines), Universiti Malaysia Terengganu (Malaysia), Kasetsart University (Thailand), Sam Ratulangi University (Indonesia), IPB University (Indonesia), as well as Kagoshima University. NTU is siding with its partners on the mission of the ILP network's goal to grow in strength and to bring more practical benefits to students and to member universities.



University of the Philippines Visayas

Harold M. Monteclaro, Assistant Professor, University of the Philippines Visayas

UPV Main Building (photo by Misael Bacani)

The University of the Philippines Visayas (UP Visayas) is one of the constituent universities of the University of the Philippines (UP) System. UP Visayas has three campuses: Miagao, Iloilo; Iloilo City; and Tacloban City.

UP Visayas has four colleges and a school namely, College of Fisheries and Ocean Sciences (CFOS), College of Arts and Sciences (CAS), College of Management (CM), UPV Tacloban College (UPVTC) and School of Technology (SOTECH). These academic units offer undergraduate and graduate courses in the fields of fisheries, biology, public health, communication and media studies, political science, history, literature, psychology, sociology, community development, mathematics, computer science, economics, accountancy, management, marketing, food technology, and chemical engineering, among others.

UP Visayas is recognised by the Commission of Higher Education as a National University in Fisheries and has received distinction as a Centre of Excellence in Fisheries Education. UP Visayas contributes to national development through instruction and conduct of relevant research, and extension programmes.

Funding from UP, national agencies, and international organisations enabled faculty and research staff to implement research projects in aquaculture, fish processing technology, marine fisheries, aquatic biology, social sciences, arts and culture, and coastal resource management.

The main campus is in Miagao, a quaint little town that is about an hour from Iloilo City on Panay Island in the central Philippines. The campus is nestled along rolling hills and beside the sea. Students enjoy the relaxed setting in the campus, away from the hurried pace of cities. The residents are friendly and welcoming. Panay Island is home to beautiful dive sites teeming with diverse marine life. It also offers surprises to those who are interested in culture and history. Iloilo City is conveniently accessible for those who wish to go shopping or spend leisure time with friends. There are many local specialties in Iloilo. One must not miss the batchoy, pancit molo, local chocolate beverage, and various pastries that can only be found in this region.

For more information, visit: www.upv.edu.ph



The "Diwata ng Dagat" (sea fairy) of the College of Fisheries and Ocean Sciences in Miagao Campus, Iloilo (photo by Anne Ledesma)



Protecting people and nature, safeguarding our beautiful natural environment

Working towards protecting coastlines, people and the environment as a whole, the Coastal Environment Laboratory led by Professor Nishi Ryūichirō has for many years been engaged in education, research and social contribution activities of coastal environmental engineering. Recently, the scope of the laboratory's activities has expanded with the advanced operational technology of drones which came to the forefront during disaster relief after the Great East Japan Earthquake in 2011. His laboratory members are also actively engaged in public welfare activities utilising advanced technology, such as surveys and research on coastal environments, disaster relief, and sea turtle protection activities.

Contributing to the sustainable development of coastal areas

Japan's coastal areas are blessed with abundant seafood and beautiful scenery, but they also come with natural disasters such as typhoons, high tides and tsunamis. Taking the Great East Japan Earthquake as an example, sandy beaches and dunes disappeared and the seabed environments such as rias were changed. In addition, there was frequent outbreaks of shellfish poisoning, a decline in scallop farming, and the number of people using the sea especially along the coast of Fukushima Prefecture decreased sharply. The recovery of coastal areas requires a long-term approach that combines disasters, people, nature and technology. Professor Nishi's laboratory conducts scientific approaches that contribute to the sustainable development of coastal areas while harmonising coastal conservation (disaster prevention and mitigation), environmental conservation and utilisation (marine activities and fisheries). It is also engaged in a wide range of research on issues related to the hydrosphere in Japan, and has made a significant contribution to reconstruction assistance in various areas.

Developing advanced technologies

Professor Nishi was an early adopter of cutting-edge technologies in his research, including GPS, 3D laser scanning devices and infrared cameras. After the Great East Japan Earthquake in 2011, he started using drones, the advent of which has greatly benefited his research. Using software, he has been able to create three-dimensional data that looks like a bird's-eye view of the terrain and buildings taken by drones. And by photographing the same places over a long time, it

becomes easy to represent variation information with the passage of time.

Furthermore, the drones realised the resumption of his investigations into offshore currents, which Professor Nishi had been working on for many years to prevent drowning accidents, but had to give up due to safety concerns. For example, by pouring coloured water into the sea and filming it with a drone, it's now possible to visualise the movement of water in the ocean without having to put people in danger. This kind of proliferation of tools that allow scientists to collect quantitative data without having to step into dangerous areas is a boon for scientists, he said. "Some people have a dubious image of drones, but they're just like astronomical telescopes and microscopes." His laboratory has accumulated know-how on drone operation technology under various terrains and weather conditions. In addition to disaster support and environmental surveys, it provides technology in a wide range of fields throughout Japan, including education and awareness activities on operational technology. On the other hand, taking advantage of the potential of drones, he is also engaged in the development of advanced technologies to photograph not only the surface of the sea but also the sea and the seabed, and technologies to visualise invisible objects using infrared rays.



Bird-eyed drones are good news to research

Wide-ranging educational activities

Professor Nishi, who has been engaged in a wide range of social contribution activities for many years, received a 2018 National Maritime Award (Prime Minister's Award) for distinguished service in promoting Japan as a maritime nation and an award from the Commandant of the Japan Coast Guard. "When I think of those awards, I can see



the faces of the many researchers and students who I have conducted research activities with, and those who I was engaged in rescue activities with." His future ambition is to fostering the next generation of researchers while conducting research on the environmental conservation of coastal areas and the safe use of coasts. Nishi also hopes that domestic research institutions, including universities, will increase the number of posts for young researchers.

Professor Nishi is currently planning to hold a project dubbed "Let's find Issie" in Lake Ikeda in Ibusuki. (Issie is the large creature that is said to inhabit the lake).

About five years ago, researchers from the university and elsewhere resumed surveys of the bottom sediment of the lake. "We're going to find out what Issie is," he smiles, adding the evolution of technology may allow us to solve yet another mystery. As we are going into the warm water season, Professor Nishi concludes, "Japan is surrounded by the sea, so it is my hope more people will study about it and have fun with it."



Professor

Nishi Ryūichirō

Aquatic Sciences, Faculty of Fisheries

MSc in Ocean Civil Engineering Development from Kagoshima University in 1986. PhD from Kagoshima University in 2006.

Member of Japan Society of Civil Engineers, Oceanographic Society of Japan.

Field: Fisheries oceanography, coastal oceanography, coastal engineering.

Research topics: Coastal environment, coastal currents, bottom sediment, coastal protection, coastal erosion, issues in fisheries oceanography, offshore sand mining, inlets, monitoring, aquatic GIS
Recipient of the 11th National Maritime Award (Prime Minister's Award) & Japan Coast Guard Commandant's Award



Végé Marché 19

Satisfying appetites with Kagoshima's local specialties

Inamori Kazuo, chairman emeritus of Kyocera Corporation, graduate of the Faculty of Engineering and recipient of the university's first honorary doctorate, donated money to the university to build the Inamori Hall as a place to enhance and develop education and research at the university. The building's restaurant, Végé Marché 19, opened in December 2019.

When you enter the hall, you will be greeted by a large staircase that goes all the way up to the third floor. Books written by Dr. Emeritus Inamori are displayed on both sides of the stairs, and at the top you can find the Kyoto Prize Library where you can read up on his business philosophy.

Végé Marché 19 is on the second floor of the building. With an open and stylish atmosphere, it

has 96 seats and large windows overlooking the university's Spirit of Enterprise Plaza. The chef uses many of Kagoshima's local specialties and seasonal ingredients, and serves a buffet lunch with a focus on vegetables. This has more than fifty hot dishes covering Japanese, Chinese and Western cuisine. There are also fresh salads, curry, Amami *keihan* rice, *takikomi* rice and soups. Since it is a buffet you are free to taste as many dishes you like. There are also fresh juices such as kiwi juice or polyphenol-rich grape juice.

After your main course, you can enjoy an organic coffee and with one of the restaurant's individually crafted desserts carefully made one by one, while looking over the busy quadrant of the university.

In the evenings, the restaurant is only open for functions of up to 30 people or more.



Joint class with Polytechnic University of the Philippines

In January, Professor Katagiri Shizuko of the Faculty of Law, Economics and Humanities ran her sociology class together with students from the Polytechnic University of the Philippines (PUP) in Manila over Skype.



Presentation by the Japanese students

University, Hunan Agricultural University, Hunan University and East China University of Political Science and Law.

In the class, the Japanese students had prepared a presentation in English with the help of a couple of PUP students currently studying in Kagoshima on the theme of Japanese students' part-time work and job hunting, which they gave to ten students taking the class in PUP.

They explained that the workplace in Japanese society consists of two types of employment: regular and non-regular. Most Japanese university students live their university lives while working part-time on a non-regular basis, and using data and examples the students highlighted that exploitation by part-time employers is a familiar social problem. They also showed how Japanese university students spend the money they earn from their part-time jobs.



PUP students

The class was part of a tie-up between Assistant Professor Romeo Peña at PUP, Takeshita Tomoaki, a PhD student at Kagoshima University, who is currently teaching at PUP, Itō Shingo, a masters student from Kagoshima University, who is currently studying at PUP, as well as participants from three Chinese universities which have connections with Kagoshima

about job hunting separately from non-regular part-time jobs, and they want to find stable regular jobs such as becoming employees in large companies or public officials which all start immediately in the April after graduation.

The students from the Philippines asked questions such as whether the university will intervene if a student is being exploited in a part-time job and why so many students want to work part-time if the conditions are so bad. The Japanese students answered in both Japanese and English.

For the Japanese students, the class proved a good experience and a source of motivation to study English more and also expressing a desire to visit the Philippines.



Using Skype to exchange opinions



PUP students



Students in Kagoshima



The greatest diversity of ants in Japan?

Yamane Seiki, Professor Emeritus
Graduate School of Science and Engineering

Since Kagoshima Prefecture stretches a long way from north to south covering warm temperate and subtropical zones, it has a rich flora and fauna. Ants are no exception, and they compete for the first or second place for the number of different species in Japan. There are more than 105 known species on the mainland, and a further 40 have been found on the prefecture's islands, bringing Kagoshima into close competition with Okinawa Prefecture, where 146 species have been recorded. And since new species are added every year, it is difficult to say which prefecture is really top of the list! From Ōkuchi, in the northern part of the prefecture, we may be able to add species common to the north temperate zone, and from Yakushima and the Amami Islands, we may find some unique new species.

Ants found in Kagoshima Prefecture can be characterised by several points. First, the minimum length of a worker ant is 1mm and the maximum length is 12mm. The world's largest species is just over 25mm, so they are less than half the size. There are green and deep blue ants in the tropics, but the ants from Kagoshima are plainer, ranging from pale yellow to reddish brown to black. Nesting sites vary widely from in or on the ground (such as in logs) to trees, but nesting on plant leaves, which is common in the tropics, is unknown. Most species are active around the clock or mainly during the day, but two species, *Camponotus devestivus* and *Camponotus monju*, are active only at night. Unless you are an ant researcher, it is unlikely you will run into any of the nocturnal or subterranean species.

In recent years, an invasive species of ant, *Technomyrmex brunneus*, which prefers manmade environments, has rapidly expanded its range, pushing out native ant communities. A few years ago,

it colonised Kagoshima University and has become the dominant species in the university's botanical garden. There are also a few species with venomous stings such as *Brachyponera chinensis*, which can be found in gardens, that can cause an idiosyncratic reaction similar to a wasp sting in some people. Due to their small size, the ant world is barely known but its ecology is not only interesting, it's also closely related to human life, so it definitely deserves more of our attention.

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The large 10mm long *Odontomachus monticola* with its elongate mandibles.
(Photo taken on Yakushima on 30th May 2010 by Nakamura Kyōhei)



Front Cover: Kagoshima-maru, the fishery training vessel

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