Special Program 2016

Humans and the Marine Environment

University of Washington

Friday Harbor Laboratory, Washington, USA

14-23 September 2016

UW Main Campus (Seattle)

Friday Harbor Laboratories (FHL)

Presentation by HU student (Lecture by Prof. Hunt at FHL)

Lecture by Prof. Horne on board R/V Centennial

Lecture by Prof. Anderson at FHL

Field trip on R/V Centennial

Whale Museum at Friday Harbor

Field trip (intertidal walk)

Objects

The oceans cover about 70 percent of the earth's surface and play a central role determining the well being of the planet. The oceans provide us with recreation, food, and numerous other "ecosystem services". This course provides a brief introduction as to how energy moves through ocean food webs and some the physical and biological mechanisms that influence regional productivity, and the consequences of this productivity in terms of harvestable resources including important food fishes on which people rely. The course then examines how the behavior of fishermen and managers interact to maintain viable fisheries around the world. It helps students understand why overfishing occurs, and introduces them to various methods for preventing overfishing and improving ecological, economic and community outcomes for harvesters and the post-harvest sector. The course develops some basic models, but then apply them within the context a several case studies drawn from around the world: the focus will be on understanding why the outcomes (for the stock and for the fishing industries) that observed in the case studies obtain.

Contents

1. What determines the diversity of species and their numbers/biomass?
2. How does the physical environment influence the ecosystem? Discussions based on field observation on board R/V Centennial.
3. Fishery Management
4. Educational excursion for the whale museum and whale watching tour.

Schedule

14 September:

12:35 JST Hakodate => NH554 => 14:00 JST Naneda => Train => Narita

14:05 JST Sappro => NH2154 => 15:45 JST Narita

18:05 JST Narita => NH0178 => 11:25 Sea-Tac Clear Immigration and Customs

Van to Seattle hotel (Mediterranean Inn)

PM: **Keita Abe**: Explore Seattle:

Lunch at University district (Mexican restaurant), UW campus

Dinner at Capitol Hill (Italian restaurant)

15 September:

09:00 **Keita Abe**: Explore Seattle: Space Needle

12:00 van to Anacortes, Lunch

Ferry to Friday Harbor; Transfer to labs, Orientation

16 September:

09:00 **George Hunt**: Field trip (intertidal exploration around Hunt's home)

14:00 **George Hunt**: Lecture and Discussion

Food web complexity and species diversity

17 September:

09:45 **George Hunt**: Farmers' Market in Friday Harbor

14:00 **George Hunt**: Lecture and Discussion: Why are there so many kinds of animals?

18 September:

09:00 **John Horne**, **George Hunt:** Field trip on R/V Centennial

Demonstrate CTD, Ring Net, bottom trawls, Acoustic Sampling; seabirds and marine mammals

14:00 **John Horne**: Lecture and Discussion:

What can we understand from the observation on R/V Centennial?

19 September:

09:00 **George Hunt**: Lecture and Discussion: The paradox of the plankton

14:00 **George Hunt**: Lecture and Discussion: Interplay between top-down, bottom-up, and wasp-waist control in marine ecosystems

20 September

09:00 **Chris Anderson**: Lecture and Discussion: Common pool resources

14:00 **George Hunt**: Visit Whale Museum and have special guided tour

21 September

09:00 **Chris Anderson**: Lecture and Discussion: Forms of fishery management

14:00: **Chris Anderson**: Lecture and Discussion: Fishery management case studies

22 September

09:00 **George Hunt**: Lecture and Discussion:

Climate impacts on eastern Bering Sea food webs

14:00 Excursion: Whale watch trip

17:00 Farewell Dinner at home of George and Peggy Hunt

Thursday 17 September:

07:15 Bus to ferry dock

08:00 Ferry to Anacortes

09:30 Bus to Seattle (Red Lion Seattle Airport)

PM: Visit Pike Place Market and vicinity

Red Lion Hotel Seattle Airport

24 September

13:20 Sea-Tac => NH0177 =>

25 September

=> 15:40 JST Narita => Train =>

20:00 JST Haneda => NH0079 => 21:35 JST Sapporo

26 September

6:55 JST Haneda => NH4757 => 8:15 JST Hakodate

Lecturers from the University of Washington

Dr. George L. Hunt, Jr. is a research professor of School of Aquatic and Fishery sciences (SAFS), UW. His research focuses on how climate variability affects polar marine ecosystems. He has conducted studies of polar marine ecosystems in the Antarctic, the Atlantic Arctic, the Pacific Arctic and the Bering Sea. His early career focused on the reproductive behavior and ecology of marine birds in temperate waters. His focus then shifted to how marine birds were able to forage successfully in marine waters where the average density of prey appeared too low to support them. This work led to a number of research expeditions to polar waters where they examined how the interactions between the behavior of zooplankton and physical processes in the ocean led to high concentrations of prey at depths available to marine birds. He is currently working with colleagues to complete several retrospective analyses of marine bird distributions in the eastern Bering Sea to determine how they respond to features of the marine environment and how their distributions and abundances have changed during the past 40 years. (UW website)

Dr. Chris Anderson is an associate professor of SAFS, UW. As the first Fisheries Economist at SAFS, he addresses the role that economics plays in developing effective management for aquatic and fishery resources. Identifying and achieving management goals for complex human-natural systems requires appreciating how people will respond to changes in management and in their environment – questions that economic tools are designed to address. He participates directly in management through membership on the Scientific and Statistical Committee of the North Pacific Fishery Management Council. (UW website)

Dr. John Horne is a professor of SAFS, UW. He is a fisheries biologist who uses acoustical techniques to understand the spatial structure and abundance of aquatic organisms, which in turn is used to inform resource management. He uses ecological theory to predict the relative importance of biological and physical processes on the distribution of fish, and his research scales from the individual up to entire ecosystems. He is also associated with the Quantitative Ecology and Resource Management (QERM) program and the Center for Quantitative Science (QSCI). In addition to his work for UW he collaborates with scientists at the NOAA Alaska Fisheries Science Center. He has won the Medwin Prize in Acoustical Oceanography from the Acoustical Society of America.

Special thanks to **Mr. Keita Abe** (TA, Ph.D. student at Dr. Anderson).

Edited by Hiromichi Ueno (Faculty of Fisheries Sciences, Hokkaido University).

Reports by students

Participants

	Last name	First name	Course	Year	Major
1	DOBASHI	RYO	Undergraduate	Sophmore	Fisheries
2	YAMADA	NOA	Undergraduate	Junior	Fisheries
3	YUKIHIRA	TAIJU	Undergraduate	Sophmore	Fisheries
4	KAWASHIMA	RAIMU	Undergraduate	Sophmore	Fisheries
5	KOBAYASHI	YUI	Undergraduate	Junior	Science
6	HASHIMOTO	KOHEI	Graduate School	First-year	Fisheries
7	NISHIKIORI	HIDENOBU	Undergraduate	Junioir	Fisheries
8	TOMIKURA	KEISUKE	Undergraduate	Sophmore	Literature
9	SHIMADA	MASASHI	Undergraduate	Sophmore	Fisheries
10	ITO	SHUN	Undergraduate	Sophmore	Fisheries
11	NAKAOKA	YOSUKE	Undergraduate	Sophmore	Fisheries
12	IGUCHI	RIKUYA	Undergraduate	Junioir	Fisheries

Summer program in University of Washington

Sophomore, School of Fisheries Science, Hokkaido University

Ryo Dobashi

9/14 sightseeing and visiting Washington University

We arrived Seattle about noon and then went to Washington University. It was large and beautiful. I was most surprised in the library. I have never seen so many books in one library.

9/15 moving to FHL

We sightsaw Seattle and visited FHL. We learned basic information about class by Mr. Keita. For example, how to ask questions and response teacher's questions.

9/16 visiting George's house and making a presentation

I moved from FHL to George's house. In his house, we walked tidal area and searched animal living in tidal area. I learned ecosystem at tidal area by looking by my eyes. It was good for me because I did not really understand the name of marine animals in essay we read before visiting America. Moreover, I could see the track of glacier.

In the afternoon, we made a presentation about tidal ecosystem. They did three experiments in essay. These area were different in latitude and had different characteristics. I learned existence of top predator affects diversity in tidal area. However, other things may also affect the diversity. For example, temperature and shape of the area. Questions from teachers and other students made good opportunity to think about essay and explain my knowledge in English.

9/17 visiting farmer's market and class in afternoon

We visited farmer's market. I could buy good souvenir because George introduced us interesting shop. In the afternoon, we talked about why so many species in the world. Actually, there are places where small diversity in large area. It was difficult for me to think, though teachers and presenters wrote model in white board to let us understand easily. Ecosystems are made by complex interaction of species. Smaller and smaller the diversity become, stronger and stronger the relation between species. If one species go extinct in small diversity area, other species would be in trouble.

9/18 experiments on ship and discussion

We got on ship and investigate two areas by CTD and collecting marine animals. I was interested in function of some equipment of ship. I found that each equipment has each mean

by asking John questions. In discussion, I was surprised in how difference the data of two spots. The current speed influenced the difference. If the speed is fast, the stone size of bottom would be larger than slow current area.

9/19 class all day

I heard two presentation. The first presentation was about plankton. The ingredients of each plankton were different, so season of bloom of each plankton was different. Usually, bloom occurs in spring because plankton needs light and nutrition. In summer, there are light, but lack of nutrition. In winter, there are little light. The second presentation was about the influence of top predator and primary production for ecosystem. Wasp-waist was difficult for me, but I agree with the idea that even if the number of species in one level is small, they can maintain the ecosystem with reproduction.

9/20 goat game and whale museum

Goat game was so interesting. At first, I thought we can get biggest money with buying three goat so I bought three goats. If everyone do so, total goat become thirty six. Although, the total goat was about seventy. I was surprised that the world is not as kind as I thought. At whale museum, lecturer taught me features of whales. For example, difference of male and female, spots where whales pass, and sound of whales. These all information was new for me and useful for whale watching in Thursday.

9/21 class all day

We made presentation and looked history of fishery's management. We could understand easily because Chris gave us model of management and we applied each management to the model. To manage fishery well, the relation between politicians and fishermen and scientists is important.

9/22 class, whale watching and dinner

George taught us about his essay. There were many hypothesis and experiments in the essay. I learned that it is important to ask questions, do experiment my idea and exercise English. I was pleased to see whales in whale watching fortunately. In addition, some of them jumped over the sea! Watching directly and watching through TV was different in impression, I thought.

Finally, we went to George's house and ate dinner. It was so delicious that I was full with happiness.

9/23 go back to Seattle and sightseeing

We left from FHL to Seattle by ship. In Seattle, I bought a bag for myself. When I could not choice one color from blue, blown, green, a kind woman told me to buy blue one because blue is good for me. Then I bought it by her strength recommend and it is favorite bag now.

9/24・25 come back to Japan

We left Seattle in 24, and arrived Tokyo in 25 by plane. I think we became friends after staying Seattle by comparing the number of conversation in plane.

Lastly, this program was good opportunity to think about my future and stimulate myself to study harder. I want to be able to communicate with foreign people well. I hope I go back to Seattle and meet George and Chris and John again!

Lecture content in university of Washington

School of Fisheries science, marine bioresources chemistry Noa Yamada

CHAPTER1

I wrote this chapter1 about former class. Former class outline is marine ecology.

Food chain

Animal ecologists frequently think in terms of food chain that individuals of species S1 are eaten by those of S2 and S2 are eaten by S3 and S3 are eaten etc. In such a food chain S1 will ordinarily be some holophyte. The simplest case is predator chain. Moreover, there is not simplest case.

Interplay between top-down, bottom-up, and wasp-waist control in marine ecosystems

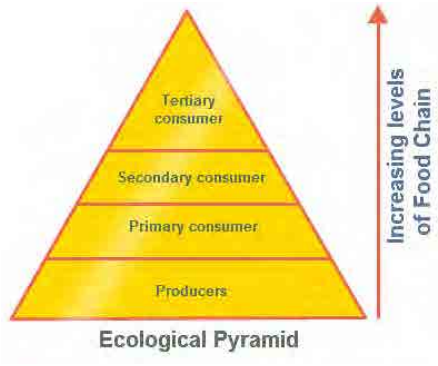
Top-down is that top-level predator influences primary producer. Top-down forces are most likely to predominate in early life stage. Bottom-up is that primary influences top-level predator. bottom-up forces are likely to predominate over longer periods in later life. The interaction of top-down and bottom-up mechanism affect to determine population size and ecosystem structure. Wasp-waist is middle trophic level influence top-level predator and primary producer.

These things influence that how marine populations are regulated and how energy flows through marine ecosystems. This paper examines aspect of control mechanisms in marine ecosystems. Diversity is related to three things (top-down, bottom-up, wasp-waist).

Climate

Climate impacts on sea foodweb. The OCH (Oscillating Control Hypothesis) predicted that recruitment of Pollock year classes should be greatest in years with early ice retreat and late brooms in warm water, because more energy would flow into the pelagic community.

Zooplankton and copepod are related.



CHAPTER2

I wrote this chapter2 about later class. Later class outline is economy and fishery management.

MSY and MEY

MSY (maximum sustainable yield) is that a sustainable harvest level that maximizes revenue from fishing, or generates the largest value of sustainable catch. MEY (maximum economic yield) is that a sustainable catch or effort level that creates the largest difference between total revenues and the total costs of fishing.

Fishery management

Hard total allowable catch (TAC) is a catch limit set for a particular fishery, generally for a year or a fishing season. Individual fishing quotas (IFQs) are described as a fishery management program that allows an individual or entity the privilege to harvest a percentage of the TAC. Individual transferable quota (ITQ) are described an IFQ program that allows an individual quota to be transferred from one sell him quota to another.

New Zealand introduced IFQ and their fishing efficiency improved. United states of America introduced IFQ in part.

CHAPTER3

I wrote this chapter3 about R/V Centennial, whale museum.

R/V Centennial

We used CTD. CTD is an instrument used to determine the conductivity, temperature, and depth of the ocean. We can get data of oxygen concentration, temperature, depth of the ocean. We got water of middle depth of the ocean and observed. We can see many zooplankton and seaweed. Next, we got water of the bottom of the ocean and observed. We can see shell, clam, sandfish, zooplankton and seaweed.

Whale museum

We went the whale museum. I saw a replica of the stomach contents from a gray whale that died near Seattle. There are many trashes. I think we should try to reduce our amount of trashes and keep ocean clean.

Gray whales are baleen whales. Baleen hangs from the upper jaw and is made of keratin. Keratin is material that makes up human hair and fingernails. Fin whale are gulp feeders, meaning that they take in a huge amount of water and then use their baleen to strain it out. Bowhead whales are called skimmers.

Cetaceans are whales, dolphins and porpoises. There are two groups of Cetaceans: odontocetes, or toothed whales, and mysticetes, or baleen whales. There are differences between the two groups. Baleen whale have baleen instead of teeth.

Short-term summer program at University of Washington

Taiju Yukihira
Sophomore
School of Fisheries Sciences, Hokkaido University

From September 14 to September 25, I participated in summer program at University of Washington (UW). In this program, I spent most of the time at UW's Friday Harbor Laboratories, except for the first day and the final day in Seattle. Three professors gave some lectures on marine ecology and fisheries management there. Besides, I boarded UW's research vessel to observe the ocean, and also went to the whale museum and whale watching. In this essay, I will show you the contents of the program and describe what I learned through my experience.

Seattle and Friday Harbor

In Seattle, I went to so many places, Space Needle, Pike Place Market, Aquarium, etc. All places were nice. However, the most impressive one was UW's campus. All facilities in UW's campus were remarkable. There was a big football stadium in the campus and the universities' library was beautiful. I can't imagine such a facilities in Japan.

After leaving Seattle, I stayed in Friday Harbor for 9 days. Friday Harbor was a small town but really wonderful place. There was a lot of nature and delicious food, and people in Friday Harbor were so gentle.

Lectures by Prof. George L. Hunt

Professor George Hunt gave a lecture on marine ecology. In this lecture, students formed two groups and each group made its own presentation about a paper on ecology and discussed with the other students and the professor. Every paper was important on a field of ecology. But, of course, it was technical and all written in English. So, it was really hard to read and understand it. To be honest, my understanding was poor. Then, I tried to read and understand at least a paper related to our group's presentation.

Our group made a presentation about a paper on the paradox of the plankton. This paper discuss a paradoxical situation of phytoplankton. According to a mathematical theory, if a number of species compete for same resources, the most competitive one outcompete the others. However, a number of phytoplankton coexist in the nature, competing for same sorts of materials. This situation is called as the paradox of the plankton, a contradiction between

mathematical theory and the nature. The paradox is caused by seasonal climate change and various types of niche.

The most important thing of this paper is that if mathematical theory contradicts with the nature, you have a chance to check what is wrong with a theory and rebuild it. I remember some words George said. He said that you don't have to be afraid to make a mistake. If you make a scientific theory, you should test it. If it is wrong, you can find what causes a problem and rebuild it, then test it again.

In George's lecture, I learned what it is like to be a scientific researcher. By reading an important paper in science, I learned how researchers solved many scientific problems in the past. And, by discussing with George, I learned that any scientific researchers have to experience failure, as many researchers in the past did, to improve their theory.

Marine observation and lectures by Prof. John Horn

I boarded UW'S R/V Centennial to make observation of the sea around Friday Harbor. The observation included CTD, bottom sampler, plankton net, and acoustic. To me, the most interesting one is bottom sampler. I saw a bottom samples from different 3 places and the samples varied from place to place. So I could see various types of organism. At one place, there were so many benthoses in the sample. Conversely, I saw some fishes such as sand lances on the other place.

After that, I took a lecture on the observation. And I knew that the distribution was caused by the sea current. In the rapid current, small particles were carried away. Therefore, only sands were left and few benthos was observed. The situation was opposite in the slow current. Small particles were left. So I could see mad and benthoses.

It was interesting for me to see physical phenomenon deeply affecting the distribution of organisms. Through the observation and lecture, I learned that I need a view of physics as well as biology to understand marine ecosystem.

Lectures by Prof. Chris Anderson

Professor Chris Anderson gave a lecture on fisheries management. First. I played a game called goat game. In this game, player buy goats to make profit each turn, and someone who makes the biggest profit becomes winner. But, the result was affected by other players every turn. If total goats are too many, you lose money. This game is an example of the tragedy of commons. The tragedy of commons imply that if everyone use many resources to maximize his own profit, no one can make profit due to exhaustion of resources. This game clearly shows a mechanism of overfishing.

After playing game, I learned bioeconomics model of fisheries management. It was the most interesting part of the lecture. Before the lecture, I already knew the terms related to fisheries

management, such as MSY and MEY, and I simply thought that the best answer to the problem of fisheries management is to achieve MEY. However, the best answer can vary. To fishermen, MEY is the best answer because they can make the largest profit. On the other hand, to manager of fisheries, MSY is the best because number of jobs is largest and food security were strong. This shows difficulty of fisheries management.

Besides theoretical model, I learned some cases of fisheries management in the U.S. and Japan. In each case, overfishing was a biggest problem, and each country tried to manage number of catch. However, in most cases, management of resources didn't succeed. Therefore, approach to fisheries management has changed until today. To find the best approach, manager has to take so many things into consideration.

Whale museum

Whale museum is in town of Friday Harbor. The museum is not so big, but many things about whales are on display and a curator at the museum taught us biology of whales. Because I had never studied biology of whales, it was surprising that population of killer whales has been declining due to overfishing and marine noise. Until then, I didn't know that killer whales eat not only marine mammals but fishes and they are so sensitive that they suffer from noise of ship. As a fisheries student, I think it was a good experience that I could learn that fisheries relate to conservation of killer whales.

Whale watching

I went whale watching at the final day in Friday Harbor. I had never seen wild whales, so I really enjoyed it. The first animal I saw was seal. I saw many seals forming a herd in rocky area. I saw not only seals but also sea lion and dolphin. However, one of the most impressive animals were killer whale. I could saw some groups of killer whales. It was great to see killer whales playing with each other and jumping on the sea. The other one is humpback whale. A guide said that it was rare to see humpback whale, so I was lucky.

Concluding remarks

Through the program, I learned so many things. Everything I learned will be helpful to my future on a field of fisheries science. Furthermore, as a Japanese, I learned the importance of studying abroad and communicating with people in other countries.

Memories Of Washington

2nd grade Fisheries of H.U.
Kawashima Raimu

Firstly, I thank everyone supported us. I cloud have a very good short-term study abroad.
I was worried about this special program. Because this is the first time that I go to a foreign country. However, through this special program, I cloud get many memories and experiences. Therefore, I want to introduce these memories.

<Whale Watching>

22th Sep. Whale watching was the most amazing in this program. It was fine weather that day. Actually, I have never done whale watching, so I didn't expect to watch whales.
However, I cloud watch these animals I only watched in an aquarium. For example, Killer whales, Humpback whales and sea lions. In addition, we can watch a jumping killer whale powerfully. I enjoyed nature. It is the memory of a lifetime.

Killer Whale

Humpback Whale

<Lecture>

Through this program, lectures preparation is the hardest tasks. It is the first time that only we read an English essay and make and conduct an English presentation, therefore, we made an

effort to understand content of essay in detail. And we cloud make a presentation. However, I was not satisfied the content of presentation. I introspect these presentation, but I can get many interests. For example, how to think form new view and get to know some words related to fisheries.

<Friday Harbor>

In this program, I have lived Friday Harbor Laboratories for a long time. Friday Harbor Laboratories has a rich natural environment. If you gaze at the sea, there are seals. It is the best place for research and life in retirement. Because, there is no obstacle to research and you can see many beautiful view every day. For example, a night view, a starlit sky and a sun rise view.

Some pictures of Friday harbor

<Seattle>

At first, I have no idea about Seattle and I didn't research. However, Seattle is very good place! What I have watched foreign street scene for the first time is amazing for me.

In addition, exposing to foreign culture is the most interesting thing for me through sightseeing, shopping and eating.

Street view

University of Washington

<Conclusion>

What I learned through this program is the interest of exposing to foreign culture. As for whale watching, I learned Americans thought about whales. They think whales is very important objects. But Japanese don't think so. Understanding these differences is interesting. If we don't go abroad, we can't know these difference. Therefore, understanding these differences is the unique experience for myself. So I think that exposing to foreign culture is the most interesting and important.

What I learned from lectures at FHL and American life

Yui Kobayashi
Junior, Department of Earth and Planetary Science,
School of Science, Hokkaido University

First, I want to say thank you for all the people who related this program. In this course, I got many experiences that I have never had in my life.

I am not a student of Fishery but Science, so I worried about whether I can follow classes. However, thanks to interesting and kind classes, I could have learned almost as of the Fisheries student.

Then, I will introduce my impressions of each of the events.

Lectures by Prof. George Hunt

Before visiting USA, George gave us huge amount of essay to read. To be honest, I overwhelmed by the amount because it seemed not to be able to finish reading. However, I did my best and after attending FHL classes, I found it was necessary to improve understanding George's classes. I learned there are many species under the sea and they are maintaining balance of ecosystem each other. Holding a debate on essay to prepare presentation in the midnight in the dining hall was also precious time for us. We deepened friendship throughout dialogue.

We went George’s house two times, each of time his wonderful wife made us nice cooking. I want to say thank you her again and I am looking forward to meet wonderful couple; Mr. and Mrs. Hunt some other time.

The ocean investigation by boat and Lectures by John Horne

I was so happy to attend John's class because marine geology is my area of expertise. I have known that rapid flow of seawater makes sandy seabed and slow makes muddy one. However, it was the first time to see with my own eyes. Sandy and muddy seabed are so different in biological and chemical point of view. I have never saw such a huge barnacle, I was so luckey to see his organs.

Because it was also the first time for me to board a boat, I was afraid to get seasick. But owing to John's interesting lecture, I forgot it.

The afternoon lecture deepened my understanding. Observing planktons, jellyfish, the fish in the sand was such interesting, also seals was so cute.

Whale museum tour

I surprised to know that researchers tell each orca living near the island. Skeletal preparation of orca was bigger than I imagined. I was also surprised that there are many mammals in the Sun Juan Sea. We learned many things, which is different from Japan's ocean.

Lectures from Prof. Chris Anderson

Chris's classes are about economy of fishing. It was little difficult for me, but when I understand it, I found it is interesting. I enjoyed so much the game to get and raise goats. I will be good farmer because I got the first prize of profits of that game. Throughout the game, I concerned about the fact of overfishing. The essay we lead was so long that we could not read everything, but thanks to tasks that Chris gave us, maybe we got ability of rapid reading.

Whale watching

I was so excited because I never thought that I could see so many orcas. It was clear sky, the ocean was calm and everything was quiet.

We could see many flocks of orca. The male orca, which is leader of the group, his dorsal fin was so long and great. Because they swam peacefully with their family, I found that orca is not ferocious but clever animal. The biggest event of our whale watching was sudden appearance of Humpback whale! I know his Japanese name, but of course, I had never seen him. I felt consummate excitement. We were one of most luckey people, I think.

Exploring Seattle

One of the thing I had been looking forward to is enjoying American city and culture. Because I had never been foreign country, I really enjoyed Seattle.

The first thing I surprised was the speed of Seattle Great Wheel. I had never seen such Ferris wheel rotating fast. I was interested in it, but because of the high admission fee ($13 + tax!), I gave up.

I was also surprised that all people I talked in America told me 'Have a nice day' and so on. I felt this is so nice and peaceful culture. In Japan, everyone walking around with a tired face and they cannot afford to wish other's happiness. So when I was said 'have a good evening' from a saleslady, I became so happy every time in America. I love such American culture.

Final remark

First, I am Sorry for my improper English, but thank you so much for reading.

This program is the best pleasant memory to look back on. Traveling friends and teachers was amusing, classes was interesting, scenery and starlight in FHL was so beautiful I had never seen. About two weeks have passed from staying America today, I really miss professors, my friends, Seattle and Friday Harbor.

There are no words to express my appreciation for everyone and everything in America. Eleven days I spent in USA is my irreplaceable treasure in my life.

The report of UW short program

Graduate School of Fisheries Sciences, Hokkaido University

Kohei Hashimoto

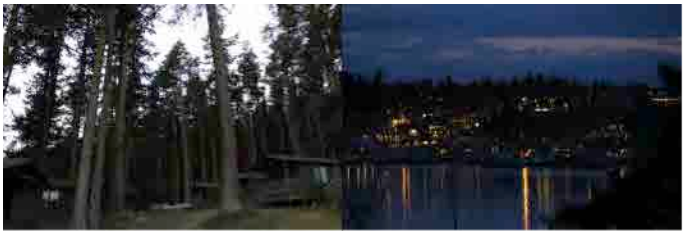
About exploring Seattle

We went to central Seattle on 14, 15 and 23 September. On arrival to hotel, we went to University of Washington campus by public bus. In this program Mr. Abe who is TA(Teaching Assistant) took us to sightseeing place, hotel, University of Washington campus, and so on. In that campus we saw beautiful buildings, the classical library, and multi-ethnic students. (please show the bellow photos)

We went to Downtown of Seattle for shopping and space needle on 14 evening, 15 morning, and 23. In there I communicated with some people who are store clerk or waiter in order to buy souvenirs or eat in restaurants. It is a little difficult for me to communicate with them due to the different culture. I took many pictures of the city of Seattle. (Taking picture is my hobby, please show the bellow photos)

About life at Friday Harbor Laboratory (FHL)

In this program, we mainly stayed FHL, located in San Juan Island for 8 days. This is located in northwest USA and very beautiful resort place, so that I was able to enjoy learning there even if I had never been to there. We basically took 2 lectures or something each of day, and we prepared the presentation for tomorrow or next lecture at every night.



About lectures

First, George Hunt's Lecture

Professor George Hunt taught us the basic oceanography and marine ecology. I am first graduate student so that I had studied oceanography and marine ecology 2 or 3 years before. But I had forgotten these subjects so much because I have not used these subjects for my specialization. This is why I was able to take this lecture with fresh feeling.

In this lecture we learned the complexed food chain, species diversity, the paradox of plankton and so on. Before the class starts, we were divided into 2 teams, and one of them had made the presentation of designated thesis. We had mainly discussed why there are so many kinds of animals in this world, and what makes effect on the food web complexity.

I understood that there are so many kinds of animals due to various sizes, seasonal and local abundance, and predators. Predators mean that they may change the prey with palatability and ease of capture, which result in complicated food chains. Niche is very important factor in marine ecology. I also understood that diversity has the limitation because if it is not enough of total amount, the rare species cannot exist.

Second, Chris's lecture

Professor Chris Anderson taught us the fisheries economics through the simple game which we buy some goats. We mainly learned what outcome for fisheries is best for society, and the forms of fishery management. I realized the difficulty of fishery management and resource management again. If the field were land, it would be easy to manage the resource. However, we cannot use that way in marine. Hard TAC had some problem, so that Hard TAC is changing to IFQ and ITQ, however, they also have some problem. Resource management in marine is very difficult.

Third, R/V Centennial

I had been very interested in this field work which we did several works include echo sounder activity because I specialize in marine acoustic study. Professor John Horne who is marine acoustic specialist was mainly in charge of this field work. We did CTD, plankton net, Van veen, and watching SSL (Sound Scattering Layer) with echo sounder. I was amazed of the CTD result which showed the same temperature in any depth. I've never forgotten this experience. It was good result of echo sounder which showed echo of fish and the sound layer of plankton.

I had good experiences which I got supposed to listening, seeing English, and different culture. The large amount of discussion in lectures is also good experience for me in order to improve the skill of expression own ideas. I think that I should have said my idea to professors more. I appreciate much kindness of many people in this short program.

University of Washington

Short Course Program

Report

University of Hokkaido

Hidenobu Nishikiori

I have ever been to foreign country 2 times. But both of them is sightseeing, I have never talk English mainly in my life. So I would like to speak English with foreigner and discuss a variety of something like fishery, culture, tradition and common sense. I think this program is appropriate to my purpose, so I participate this program.

I have one more reason. In my life in Japan I need not to speak English and can't feel the necessity of speaking English. I cannot understand the importance, so if I study English hard, it did not continue. I want to remind the enthusiasm again. It may be pitiful for general people, it is essential for me. I must improve my motivation on a regular basis. Going the English-speaking world actually teach me the lack of skill to communicate in English, I think.

It is comfortable of life in Friday Harbor laboratory. View of our laboratory is nice. We can see blue ocean, green woods, wide animals, for instance beers and raccoon, and beautiful port town. The wharf in front of the laboratory have the ship at anchor. And we can see noctilucae there. We stimulate it and glow in dark like firefly. At night we look at the port town and can see night view. That is romantic.

House of Prof.Hunt is so wonderful. There is intertidal zone in front of his house. There are so many kind of animals, for example seaweeds, bivalves, barnacles, crabs, beer, birds, seal and so on. My favorite one at the intertidal is kelp which is one of algae. That have thickness thallus like Undaria pinnatifida, blackish brown like Laminaria longissimi and float like Sargassum fulvellum. I have never see it. The kelp grow thickly around the sea area. There is Gammarus and noctilucae in that's float and spark at night to stimulate it. It looks like fire ball shining yellow. Interior decoration which house of Prof.Hunt have interior decoration is good. Wall of the house filled with fashionable ornaments and there is unusual objects, for instance comb made in beer's hone that is made long time ago and whale bones. Food was so delicious. Crab which was chaptered by George is so good in particular.

Food is fortunately nasty. Rice is different from Japan. That is harder, slender and crumbling than Japanese's rice. Maybe Jasmine rice. I don't like the taste. I can't practice. Fish is mazing flavoring. There is no "UMAMI" concept. I want to eat Japanese food to foreign country people and to know the taste of "UMAMI". I think they will be able to brand new world of the cook.

Japanese friends was so wise. We talk about our sense of value. They think about their future deeply. My thinking was still. I was encourage by the various way of thinking and their concept. That talking was carried in Japanese. We don't have enough skill to talk that in English. It makes me depressed feeling.

Seattle city have many kind of stores and facilities. There is tourist site. Seattle aquarium is most interesting for me. It is little different from Japanese. It is basically same but that aquarium has few show. Japanese aquarium which is same Seattle aquarium in scale have many show not only feeding show but also collaboration of human and animals, for example dolphin show and seal show. And explanation of exhibited animals is few. Explainer is also few. So visitor can't learn their creature. Of course, there are enough explained creatures and better point than Japanese aquarium. Touch pool was limited to touch creatures by only finger. That attempt protect the creatures from damage of touching by hands and lift up. Japanese aquarium is permitted that. So it is good for service but it is life and death problem for the creatures. I think that is kind attempt to living thing. Exhibition of question stile urge visitors to thought and make opinion. As we were touching fur of sea otter actually, we explain about indiscriminate hunting of sea otter and they will be able to be extinct. These way of exhibition is interesting.

Whale museum was exited. It was first time to see whale brain. It was bigger than I expected, which is 4 times the size of human brain and very complexed. And I didn't know the way to distinct killer whale. Size of dorsal fin and patch that is gray mark on root of dorsal are points to distinct.

Prof.Hunt, Prof.Anderson and Prof.Horne teach us many kind of things that is related with ecology and economics. Food web, relationship between predator and prey. Niche. Diversity. MSY and MEY. Fishery resources and management. I already know almost all of the subject of the class. But I notice which after class. I couldn't understand what they are talking in the class, so I didn't know that I understand or not then and couldn't participate in the discussion. In foreign country which mean that I don't know. I think language barrier is so hard. I remind that only way to solve this problem is studying English by myself. I heard this phrase, "the best way to study English is making girlfriend speaking English". I think which means to make English familiar existence. I give me my word of honor that I never give up.

Actually I can't progress in talking skill in this program. But it is too fact, my passion to talk English and tell English speaker my thought increase. I want to visit America again with higher skill to talk English.

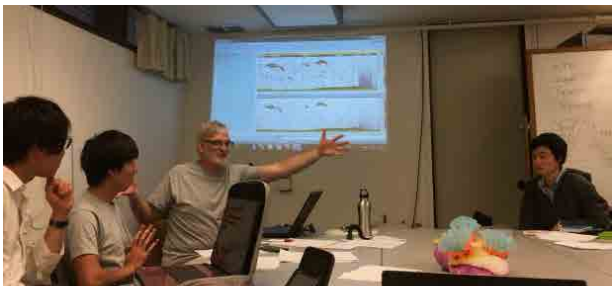
Thank you very much.

Keisuke Tomikura
School of Literature, Hokkaido University
2016/10/12

Report

My Achievement on the Washington Special Program

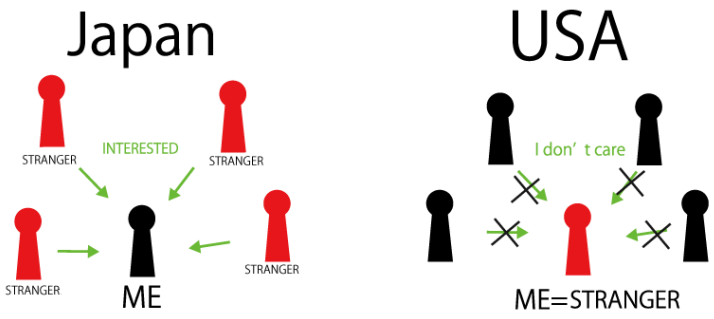
Through this program, I was able to experience going to a foreign country for the first time. . Everything was new to me and even though there were some problems, so many people helped me. By the end of the trip I achieved the goals that I had set out for myself . I am very thankful for having this opportunity. In this program, Japanese students mainly attended discussions about marine biology, while also participating in boarding training, whale watching and visiting whale museum. I, as well as others, learned so much in these activities.



Although most of the other Japanese students are well-versed in Fisheries science, I was not as familiar, so I had to work that much harder in order to to understanding. But they also better my and we cooperated on helped me presentations and discussions. This was the first time in my life that I was able to go whale watching. I was so excited to see real whales and when we finally saw them, it was an amazing and beautiful experience. We were able to see a pod of Orcas and a Humpback whale. The whale watching tour guide, Katy, told me that the two speicies are common there.

If you are fortunate, you might be able to spot a Minky whale, Gray whale or Fin whale. The Whale Museum was also exciting. There were so many interesting displays about whales, from skeletal specimens to garbage found in a whale's stomach. Tracie is a museum guide and she gave us a lecture, through which learned about the status of whales around Sun Juan Island.

I experienced so much during my first time abroad. I learned about marine biology and whales, but that is not the most important part of my experiences. Before I went to Washington, I set a goal for myself because I did not want to say just “I learned so much.” My goal was to gain more self-confidence. That was the main point of my short studying abroad and I achieved it. While in Washington, our group of Japanese students was no different than any other foreigners, so, unlike when we are in Japan, there is no bias when you talk with other people. You are unsure whether or not the other person will like you. That’s why I tried to talk with only foreign people. I wanted to try to communicate with people who do not care if you are Japanese. In Japan, every foreigner likes Japan, or at least is interested in Japan. Therefore, I wanted to try to communicate with others in neutral situation. In my struggle, so many people helped me. For example, when I lost my sunglasses , when I I needed a light in my hut, when I could not find the other Japanese members and when I want to know something, I could get help from other strangers . That’s not all that I received,somepeople gave me special gifts, such as pictures, accessories and more. From these experiences I now know that I can make connections with people and get help from others despite being a foreigner and a stranger. I realized that having self-confidence is the key to appealing to other people.



In my experiences talking with people, especially with English speakers, it was obvious that people will respect you if you behave with self-confidence. I think this realization is important for me to grow up to be an adult. The next goal for me is going to be how to appeal to people with my self-confidence and If I am able to achieve it, then my self-confidence would increase even more.

In this program, I achieved the goals that I initially set out for myself and even found new ones to pursue. I am sure that I grew up little bit during my brief stay in Washington. I was also able to make respectful friends, beautiful memories and special experiences. I would like to extend my apprection to all who had part in making this experience happen.

What I learned, participating in the UW's course "Humans and the Marine Environment."

Sophomore, School of Fisheries Sciences

Name: Masashi Shimada

I participated in the short course at Friday Harbor Labs. I was able to learn a lot of things and had precious experiences there.

[Learning from Classroom Activities, Dr. George Hunt]

Dr. Hunt seriously told us many things. Words which left the biggest impression on me is "Practice English!" In fact, I wasn't able to fully express my opinions and to well understand what was said in English, unfortunately. I strongly recognized that we Japanese must master English in order to play an active role in the world. I would like to continue working hard on English. In an example, I'd like to discuss the marine environment problems with friends in English.

I took charge of the paper, "The Paradox of the Plankton" (G.E. Hutchinson, 1961) as a member of team A and made a presentation. The paradox means that at first glance, it looks like simple environment has little room for niche differentiation, but under its environment, a wide variety of phytoplankton routinely coexists. Hutchinson insisted that although the environment was simple, it continued to change and seasonal changes in particular were remarkable (Hori, 2013).

An example is seasonal changes in the North Atlantic Ocean. In the winter, a water column is well mixed. This leads to high salinity of the euphotic zone. However, productivity of phytoplankton is very low. This is because weakness of sunlight is the limiting factor. In the spring, an increase in the amount of solar radiation causes spring diatom bloom. In the midsummer, the bloom finish. Reasons to finish the bloom include role of predation. In the early fall, although an amount of light is still enough to photosynthesize, the thermocline weakens and nutrient-rich water goes up to the euphotic zone. There are cases when a mixed water increases primary production (Tsuda, 2010).

And therefore, if the environment changes long before it reaches the equilibrium, the effect of competitive exclusion under the equilibrium condition will not be very big (Hori, 2013). He considered that the diversity of the phytoplankton was explicable primarily by a permanent failure to achieve equilibrium as the relevant external factors changed.

Hutchinson also proposed symbiosis and commensalism. Some species can occupy the same niche. Symbiosis and commensalism enable them to obtain more energy, nutrient molecules, and vitamins.

To be able to apply the mathematical theory (competitive exclusion) to real nature, important is making the model, considering seasonal and climate changes and various niches. To achieve this, steady observation is essential.

On the final day, Dr. Hunt gave us a presentation. The title was “Climate impacts on eastern Bering Sea foodwebs.” He hypothesized that when ice retreats determined the number of age-1s pollock. I was moved by the contents of this hypothesis and at that time, I felt that Marine Science was very interesting! He told us to build up a hypothesis without being afraid of testing and to make a prediction without fear of being wrong. He also advised us to seriously work on problems and to be open and honest. This changed my attitude to study for me.

[Learning from Classroom Activities, Dr. Chris Anderson]

Dr. Anderson taught us fisheries economics and how to manage fishery. First, we learned “Tragedy of the commons” from the goat farming game. This means the very bad outcome situation in which at the number of goats, no one makes a profit. Pursuing our own interests leads to tragedy of the commons.

Second, we learned the relation between sustainable stock and effort. MEY makes maximum profit and MSY maximizes food provision high number. In fisheries resource management, MSY is ideal. However, the insatiable quest for profit causes Growth Overfishing and finally, people keep entering the fishery until there is no profit to be made (Bioeconomic Equilibirium).

Lastly, we considered how we should manage the fishery resources.

In the goat farming game, if all members’ association organizes as a cooperative, all members will make profits. In this sense, IFQs and ITQs which control TAC will have great effect. Regulations must consider sustainable fisheries including stock size, fishing profit, and low cost, food security, and the amount of jobs. People must find out OSY (Optimum Sustainable Yield), considering biological, economical, sociological, and political value. OSY also consider impact of fishing on to another species involved (Tanaka, 2015). People should aim to gain the maximum profit to society from the resource.

[Learning from onboard training]

We were able to board the R/V Centennial. I was a member of the biological group and conducted biosurveys. From mud, I observed some shellfishes. On the other hand, from sand, I observed not only some shellfishes but also fishes hiding in the sand. This difference depends on the velocity of a flowing fluid. A strong flow of water washes the mud away and provides fishes with plenty of fresh air.

It was a very short time, but I learned many things and the USA I visited for the first time was very stimulating! In the future, I would like to go to the USA to study again.

Dr. Hunt, Dr. Anderson, Dr. Horne, and Mr. Abe, thank you for giving us this kind of precious opportunity.

References

Hori, Michio. (2013). *ECOLOGY* (pp.309-310). Kyoto: Kyoto University Press.

Atmosphere and Ocean Research Institute, The University of Tokyo. (2010). *Invitation to Oceanography* (pp.362-363). Kanagawa: TOKAI UNIVERSITY PRESS.

Tanaka, Eiji. (2015). *Fish stock management science*. Retrived October 7, 2016, from www2.kaiyodai.ac.jp/~hermit/

What I learned through the program in Friday Harbor

Shun Ito

School of Fisheries Sciences Hokkaido University

I stayed in Friday Harbor and took lectures about marine ecology and economy. Though it was a little difficult to take lectures only in English, I had valuable experience. In this report, I talk about what I learned in the program briefly.

Marine ecology

My group had a presentation about the paper “Homage to santa rosalia or why are there so many kinds of animals?” by G.E.Hutchinson. Through that paper, I realized that some aspects to make biodiversity. Firstly carnivores take great role in ecosystem. In the late Precambrian, powerful predators appeared and the appearance led some herbivores to get measures against predators and diversity in species. Some carnivores controls the diversity in the lower trophic levels by predation. For example, some starfish, I watched in the tidal walk, predate several species like barnacles and bivalves and control the number of them. Thanks to starfish, some barnacles and bivalves can live together. So the starfish is called as a keystone species. The keystone species maintains biodiversity.

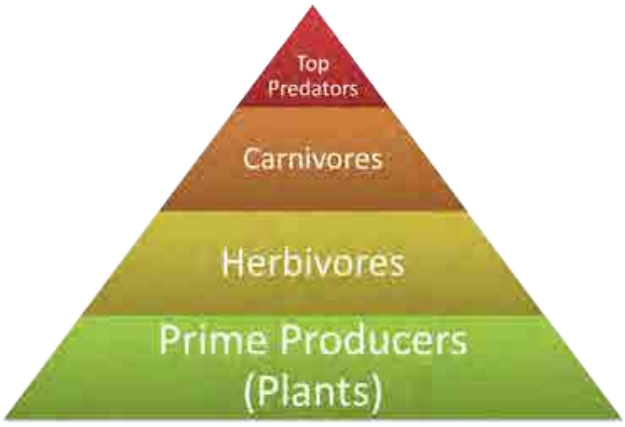


Figure 1 Ecological pyramid

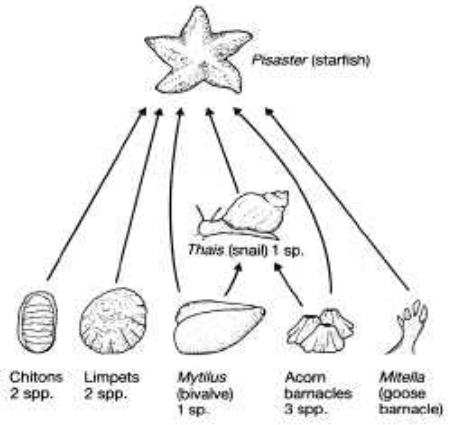


Figure 2 Predation by starfish

Secondly, I think the differences of the environment make biodiversity. In terms of marine environment, there are a lot of difference about environment, like the intertidal zone to deep sea, high latitudes to low latitudes. In the practice by the research vessel Centennial, I got different bivalves between the point of

fast current, sand bottom and that of slow current, mud bottom. Each species adapt themselves to each environments, so there are a lot of species with lots of environment. If some species in the same trophic level and live in the same environment, in short they are in the same niche, one may exterminate the other one at the end of competition. But there are many cases that some species in the same niche coexist by food and habitat segregation. These two aspects were impressive through lectures in the program. Especially the fact that the physical environment, such as strength of current influences the habitat of species, is interesting for me.

Through the lectures about marine ecology, I understood that we have to comprehend not only the fish to catch but also the whole ecosystem and oceanographic features for sound fishing.

Fishery management

Fish stock is basically common resource and some measurements are necessary for sustainable fishing. If fishing effort keep increasing, the catch of fish starts declining at a certain point. At this point the catch become largest and it is called MSY (maximum sustainable yield). The effort to catch fish should not exceed MSY. If there is a direct relationship between the effort and total cost, MEY (maximum economic yield) will be smaller than MSY. For fisherman`s revenue and fish stock, it seems that fishing should be performed at MSY. But many people try to get their own interests, total effort often exceed MSY, like we did in the goat game. Therefore concreate regulations are needed.

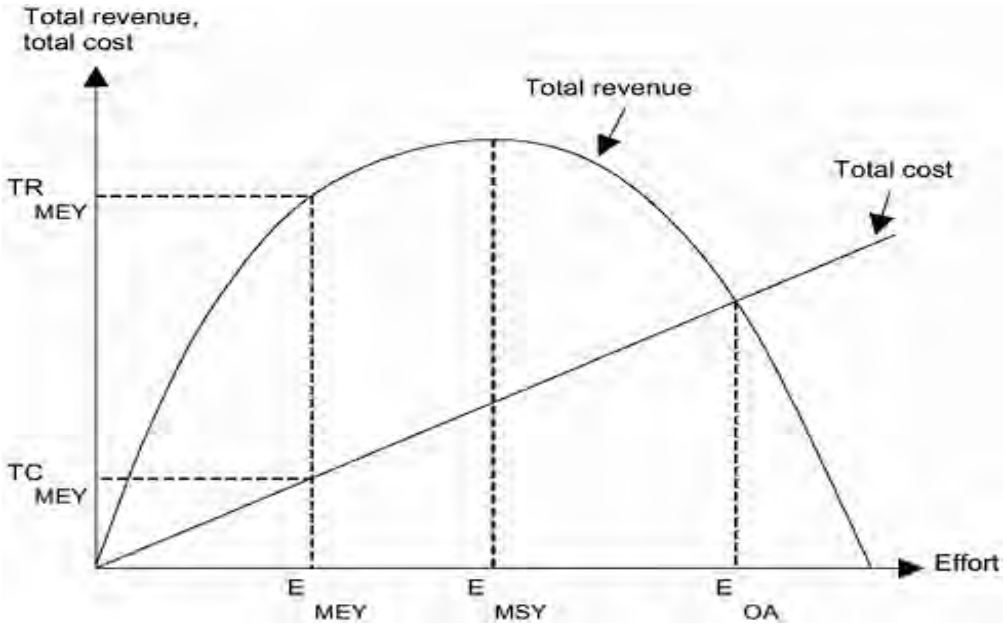


Figure 3 Relationship about fishing effort, cost, revenue

There are two types of fishing regulation, input control and output control. Input control regulate the way to catch fish. For instance, size of ships, the number of day to work and fishing methods. Output

control regulate the total amount of catch, as TAC (total allowable catch). But the competition among fishermen may be overheated and employment among fisherman become unstable, also markets may be confused due to unstable supply of fish. Thus there are more detailed regulation in TAC. It is IQ and ITQ. Under IQ (individual quota), each fisherman or ship has own quota to catch fish and they do not have to worry when the total catch reaches TAC. Under ITQ (individual transferable quota), the quota can be transferred other fisherman. If good fishermen get quota from other ones, it may reduce the cost of fishing. These IQ or ITQ seems to be suitable for management of fish stock. However, it cost a lot to manage correct regulations and the economic difference among fishermen may be widen especially in ITQ. Fishery Management needs to be considered from the aspect of fish stock and that of economic.

Through the program in Friday harbor, I'm more interested in marine ecology and fishery stock management. All lectures were valuable for my study. Thank you so much for everything.

References

・Figure 2
http://science.kennesaw.edu/~jdirnber/ecology/Lecture/LecComEcol/LecCommImportance/InterInteractions.html

・Figure 3
https://www.nap.edu/read/10287/chapter/2#10

The Report of Summer Program at Friday Harbor Laboratories

Sept.14-25, 2016

Sophomore
Department of Marine Life Science
Faculty of Fisheries Sciences
Yosuke Nakaoka

In the first day and the last day, I looked around Seattle, Washington. In the most of this study trip, I stayed at Friday Harbor Laboratories, which located in San Juan Island. This island had beautiful scenery of the sea, beautiful nature, and kind people. I could spend a good time and learn about fisheries in this wonderful island.

During the life in the laboratories, I used three facilities: a cottage, a dining hall, and a laboratory which has a lecture room. We each could use one cottage to study or to sleep. However, we are often in the dining hall. The dining hall not only is the place where we have meal, but also the place where we enjoy playing table tennis and billiards, talking with other members of this program until midnight, and preparing for the next-day lecture until midnight. I spent wonderful time there.

In the laboratory, I was taught about fisheries by Prof. Hunt, Prof. Horne and Prof. Anderson. The contents of the lectures are as follows.

The lecture by Prof. Hunt

1. What determines the number of species?

   In the ocean, there are many kinds of animals. There are some reasons. One reason is the effect of predator. If predators are gone, lower trophic-level animals compete with each other for food resources. Then, the number of the trophic-level animals will decrease. Only few strong animals can survive. Predators control the increase of the strong animal, so the number of species is kept. Another reason is a diversity of nature. Animals has various property to adapt to surrounding environment

.

2. What determines the biomass?

   One factor which determines the biomass is the effect of Top down, bottom up, and wasp waist control. Top down control means that upper trophic-level animals control the biomass of lower trophic-level animals. If the number of upper trophic-level animals increases, the number of lower trophic-level animals will decrease. Bottom up control is the opposite

control to top down control. Wasp waist control means that if the number of the middle of trophic-level animals is few, the animals affect both of upper trophic-level and lower trophic-level animals.

The lecture by Prof. Horne

1. What can we see from the exercise on the ship?

   We rode on the ship which is ocean investigation ship University of Washington has, and did three exercise: CTD scanning, zoo plankton net, and caching the bottom of the sea. We did the exercise at two points: one is low speed stream point and another is high speed stream point. After the exercise, Prof. Horne and Prof. Hunt teach why we can see the result of the exercise at lecture room. When the caching the bottom of the sea exercise, the bottom of high speed point is muddier than that of low speed point. That is because high speed stream flush light mud, so light mud is deposited at low speed area. As for the result of CTD scanning, we could see almost same value in every depth. That is because, the rain mixed the water. Lastly, Prof. Horne showed us the chart of the sound sensor. We could see how many fish is there and the feature of the bottom of the sea. Prof. Horne explain an interesting shadow. The shadow showed that in the right to left stream area, there is a school of small fish on the left of a big rock. Small fish can be easily flushed, so they use a rock as a shield. On the other hand, a large fish is on the opposite side. That's because if it opens its mouth and just wait, food is coming into its mouth. It can get food easily.

The lecture by Prof. Anderson

1. If each manager thinks about only own profit…

   We played a game and through the game, Prof. Anderson teach the importance of regulations. The rule of the game is as follows

   1. You are goat owner.
   2. You chose how many goats we will buy.
   3. The number of goat you bought and that of every player's total goat define your profit. You check your result.
   4. 2 and 3 are repeated five times. The owner who can get the most profit is winner.

   The number that total profit become max exist. However, we choose the number that makes total profit quite little because we think about only own profit. Then, we should make regulations. Of course that can be also said to fisheries. In fisheries, we have two type of regulations. One is output regulation which controls the amount of fishing. Another one is input regulation which controls the size of fishing gears.

2. Two types of regulations

   One type of regulations determines how much fish all fishermen can catch in a year.

Another type of regulation determines how much fish one fisherman can catch in a year, which is called IFQ. Ander first regulation, the resources is protected. However, fisherman compete with each other, buy high spec machine, lost money, and decay, so fishermen are not protected. In addition, fishermen try to catch fish in early year, too much fish is brought on the market, so the price will be down. Ander IFQ, they don't have to complete and can catch fish any time, so the price will be stable. We should think about not only the resources but also fishermen.

Through these lectures, I could learn a lot of things about fisheries. I could also learn how to read English paper and how to present in English through practice. I think these skills are really important especially in my latter university life. I could grow up through this trip. I really appreciate everyone who supported my wonderful study trip.

the port of San Juan island

Short term study abroad program report

Rikuya Iguchi

In this paper, I'll report of the short term study abroad program from two point of view.

First one is from the point of the lectures and classes we attended in UW.
Second one is about the schedule of this program.
Second one is not for Professor Hunt and Professor Chris, but for Hokkaido University.

1. First one about the lectures and classes.

In UW, University of Washington, We learned about Marine biology and Fisheries economics.

Marine biology, especially about food chain, is from Professor George Hunt. Fisheries economics is from Professor Chris. In Japan, We can't learn about the both of them.

In the part of Prof Hunt, we discussed about Marine ecosystem, especially about Bottom-up control (or effects), top-down control and "Wasp-waist control". There are many new words and topics in the paper we got and we struggled to understand what the paper say. I searched the wards I don't know for Google in Japanese but there were no hit and I could not find the article or web pages about the words. So I needed to search in English and to understand the word in English. It was very hard but very good experience to understand things I don't know in English.

The Fisheries economics from Prof Chris was also very interesting. Individually, this was the most interesting part in this Program. Before I went to UW, I've learned about the fisheries resource management. It is common subject to think about the way to sustain finite marine resource. We, Hokkaido University students, think about this subject many times in classes or discussion. At that time, we think about it based on the documents or papers and data. In the Chris's class, we think about it based not on literatures but on the mathematical formula and economics. In the class, we compared the relationship between fisher and marine stock to the one between goats and shepherd and think about sustainable stock through that model. The approach to the fisheries problem not through literatures but through the mathematical formula or economics was very interesting and I can't learn in our country.

About this program.
At first, I appreciate staffs of Hokkaido university for preparing this program. It is our, Hokkaido university students, privilege to attend such a special program where we can take special classes of UW and talk with professors of UW. But there is bad point of this time. It is that we can take only few free movement in Seattle. Why did they designate HANEDA airport for dismissing place and gathering place? Why not Seattle? I can't understand this point and I wanted to stay in Seattle more. If there is next time in next year, they should make the alternatives of staying longer OR the one of dismissing at Seattle not at HND airport. In anyway, I could experience fantastic lecture and find best college friends there.
Thank you so much.