



Sea Urchins from Canada:

**Marketing Mission to Japan
by the**

**Pacific Urchin Harvesters
&
West Coast Green Urchin
Associations**

November 9-17, 2004

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Sea Urchins from Canada: Marketing Mission to Japan

November 9-17, 2004

As part of the 2004-05 Sea Urchins from Canada Marketing Initiative a delegation including harvesters, processors and the project consultant travelled to Japan to exchange information and reinforce our relationships with Japanese handlers of Canadian uni. Mike Featherstone (President: Pacific Harvesters Association (PUHA)), Tim Joys (Director: PUHA), Dave McRae (Director: PUHA), Dave Kensall (Vice President: West Coast Green Urchin Association), Paddy Wong (President: Paladin International Food Sales Ltd.), Sung Kim (President: Sung Fish Ltd) and Geoff Krause (President: Explorations UnLtd- Project consultant) departed Vancouver on November 9th, 2004 and were met in Japan by Ken Ridgeway (Director: PUHA), Peter and William Choi (President and Vice President respectively: Kiku Fisheries Ltd.) and Francis Cheung (Vice President: Grand Hale Marine Products Ltd.). Another fisherman, Mr. Terry Lawrence, tagged along with the delegation on his first tour of Japan. The delegation returned to Vancouver on November 17th, 2004.

The following is a report on the findings and activities of the delegation while in Japan.

Day 1: November 11, 2004

Visit to Tsukiji Market

Mike, Tim, Dave McRae, Dave Kensall, Sung, Paddy and Geoff visited Tsukiji market at 0500 hrs (Figure 1) to view the auction and to show our faces around the place again. We met first with Ogawa-san of Tsukiji Uoichiba Co. Ltd. and Shimawaki-san of Chuo Gyorui Co. Ltd. but the conversations were short and cordial because the main meeting of the minds is to take place the next day at the Embassy.



We also toured the wholesalers area on the main floor of Tsukiji where we checked into prices of various products. Among the products we viewed was uni (Figure 2) including some *S. intermedius* from Russia which was processed in Hokkaido. The Russian product sold at the highest

Figure 1: Delegation on first day's visit to Tsukiji with auctioneer in fore.

prices- ranging from about ¥4,000 down to ¥3,000 for a 300 g tray, ¥2,300 and ¥1,900 for 220 g trays. There was also some uni from California which looked dry but pretty dark and which was selling for about ¥1,500 for a 300 g tray. Paddy said if it was his stuff he probably would have ditched it. There were also some greens from Boston, selling at between ¥850 - ¥1,800 for a 100 tray, with the apparent difference being mainly in the colour consistency of the pack. The *S. intermedius* uni is quite a bit redder than that from the Boston *S. droebachiensis*. The trays from Hokkaido had the best looking and most consistently coloured packing. The markup from the auction price reportedly ranges from about 90 to 120% with an average of about 100%.



Evening

On our first evening we were hosted for dinner by Maruke with Kitaro, Eisaku and Kisaku Endo all attending. The conversations drifted around work-related issues at times but these sorts of social events are intended to establish and/or deepen friendship so the subjects coming up in discussion cover the full range - except (of course?) for politics and religion. They have not been getting any product from Canada - primarily because bad weather has so restricted fishing, and they are keen to have things get moving again ASAP. They have a storage cooler and freezer which is generally filled with anywhere up to some thousands of cases waiting for delivery, but the cupboards now are pretty much bare and they are hoping that product starts arriving again very soon. We assured them that the weather was improving and that deliveries should be

imminent. They import from other sources but the Chilean season is coming to an end and the volumes shipped abroad from the California fishery and Boston are also diminishing- in part because of declining production but mainly because of the still growing domestic market for Japanese food in the US is accounting for a greater proportion of the harvest.

The Associations were again thanked by Mr. Endo for their support during the past summer at the seafood show in Tokyo. They have been very happy with the results and have been getting all sorts of enquiries for product since the show. Canada has a pretty low profile in Japan with regard to seafood production and most consumers do not generally associate seafood production from Canada with any sort of differentiated value from other suppliers which means that we are simply supplying a commodity, as opposed to a fully differentiated brand, at this point. The promotional effort last summer has piqued the interest of some consumers and should be of some assistance in changing this but continuing efforts though will be required. Maruke is looking forward to working with the Associations, through Paddy Wong, to continue raising the profile of Canadian uni in Japan.

We talked a bit about the uni preferences of Japanese consumers and how these are reflected in the price differences. The northern Japanese urchin species (*Strongylocentrotus intermedius* and *S. nudus*) are really quite small with a very compact skein. These are where the Japanese first got their taste for uni so they remain the favourite for most and so command the highest prices. We received quite a few comments on the good taste of the Canadian uni of both species found in BC but the larger size - particularly of the reds, is almost invariably mentioned at the same time as something that limits the attention given it by the consumer. The best size traditionally maxes out at about the size of the thumb from the nail to the first knuckle while reds are more commonly the size of the whole thumb.

This preference though is at least in part a matter of perception that can likely be modified through marketing as long as the other favourable features (taste, hygienic processing, environmental sustainability, responsible fishing, clean waters etc) are clearly identified and presented in a fashion that demonstrates we care about not just the product, but also the consumer. It may be worth making the point (as a suggestion) that reds are larger in part because they live in healthier water and so just grow bigger as a result.

Kitaro-san imparted a little bit of processing tip to Paddy to improve the production of Green Sea Urchins so it may be that Paladin will try processing GSU this year instead of just shipping the product live to Japan as is the more common practice. The effect of alum on raising the bitterness of the uni was also discussed. This effect is proportional the concentration used in the brine and is an undesirable side effect but it seems that holding the processed product for an extra day or so allows the dissipation, or perhaps evaporation, of at least some of the active elements so the uni loses some of the bitterness.

Paddy also mentioned that he has a bunch of recipes for value-added sauces etc that might be useful for diverting some of the lower quality, larger size product away from the Japanese market so it does not fill any existing demand that can be filled by more desirable product.

Day 2: November 12, 2004

Embassy Meeting

The Canadian Embassy in Tokyo hosted a meeting for the delegation and a number of Japanese handlers of Canadian uni. This meeting is one of the highlights of the trip and is intended to establish and/or deepen the relationships between Canadian and Japanese industry representatives. A PowerPoint presentation titled “Current Fishery Updates Challenges, Responses and Hopes for the Future” (attached) and the video produced by the Urchins from Canada group and titled Sea Urchins From Canada was presented and formed the core of the message we are building.

Purpose of Meeting

1. Renew associations with Japanese partners
2. View new promotional video for Canadian Sea Urchins
3. Provide fishery updates
4. Present industry challenges and responses
5. Obtain Japanese uni handlers thoughts and perceptions
6. Explore opportunities for development of joint trade and marketing association
7. “Sea Urchins from Canada Week” promotion
8. Initiate discussion on a joint Canada-Japan Trade and Marketing Association

Summary of Canadian Presentation

In summary, we presented the long term goal of the Associations as working together with our Japanese partners to improve economic performance of Canadian sea urchin products in the Japanese market. The “Sea Urchins From Canada” video was screened at the meeting and fishery updates were provided for the West Coast urchin fisheries. The main challenges facing the industry, namely the escalating costs related to the rising cost of oil, declining returns due to the strengthening Canadian dollar and how the consequent decline in profitability is affecting investment and career decisions, were included. The Industries’ responses to these challenges, including measures to increase productivity through better coordination, cooperative trucking and unloading, lower lease costs, continuing water loss studies and improved collaboration and coordination between all players to provide maximum benefit to consumers of the products were discussed. The proposed Canadian Sea Urchin Market Development Initiative - comprising a Brand Canada strategy focussing on the positive aspects of the Canadian fisheries to gain recognition of Canadian Gold as a standard for high quality trays of BC uni on qualifying trays and the establishment of a Joint Canada-Japan Trade and Marketing Association for Canadian uni including joint marketing with shared funding, was likewise presented.

Attendance at the meeting

Canadian delegation:

Mike Featherstone: president Pacific Urchin Harvesters Association (PUHA);
Tim Joys: Director PUHA;
Dave Kensall: Research Director for the west Coast Green Urchin Association (WCGUA);
Ken Ridgeway: Director PUHA;
Dave McRae: Director PUHA;
Paddy Wong: President Palladin International;
William Choi: Marketing Director Kiku Fisheries;
Sung Kim: President Sung Fish;
Francis Cheung: Vice President Grand Hale Products; and
Geoff Krause: Trade and Market consultant.

Japanese Attendees:

Mr. Masao Nakai: Canadian Trade Commissioner - Tokyo
Mr. Yasuhiro Okazaki: Ocean Trader Co. Ltd.
Mt. Kitaro Endo: Maruki Co. Ltd.
Mr. Ogawa: Tsukiji Uoichiba Co. Ltd.
Mr. Eiji Hayasaka: Daiichi Suisan Co. Ltd.
Mr. Yoshitomo Shimawaki: Chuo Gyorui Co. Ltd.
Mr. Mack Nishida: Macks Food Japan Co. Ltd.
Mr Fujimoto: Daiichi Suisan Co. Ltd.
Mr. Kurita: Daikai Food Co. Ltd.

Comments of Japanese Attendees

The Japanese attendees were asked to provide comments on the Market situation, the presentation and any other related subject they felt might be material.

Mr. Masao Nakai: Canada Trade Commissioner, Tokyo

Nakai-san first posed a couple of questions to Mike. The first centred on clarification of the purpose of the Joint Marketing Initiative (JMI) and was wondering if it applied to live or processed product. Mike reiterated that it is intended to increase the demand for finished Canadian urchin products but that this is only a preliminary discussion which is why we are seeking feedback from our Japanese partners.

Nakai-san then referred to the kazinoko program and pondered the differences and similarities between the situations being faced by the two groups. Herring used to be given as gift packs but this tradition has faded over the past decade as companies have fought to reduce extraneous costs with the result that herring sellers in Japan have a real sense of crisis over the situation they are facing. He summarized the joint program being pursued in the herring (kazinoko) products upon which Japanese buyers and Canadian suppliers are embarking. He mentioned that the kazinoko Joint Marketing Initiative will introduce new menu ideas, more nutritional information etc. at a

media event at the Canadian embassy next week (November 17th) designed to get maximum splash and exposure to Japanese consumers. He will try to get some future access to the results measures so the effect(s) of this sort of approach can be gauged.

Nakai-san then asked whether the foundation and other basic requirements are in place to effectively support the marketing and promotional efforts. He suggested that idealized views of the process and the probable effects, as opposed to realistic understanding of the projected effects are held by many and that we should be aware of the possible limitations of the approach.

Mike acknowledged that Nakai-san made some very good points and that we are seeking whatever opportunities might arise from what is admittedly an idealized proposal. Some buyers and processors have shown some interest and acknowledge the issues as we have presented them today. We are also encouraged by the Value-chain Round Table back in Canada which is looking to increase the value of the fishery to all involved- harvesters, processors, Japanese buyers, retailers and most importantly- to the consumer. The Canadian urchin group is looking for other ideas which may hold some promise but feel that “no response” is not an option.

Nakai-san provided some additional information on the Value Chain process, including that it is a National program sponsored by the Federal Government which includes pork, beef and other agricultural products as well as seafood. He stated the process is quite complex and limited his comments because they could otherwise take the whole of the rest of the meeting.

Mr. Eiji Hayasaka: Daiichi Suisan Co. Ltd. (Please get Sung to check this name out vis a vis the cards he collected.)

Hayasaka-san works with Daiichi Suisan on Tsukiji and was at the meeting held in this venue last year. He thought the video was very interesting and a valuable contribution. He feels there are at least some consumers who would like to see it but has no ideas as to how to get it in front of them.

He mentioned that the Japanese economy is still in pretty poor shape, as he has mentioned to Canadian processors on occasion, but he feels compelled to reiterate that the market will only absorb reduced amounts of product at this point and that price increases are unlikely to be accepted by consumers.

Mr Fujimoto: Daiichi Suisan Co. Ltd. (again a check by Sung would be of assistance)

Fujimoto-san has only been involved with the urchin business for about the past 6 months or so and therefore has only limited insight into the issues discussed at this meeting. His main point though focussed on the generally low profile of Canadian seafood in Japan. Canadian seafood just does not register as a differentiated source in the mind of the Japanese consumer. This point was again reinforced by a post-meeting talk with the interpreter at the meeting, Ms. Naomi Morita, who mentioned that the whole session was a revelation to her- she had never before even thought of Canada as a source of wholesome seafood.. With this in mind, a major goal of the marketing initiative should be to establish an identification for Canadian seafood products in

general and sea urchin products in particular, so the association between good value seafood (including uni) and Canada becomes automatic in the minds of Japanese consumers.

Mr. Youichi Ogawa: Tsukiji Uoichiba Co. Ltd.

Ogawa-san was one of the first Japanese buyers to have a meeting with a Canadian delegation in Tokyo during the first mission to visit the July 2003 Tokyo Seafood Show, a meeting arranged on the fly by Mr. Sung Kim. Ogawa-san also attended last year's meeting at the Embassy and is therefore well versed in the progress, intent and nature of the Canadian sea urchin marketing initiative. He feels these sorts of meetings demonstrate the commitment of the Canadian urchin associations to the Japanese market and appreciates the sincerity of the efforts.

Mr. Ogawa said he was very interested in the video and that using it as a marketing tool will help in getting the message that Canadian uni is a high quality, good value seafood product and help differentiate it from competing sources. Traceability is an increasingly important issue for the Japanese consumer and is in fact being required for seafood products through government regulation. There is no way Japanese buyers can go to Canada to track and confirm the origin of every urchin so an effective Canadian program is in all parties' interests.

With regard to the present status of the Japanese market, it has been facing slow sales, or even a non-selling, situation for more than a year now. The selling capacity of Tsukiji has been declining and they can no longer guarantee that having a larger volume available for sale will actually result in increased sales volumes. Despite this, he feels there are still opportunities to expand the uses for uni and is interested in obtaining more information he can use to support market expansion. Russia is the largest competitor for Canadian product particularly as there is are overlapping seasons in these countries.

Nakai-san posed a question regarding the proportion of Tokyo's consumption of uni which is sold though Tsukiji. Ogawa-san said the issue is too complex to be addressed through a simple answer but also assured us that he will research the issue and provide a full answer ASAP.

Mr. Masaya Moriata: Daishin Co. Ltd. (Please- just one more time Sung)

Moriata-san is also very impressed with the video but feels the shorter version may be of more use. He does not know the sales capacity of Canadian uni in Japan and feels direct responses from Japanese consumers would assist in the development of a concise, targeted message addressing the priority issues they identify. He agrees that something must be done to counter the soft markets for uni.

On the issue of poached product from Russia, Moriata-san maintains that the uncontrollable supply (from the Kuriles) will not continue for much longer.

Mr. Mack Nishida: Mack Seafood Japan Co. Ltd.

Nishida-san was impressed with the presentation but is not able to come up with concrete ideas at this point, as requested, because there is such a diversity of viewpoints at the table. He is pleased to see all the players in the Canadian industry represented this year, particularly as opposed to last year when no processors were present.

At any rate- Nishida-san has been involved with the sea urchin industry in Vancouver for 25 years. There were no urchin processors operating in Vancouver when he started, so he has witnessed the industry as it has grown up and knows the industry in Vancouver very well. It was a new fishery for BC producers back then and none of the processors, or fishermen for that matter, had any idea of what had to be done to produce a quality product. In the interests of developing it, and the nascent Geoduck fishery, into a viable industry, Nishida-san got a long-term, low interest loan from the Canadian government to set up the first urchin processing operation in Canada in Sidney, BC.

The Geoduck clams and RSU harvested as the fisheries started were very large and interest in them was limited because consumers' preferences were focussed on the smaller skeins derived from *S. intermedius*, the traditional Japanese domestic sea urchin on which they were raised. He maintains that the larger urchins are still the focus of the many of the fishermen and processors in Canada because of the larger recoveries inherent in larger urchins. (It seems that a bit more about the move to focus on smaller urchins by the Canadian industry should be included in the presentation and the video).

The fishermen last year got around to some of the supermarkets and noted that the retail prices charged to the consumer reached up to ¥ 15,000 - 16,000 per kg. (The import price average for Canadian RSU uni into Japan reported by Agrifood Canada last year was a little over ¥5,000/kg.) He queried our knowledge of the complexity of the seafood distribution system in Japan.

Nishida-san's company, like many others, continues work on independent promotions but the lack of coordination with other players limits the penetration and impact of the efforts. He suggests that a wider (Canadian) Government sponsored program, modelled perhaps on a similar and successful Norwegian program which focussed on salmon, would improve these measures. The Canadian government is advised to take the lead on this to leverage and increase the impact of other promotional campaigns.

Macks Seafood Japan Co. sells product in the Osaka market as well and just got a very good response to a promotional program he ran on TV (Channel 12?) in that area. The information included points relating to the pristine environment- which was a very big selling point, as well as the good taste, high oil content, sweet flavour and purity of the Canadian product. Still- again- the large size is still a bit of a drawback. He would like to cooperate with the Canadian industry initiative and leverage greater impacts for the advertising programs.

Nishida-san also made reference to the exchange rate issues brought up during the presentation. He acknowledges the impacts of the increasing value of the Canadian Dollar on the Canadian industry's returns but stated that the strong Russian competition in the market limits the flexibility to increase the price.

Mr. Yoshitomo Shimawaki: Chuo Gyorui Co. Ltd.

Shimawaki-san was also present at last year's meeting and assisted with a guided tour at Tsukiji market for the July 2004 delegation visiting the Tokyo Seafood Show. He made the point that the Christmas - New Year market for uni is always very good and that he and other buyers consistently think of Canadian product for that time of year. He feels the video will be a very good promotional tool although he did not provide suggestions as to how it might be put in front of the consumer to generate a large impact.

Shimawaki-san also mentioned that Russian product is arriving in bulk even as shipments from China and North Korea are increasing in both quantity and quality. Shipments from the US urchin fisheries are in apparent decline, partly because of harvest restrictions but also because of increasing domestic demand. He very much likes the safety and purity aspects of the Canadian product but again reiterated the point that deflation in the Japanese market is still an issue, particularly in the seafood industry. The distribution network in Japan is getting more complex and companies at Tsukiji are finding they are serving an increasing number of large customers. (Does this mean the number of small customers is declining?)

At any rate, sales of Canadian urchin products on Tsukiji are small. Uni processing is a complex affair and, again, Canada is not firmly established in the Japanese consumers' minds as having successfully mastered the methods and processes. Despite this, more buyers in Japan are seeing and expressing increasing interest in both the Canadian and US West Coast products giving him some confidence that they should be able to maintain the prices for these products.

He also suggested that it would be a good idea to distribute a presentation and agenda for these sorts of meetings so they, our Japanese partners, have more of a chance to develop relevant questions and suggestions prior to the meeting per se.

Mr. Kitaro Endo: Maruki Co. Ltd.

Mr. Endo first expressed his thanks to Palladin Seafood and the Urchin Associations of Canada for their participation in the seafood promotion undertaken by his company at the Tokyo seafood show this past summer. Maruki got a very good response to the promotion from consumers despite some variation in the taste profile of the product. (remember: it may make sense to hold the product in the cooler for an extra day or so so at least some of the bitterness associated with the alum dissipates.)

Maruki is a bit worried at this point though about the current lack of supply coming from Canada. He understands that the harvest interruptions are largely due to the weather but is afraid that the quota planning process used to select the fishing schedules might be undependable. It may be that surveys to track the changing quality profiles, catch quantities etc in different areas are required all the time to match results to projections. (Is there an annual record of results that can be used for annual comparisons and trend tracking?) He feels the small area of the fishery that is open at any one time make the fishery more susceptible to weather related disruptions and would like to see more areas open at one time to ensure continuity of supply.

The licence holders know which areas are good, which are bad, which are profitable etc, and have to fish the bad along with the good. One issue might be that the catch from the bad areas is counted against the quota and deducted from the Total Allowable Catch (TAC) even though it has only limited market value. Endo-san enquired whether it may be possible to not count the quota from bad areas as part of the TAC even as the area is cleaned up a bit to increase the quality profiles of the remaining population(s).

Mr. Yasuhiro Okazaki: Ocean Trader Co. Ltd.

Mr. Okazaki was also present at last year's embassy meeting. He was somewhat distressed at the lack of notification for the meeting this year and feels it is very important that the Canadian group improve communications on issues such as timing of the meeting, the agenda, etc. with its Japanese partners to allow time to develop ideas etc. He noted that this trip had been planned for September but that it had been delayed to November and was curious as to why this was so.

Canada has demonstrated the will to sell sea urchin products to Japan and it would be beneficial to get the product to other outlets, including public (auction) markets, supermarkets etc. in other markets throughout the country. He feels Kyoto, Osaka and other centres are interesting and would be willing to set up other meetings for us. His understanding is that he is not alone on this and that buyers would be pleased to set up tours and facilitate additional meetings with other companies. But to do this effectively the Canadian industry must provide more timely access to the information (as above) so they can make appropriate preparations and arrangements.

He wonders about the Canadian commitment to expanding business in Japan. There is, after all, only one meeting planned for this trip and though he does not feel only one meeting per year is an effective forum, he is willing to make himself available for additional meetings. Meetings between the fishermen, processors, buyers and re-packers are worthwhile but he would like to see a joint committee set up to set the basis for the agenda etc. A joint committee including Japanese and Canadian members would be much better. He is also interested in the other Japanese points brought up but does not believe a comprehensive Japanese position has been developed to this point. He reiterated that he does not believe that volunteer meeting such as this one are particularly helpful.

Japanese buyers are buying less product and they need to investigate the issues and discuss the next steps to work out a do-able process and set up discussions of the issues from both sides.

Mike Featherstone's Summation: President of PUHA

Mike was impressed with the understanding shown by the Japanese handlers of Canadian uni and feels that the primary message we received today from our Japanese partners is that we must improve communications prior to future meetings. He likes the idea of the committee and understands the importance of additional private meetings. He also acknowledged that Mr. Endo presented a number of good points on the management and conduct of the fishery in Canada.

He again thanked everybody for their attendance and their input and expressed that the Canadian delegation is encouraged by the individual promotional programs undertaken by Japanese companies and their continuing interest in Canadian product. He again emphasized that our primary goal is the improvement of the industry for the benefit of all involved, Canadian and Japanese and including the consumer.

Mr. Mack Nishida again jumped in with agreement that a clear agenda and quicker notification process is required to increase the value of these meetings. It is very hard to work together effectively on an ad hoc basis as has been the case with these last two meetings. He reiterated that the Japanese attendees are trying to do business and require more advance information to get more benefits and add more value to the meetings.

Mike again thanked the group and said we are all looking forward to continuing to build meaningful relationships with all our Japanese partners.

Evening

The second evenings activities were hosted by Mack Nishida from Macks Food Japan Co. and Peter Choi from Kiku Fisheries. William Choi from Kiku and Hiroshi (?) from Mack Foods were also there. The conversation again included discussions of the state of the Japanese market and the measures which might contribute to the marketing program for Canadian Sea Urchin products in Japan.

William in particular, is focussing on ways to touch the consumer directly because they are the key to success in the market. He is proposing to build a down-loadable game in conjunction with game developers at Sony Corp. which will co-fund development in exchange for full access to the profits from sales of the game. (It should be noted that this is a new and innovative advertising method that is being looked at and tried by a number of different industry groups including consumer electronics, automobiles and financial services.) The game will comprise a description and interactive contest based on a simulation of the Canadian urchin fishery that kids can enjoy. The game will include icons for the real boats and fishermen and possibly links to various websites. This game will likely be quite expensive and some funding assistance will be solicited from the Associations and the federal government. He did not have any definite budget projections developed at this time.

Following the dinner with Mack Nishida and Peter, William and Mrs. Choi, we continued on to meet with Paddy Wong and Hiroshi Yasuno who was particularly interested in meeting with Tim with reference to Red and Green urchins, black cod and any other opportunities that might come up through discussion. The night ended at a fairly civilized hour and we returned to the hotel for the night.

Day 3: November 13, 2004

Morning

Day 3 started with a breakfast meeting with Yasuno-san to further discuss the Japan market and explore any opportunities. A number of seafood products from BC were discussed as success in the international seafood trade generally depends on having a diverse range of products so a positive cash can be generated for most of the year even as the seasonal ups and downs for any single item are accommodated. Paddy, Mike, Tim, Dave Kensall, Dave M^cRae, Ken and Geoff were present throughout while Sung joined towards the end of the meal and was introduced.

Black Cod

The first topic of discussion centred on the Black cod fishery in BC. The catch for the fishery can be generally broken down as follows:

Weight Class (lbs- J-cut)	% by weight
3-4	15
4-5	55
5-7	15
7+	15

The average dressed size is about 4-5 pounds right now but some fishermen are incorporating larger escape rings into their traps with the hope that the average size will increase as the smaller fish escape. Some fishermen don't support creaming only the larger fish because it may affect the TAC decisions by DFO and may starve some parts of the market which prefer the smaller fish.

Most of the catch currently goes to Japan although the majority of the 7+ fish go to China at premium prices. Prices have been declining a bit over the past few seasons but appear to be heading back up a bit after recently bottoming out. There has been some quota left in the water of late because of the low prices but 10% of this volume can be rolled over each year into the next year's quota. Prices are based on FOB Vancouver so additional charges that must be considered by buyers include USD \$3,300 charge for shipping a 40' container (reefer), \$0.10 per pound for insurance, \$0.35 per pound for boxing and \$0.05 per pound for unloading. Prices on Tsukiji are determined by closed auction and are currently ¥ 1,200 - 1,300 per kg. for the 7+ pound fish and ¥ 1,000 - 1,100 per kg. for the 4-5 pound fish. These prices are thought to be too low.

There are two main buyers for Black Cod in BC right now- North Sea and Arrow Trading. New entrants will have to offer increased prices to get boats to change over, particularly as the current buyers generally provide advances to lock in boats. The established buyers are likely to take some umbrage at new entrants and will do their best to knock them out of the game. Trap boats primarily fish in the December to February period while the longline boats focus more on the summer months. There are lots of differences between boats on product quality.

We spoke a bit about the advantages of using Chinese plants to re-pack various seafood products, including black cod and uni. The hygiene in these plants is reputed to be very high, suggesting that they have water filtration and purification systems installed as part of the plant itself. Shipments from these plants to market are generally immediate once the product is processed as per the order and involve relatively short transit times to markets in Japan, Hong Kong or other Asian destinations. In this regard the product is often fresher than that produced by companies like Maruke which often hold it in their cooler for a couple of days.

As far as Country of Origin labelling, Canada remains the identified source. The sales invoice will include a notation to the effect that the product was processed/re-packed in China but the label on the consumer pack will ID only Canada. This is an acceptable practice as long as the processor is in an international zone which is not considered part of China per se. Using firms in these areas also avoids tariffs as products from these areas cannot move into China without passing through a customs station where such fees will be assessed.

Darien is the main aquaculture and seafood processing area in China and is seeing increased activity from Japan, typically in the final packaging because the packing into consumer packs is so labour intensive that the cost savings are enticing. It is the same in the case of uni re-packing- the final product is identified as Canadian. The trays used in the Chinese operations are made in China as are many of those used in Japan, presumably again because of attractive pricing. Canadian trays are made in Burnaby.

Sea Urchins

One of the issues that came up during the discussions are the transport costs from Narita into Tokyo. A number of processors have mentioned that shipping 'lots' cooperatively so that one vehicle picks up product from a number of different companies might provide a means to realize efficiency gains through lowering costs. It appears that transport to Tsukiji now requires individual arrangements and isolated single loads are carried on the truck with all of the attendant base charges even when the vehicles are only partially full. It makes sense that filling the trucks to capacity will increase efficiency and reduce unit costs as the base charges can be more widely shared. It would be advantageous to support a transport service which could cost effectively deliver 4-5 case lots to a variety of destinations, including re-packers, select supermarkets, restaurants chains etc. as this too might open up a number of new selling opportunities.

At present, a 2-day lead is required to process, package and deliver product to order to Narita. 25-30 case lots are the minimum requirement at this point because the costs- including transport and customs clearance, are otherwise just too high on a unit basis.

Paddy again mentioned that he has a number of value-added recipes for uni. Is it possible to get a copy of these for inclusion into the final report? Part of the strategy developed last year was to collect and publish various recipes. It may even be possible to develop and collaborative value-added processing capability so lower quality product can be effectively if not entirely profitably used in a manner that keeps out of the general market for uni, thereby limiting supply to the lower end and thereby increasing even these prices (Law of Supply and Demand).

There was some discussion of using frozen product- particularly for transshipping to China . Uni is very hard to freeze without losing quality- particularly with reference to the increased drip and general melting that is all too common when it is thawed, so the prices for frozen material from Chile is 40% lower than for fresh product. This can be addressed at least in part by using advanced freezing techniques including perhaps plate contact freezing or even cryogenic freezing with liquid nitrogen, but this elevates costs (up to \$0.25/lb in liquid N₂).

Effective freezing increases the shelf life in storage to about 6 months but even here the product dehydrates - losing about 40% of its water every 2 months. This effectively raises the alum concentration and the bitterness of the product increases accordingly. Alum is needed in the uni to firm up the texture but it also has a detrimental effect on the taste which increases with concentration. Alum is thought to evaporate or otherwise dissipate in fresh product so holding in cool storage for an extra day or so is sometimes used to reduce the associated bitterness when higher concentrations are used in the brining process. The alum concentrations in the brining step generally range from about 0.1 - 0.3% although some companies reportedly use it at up to 0.45%.

The texture of the product declines very quickly with extra handling so most uni is moved only once during the grading and packing process. Each skein has a very thin membrane enclosing the gonad tissue which is easily disrupted and which then accelerates product deterioration and shelf life decay. The spoons and forks used to manipulate the product must therefore be finely machined to minimize 'pokes' and ruptures.

Green Sea Urchin (GSU) uni has the best colour - bright yellow - as far as the consumer is concerned and orders generally parallel the arrival of premium product in early December through January. Some BC companies guarantee minimum recoveries of around 10% for live Green Sea Urchins as there is no real way to obtain an absolute measure without cracking the urchins open. In cases where the implied average is going to be lower, a couple of extra cases will be included (without charge) to ensure the minimum recoveries are achieved.

GSU are harvested mainly along the South Coast with the largest volumes coming from North Vancouver Island (NVI) but the quotas from the Victoria generally go first and fastest. Product recoveries for GSU harvested from the Victoria area are now very good while those from NVI still have a bit to go before they reach the highest quality. Product from Washington State is a bit cheaper (landed value) but the recoveries are also generally lower with an average somewhere around ~ 7%, some 42% lower than the guaranteed level mentioned previously.

There was some discussion around the current USD \$9.00 per kg CIF price for greens arriving in Japan as being a bit low. Once all the packing, insurance and freight charges are netted out, there is not a lot left over for the harvesters or indeed for the processors.

Sea Cucumbers

The market for Sea Cucumber skins is very hot right now. The main market for meat is Hong Kong and it is more or less saturated at this point so there may be some excess meat supplies that could be freed up for potential market development for the meats in, say, Japan. More generally though, extra quota will likely be needed to facilitate new ventures. There are lots of buyers

trying to break into the market right now but these new ventures are being actively resisted by the many established players, particularly for the skins which is the most lucrative side. It may be possible to get a foothold in the market by developing sales outlets for the meats with some unqualified possibility of getting some skins with Individual Quick Freeze (IQF) round shipments.

Freshness is especially important for maintaining the meat's quality. When the product is held overnight for even 12 hours prior to processing, the meat takes on a musty taste that reduces its quality profile. When processing within the required time frame is not possible a workable solution lies in the IQF process which is effective as long as the cukes are not flat and deflated. The IQF process adds about \$0.50/lb to the costs of the product. The current price for IQF sea cucumbers is about USD \$9.00 /lb, up from USD \$7.00 /lb last year.

Tsukiji Report

Sung and Terry visited Tsukiji early Friday morning and reported that good quality California product was auctioned at ¥ 1,000 per 300 g tray while excellent quality Russian uni went at ¥1,800 per 300 g tray. Ken reported he saw some excellent product for sale at ¥ 780/ 100 g tray in a local supermarket while product judged as not so great went for ¥ 500/ 100 g tray.

Afternoon:

Mike, Tim, Paddy, Terry and Geoff accompanied Sung to a meeting with a small re-packer on the outskirts of Tokyo. The reduced delegation met with Yasuo Takano, President (and owner?) of the company and Sigenori Kamikura, a senior manager or executive and provided copies of the video (DVD and CDROM) and a quick verbal review of the situation facing Canadian uni industry.

The plant comprises three stories including administration offices (~1,200 ft²) on the top floor, uni processing and re-packing rooms including water sterilization for processing and washdown, antibacterial air purifiers and a live hold area for prawns, clams, pufferfish, crab etc. (Figure 3). The plant also handles mushrooms and has a cooler on the first floor for holding. Two or maybe three freezers with independent compressors are located out in front of the building adjacent to a shipping and receiving area which comprises the main entrance to the building.

The company re-packs about 200 kg of uni per day using product sourced primarily from Chile, Mexico, China and North Korea. They are looking to diversify their sources and are interested in approaching Canadian suppliers but do not appear to have any way to uncover and contact any firms. It seems there are quite a number of small re-packers in a similar boat and this might provide an additional outlet for product in the Japanese market. There was general agreement that supporting an ordering system for small buyers like this company could be a good thing and that cumulatively such orders might mount to significant levels.

This company also owns a restaurant chain named Katsu Sushi (Figure 4) which now comprises 4 new and modern (bright, roomy, lots of windows etc) sushi restaurants which they supply



Figure 3: Live holding room at the Takano Seafood Re-packing plant.

through their packing and processing plant. The food, the atmosphere and facilities in the restaurant we visited are excellent and both western and Japanese style dining arrangements are present. We enjoyed a magnificent sushi and tempura meal and had very cordial discussions throughout- again with only minor references to any business as these are always intended to act as relationship building opportunities.

Evening

After returning we met with Mr Ogawa and Mr. Watanabe for a little social gathering to discuss market issues of interest to the Canadian urchin suppliers. Ogawa-san takes care of the imports for their company while Watanabe-san deals with supermarkets etc. Ogawa-san first expressed his appreciation at our efforts to increase our knowledge of the Japanese market. He emphasized that strong relationships are necessary during tough times like these but assured us that things will get better in the not too far future.

Tekami, Nisshin, Maruki and Osaki (Okazaki- Ocean traders?) are the 4 largest importers of uni into the Tokyo market. Ocean Trader is simply acting as a broker for the product they are importing. They sell virtually all of their product to Sato Suisan (URL: <http://www.sato-suisan.co.jp>). This company was founded prior to 1940 and is one of the oldest and most



Figure 4: Reduced delegation in front of Katsu Sushi restaurant.

prominent uni processors in Japan. Sato Suisan is located in Miyagi Prefecture, maybe a hundred miles north of Tokyo.

The talk turned first to the issue of reserve pricing on the auction as many companies cannot sell to Tsukiji because even their costs of production are all too often not met. Ogawa-san stated categorically that small trays are often sold prior to the auction at a fixed price to what are presumably select clients. We understand that the Tsukiji prices are significant- after all GHMP and Kiku used to get ¥ 5,000 + per tray and were able to use these prices to benchmark prices for other contract sales. Both of these companies may have been resting on their laurels a bit since then and are now almost completely dependent on set deals for their higher quality product, however they are facing increasing price pressures because there is no transparent market-based price benchmark available in the absence of auction sales. Some companies have been and are still selling their sub-grade product on Tsukiji and this is very hard on the whole industry as it is lowering the market's expectations for Canadian product.

Russian product has recently moved into the Japanese market in bulk. This and a couple of good years for Hokkaido producers have relieved any supply worries and put additional downward pressure on prices. This is leading to a vicious cycle at least in Canada- lower prices means divers are losing their enthusiasm which affects the quality and quantity of product landings which in turn leads to further pressure on prices. The Canadian fleet and urchin fishing community are shrinking as well as divers etc seek more gainful employment.

Exports to China are building although the risks are still considerable. Any number of reports are circulating about how hard it still is to repatriate profits from China, suggesting that a few more years are advisable before jumping in with both feet. Ogawa-san has a number of good connections into the country and feels the 2008 Summer Olympics in China should provide some very significant opportunities.

Ogawa-san felt that the Christmas market might be OK this year. Russian products will not be coming into the market between December 24th through to January 11th because some of the facilitating offices and/or firms will be closed for the holidays. This should be a very good opportunity for Canadian product. Russian shipments will again commence on January 12th. Production from Boston is also off somewhat so this should reduce volumes on the market and help support prices.

We brought up the point that Canadian greens used to rank at the top in the Japanese market but are now held in much lower regard. Greens from Canada are priced now at about USD \$ 3.50 per pound (CIF) with about 12% recovery. The Russian product on the other hand is selling for about ¥ 500 per kg (¥237 per lb = ~USD \$ 2.31) with recoveries averaging about 5-6%. (Someone mentioned that the Russian recoveries are improving a bit as some of the overstocked beds are now properly thinned but I am not sure if this is referring to the regulated production from Sakhalin and the mainland or if it refers to the poached product from the Kuriles. I suspect the former.) This suggests that the Canadian product is the better deal, even though 88% of the weight shipped and paid for actually comprises waste. Russia's proximity to Hokkaido gives them an inherent edge when it comes to quality because the product can be at the plant door within 6 hours of being harvested whereas it generally takes about 3 days for Canadian greens to make it to the same point. Ogawa-san also mentioned that the greens from Canada are a bit soft right now but this hopefully be corrected by the time Christmas rolls around (Only 2 licences have been taken out so far this year and most harvesters appear to be holding back until orders and prices firm up a bit.)

The auction price for good quality uni from *S. intermedius* is about ¥ 5,000/kg. The market rates uni colours according the following preference: Yellow as #1, Orange as #2 and Red as #3. Tsukiji likes the GSU with red uni as it is naturally a bit harder and therefore easier to process. It is also a bit easier to move even though the local market prefers the yellow uni despite its somewhat more bitter taste (again- this may be related to higher concentrations of alum used to get the additional hardening).

Day 4: November 14, 2004.

Travel to Sapporo Mike, Tim, Ken, Dave Kensall, Dave M^cRae, Terry Lawrence and Geoff depart from Haneda Airport in Tokyo at 1130 hrs and arrive at New Chitose International Airport just outside of Sapporo at 1330. We were picked up by Masao Hashimoto and Mr. Tchernychev Konstantin, Russian affairs Manager for Hashimoto-san's company 'Kokusai Boueki Corp.', and delivered to our hotel. We had previously protested that we thought it would be too much of a burden for him and that we would not at all mind taking the train into town and meeting him a little bit later at the hotel to discuss meetings and social activities, but this was to no avail. We had a quick meeting once we arrived at the Hotel Sapporo Garden Palace.

We first ran through the video and provided Hashimoto-san with an overview of the market situation from our perspective. In reply he mentioned that the Russian situation in the Kuriles is the same as last year. The urchins in the Kuriles, as in other green and *S. intermedius* urchin stocks, are usually abundant in the top 3-5 metres and then absent until about 25 - 35 m depths. The shallow beds are now wiped out and the illegal harvest last year took about 8,000 MT out of the deep areas so that even the deep areas are over-harvested now.

Russian divers reportedly work on a percentage so they get about 10-12% of the value of the catch when ownership is transferred to the first buyer. The Kurile Islands urchin fishery is still unregulated and many serious injuries and deaths are reported as diver safety limits are generally disregarded. It sounds like a very tough show, particularly in light of Mr. Constantin's reports that divers are sometimes transferred to the Kuriles without even their wives and children being informed so they just basically disappear for a few months - or in some unfortunate cases, forever.

Hashimoto-san buys urchins from Russian sources along the Russian coast adjacent to and on Sakhalin Island in the summer and fall. These are controlled fisheries with the coast guard station in Vladivostok providing good coverage. He does not buy urchins in the winter because these are sourced from the Kurile Islands, an area where the harvest is not under government control and is controlled by mafia/yakuza organizations and he wishes to protect his good reputation (and quite likely his independence).

Japan and Russia have a diplomatic relationship that dates back 150 years and Hashimoto-san is going to Moscow later this year as part of a delegation to raise awareness in Moscow of the illegal harvesting issue in the Kuriles. He will be meeting with the Russian Minister of Fisheries and will bring it up at an official level. The Japanese and Russians have joint agreements that give Japanese fishers access to the waters around the Kuriles for salmon and herring but there is no control over the urchin resources. This harvest is adversely affecting the uni market in Japan, with considerable consequences for Canadian and US producers and he is hoping we might be able to offer some support for his quest with letters supporting efforts to deal with the illegal harvest from the Government of Canada, the Canadian Urchin Harvesting Associations, processing companies and any other interested parties in Canada.

Hokkaido processors have over 30 years experience in marketing processed uni in Japan and the community knows many people in the business. (Other comments from knowledgeable sources in Canada maintain that the the whole of the uni trade in Tokyo and points north is controlled by 5 thus far unidentified Japanese families. The uni markets in southern Japan are a separate matter and operate independently.) One of Hashimoto-san's strongest supporters is Toko Suisan which may indicate that he knows Watanabe-san and/or Ogawa-san from Tsukiji. All the processors in Hokkaido sells under a number of different labels, possibly to gather a number of perceived market niches into their stable without actually letting consumers know about the connections.

We then viewed some shots of aquaculture operations in China around Darien taken by Hashimoto-san during a tour of the region last year. These are very extensive, covering many square miles, and are apparently polyculture operations focussing on abalone, kelp, scallops and urchins all growing together. The Japanese government is also financing joint ventures which use Japanese money and expertise, Chinese labour and Russian coastline (the Chinese and Japanese

coastlines are getting a bit cramped) to expand the industry. There is an apparent level of over-investment that is eventually going to lead to market impacts and instability. The scale and closeness of many of these operations to each other may also leave them and the surrounding environs more vulnerable to effects of weather, disease and marine accidents. This vulnerability may be attenuated by the effects of global warming- whether the hits come directly from temperature spikes in the water to levels above or near to upper lethal temperature thresholds for the culture species, or more indirectly through an accelerated development and spread of disease or anomalous typhoon strength and frequency etc.

Day 5: November 15, 2004

We were provided a tour of the Sapporo Public Auction to get an idea of the seafood market pricing and products available. The tour did not include the actual auction but focussed on the wholesale trade after the auction. The prices listed are therefore those applicable at the first wholesale level. We subsequently wandered around the retail sales market a couple of blocks away where the products purchased through auction were sold to the public so we could see the contrasting retail prices. Pictures to accompany this discussion are listed in the SapporoMrktPics directory.

We first saw some 200 gram trays and wet-packed Japanese urchins (Figure 5) (*S. intermedius*) harvested in waters surrounding the Kuriles by Russian fishermen and delivered primarily to the Port of Hanosake in the eastern coast town of Nemura where they are processed and packed. The products and prices seen are summarized in an accompanying spreadsheet.



Figure 5: Wet-pack Japanese urchins from Russia.

Uni wetpacks:
Note 1- the wetpacks use a factory brine as opposed to natural seawater. Some alum is included but because of the length of time they are in the brine the amounts must be very carefully controlled because the uni can harden to much that it becomes undesirable. Also the alum imparts a bitter taste which accumulates with exposure.

Live urchins are also sold at the auction although none were available today. (Note 2) Some were on sale outside in the retail market at ¥350 each but there is no guarantee on the recoveries so it is a bit of crap shoot for the consumer. There is one picture off of which the size (TD) might be determined so the von Bertalanffy function can be used.

The auction also sells GSU from Canada. This uni is characterized by having a very good colour although the taste of the Japanese urchin uni is considered better. The dark J. uni especially is generally very sweet with a lingering, possibly somewhat iodine-related aftertaste. Japanese grew up with this uni and consequently prefer it.

Day 6: November 16, 2004

Morning: Meet with Hajime Sawatori; President of Kairinmaru and developer of a new freezing technology for sushi (and perhaps uni)

Sawatori-san's company has developed a new freezing technology which is reported to freeze sushi at a very high rate and with virtually no quality impacts so it can be defrosted with no change in texture, no drip and no detectable difference from fresh product. he brought out a number of frozen samples including vacuum packed breaded pork tenderloin, steak, sushi and uni. The company is situated on a fisherman's harbour in the town Otaru (Figure 6), some 40 km north of Sapporo.



Figure 6: Fisherman's harbour at Otaru showing small coastal tender and fishing vessels used by the local fisherman's cooperative.

He prefaced his demonstration for the uni with a comment that the uni used in this demo pack was packed at another fishing cooperative using a process that starts as per normal- the shell is cracked and the uni spooned out. At this point the uni is merely patted dry to remove excess surface moisture but none of the interior moisture is removed. He made the point quite clearly that the uni was not brined or treated with alum prior to freezing whereas imported uni is so treated. This means this uni, a domestic product, is very tender and will likely show some effect of the freezing but that the imported uni is hardened and therefore more robust. (One could assume that this is a special case but it may also indicate that some of the higher grade uni is not treated with alum which would be an interesting departure of note from the normal reported processing procedure.)

The device contains a number of secret proprietary elements that he was not willing to elaborate on. The equipment cost is about the same as a spiral freezer (of the same capacity?) and seems to require substantial electricity. Two models were described:

- ✧ a 15 kW unit which is entirely manual and will freeze about 70 kg of product each hour (approximately 1.4 - 1.68 MT/day) ; and
- ✧ a 55 kW unit which is entirely automatic with a conveyor setup and freezes about 300 kg each hour (approximately 6 - 7.2 MT/day).

The dimensions of the 55 kW model (Figure 7) are about 12 m long by 2 m wide and 2.3 m high. This would be a bit large for most on-board installations, particularly on dive vessels but also on the vast majority of the freezer boats used by the Canadian fleet.



Figure 7: 55kW model of the advanced freezing device prepared for shipping.

The device freezes product very fast- more than 20 times faster than normal convection freezing and 5 times faster than plate contact freezers. The material to be frozen is packed into a plastic tray- and here things got a bit fuzzy- and maybe doused with more water to speed the process. It seems as if the product is sealed in the container prior to freezing but that no Modified Atmosphere Packaging (MAP) is used. Once frozen the product will reportedly not deteriorate for periods extending up to 1-2 years as long as it is held at a temperature less than -35°C . If the temperature is above this a bitter taste develops, perhaps because of the same dehydration and alum concentration increase effect noted earlier in this report. (-35°C is also the accepted standard at which oil migration is minimized to an acceptable level with oily fish.)

In the case of most sushi and other foods, the product is defrosted in a microwave in about 3 minutes. With the uni, however, he suggests that the most effective method is to put the package in a water bath and allow it to defrost naturally over a half hour or so. The product will remain in fairly good condition and not deteriorate too much over a couple of days after thawing as long as it is held in clean, filtered and chilled seawater. A number of the samples prepared were defrosted in the microwave as per the directions and the taste, texture and quality of the thawed products was just like fresh cooked. The breaded pork was still nice and crispy on the outside and moist and tender on the inside while the sushi- including the rice- tasted entirely natural.

Two packages of frozen uni were thawed and passed around as part of his demonstration. Many fishermen etc believe the prospects for freezing uni without any quality degradation are bleak, but he insists that the technology is effective. After seeing the quality of the product (Figure 8), I am afraid that I must remain in the doubters camp on this one. The taste was very nice but the uni was partially melted upon thawing.

This technology is not well known to the world although it just won an innovation award at the recently completed Korean Expo "Kimchi" and is used by an increasing number of companies worldwide. The device is now being sold to fishing coops, associations and companies worldwide and approximately 300,000 frozen packs of sushi each month. Hito reportedly bought the rights for using the technology in North America for sushi but these have since been passed to Maruha Corp. It may be possible to joint venture and get the rights for freezing other materials but the company is not desperate and will not jump at just anyone. Some effort would be required to establish the right sort of relationship before successful negotiations could be anticipated.

I have also extracted additional information from an article on the new freezing process from: Japan Inc. (Web edress = <https://www.japaninc.net/article.php?articleID=1235&page=1>)

"As we all learned at one time or another, water expands when frozen. Tiny ice crystals inside a piece of mackerel, tobiko or any other tender fish can damage surrounding cells, hurting texture and flavour. Kairinmaru's technicians have come up with a method for removing many of those potentially damaging water molecules with minimal impact on taste, while also using natural additives to reinforce the walls of the fish's natural cells. What those additives are Sawatari won't say, but he emphasizes that the process is all natural.



Figure 8: Example of thawed domestically produced uni frozen with Kairinmaru's innovative freezing device. The uni was not treated and firmed up with alum prior to freezing.

What about the rice? If you've ever tried to freeze leftover white rice then thawed it out for another meal, you may know that doing so causes it to lose not only its colour but also its sticky texture, which is paramount to catastrophe for good sushi. Time for a bit more science. When rice freezes, its starch and water content separate. "But we've found a way to make the water content and starch content bond together more firmly," says Sawatari, as if describing the latest gizmo from Silicon Valley.

The trick is speed. By freezing the sushi extremely fast, there's no time for the water and starch to separate. Again, Sawatari is careful not to reveal any secrets, but he does say that the technology is based on electricity and can freeze sushi five times faster than the blast chilling method used on fishing trawlers, and 20 times faster than standard food industry processes (convection freezing). "If we use our technology to freeze a fly or a goldfish, it will still be alive when it's defrosted."

Last year, Kairinmaru also sold the rights to its preservation and freezing process to Maruha, a giant Japanese marine products company. At a Maruha factory in Salem, Oregon, 900,000 frozen sushi meals are produced every month. The company is currently in negotiations with retailers like Kroger, Wal-Mart and Circle-K."

Afternoon

Following the presentation at Kairinmaru we attended a local fisheries research station (Figures 9 and 10). Each prefecture in Japan has at least one of these stations and they look similar in scale to the Pacific Biological Station in Nanaimo. The scientific staff undertake applied and basic research which is related to the fisheries production in the area, including aquaculture technology development, artificial habitat design, testing and deployment for stock enhancement (abalone condominiums, squid egg laying lairs etc.), artificial reefs (for kelp, urchins, pinto abalone and finfish etc), hatchery services for a variety of species, oceanographic instrumentation etc.

The economic value of these institutions is undeniable, not just because of the intrinsic value of the scientific operations undertaken but also because of the resulting increase in the fisheries production *vis a vis* that found in other jurisdictions. Contrast, for example, the total fisheries production from wild and cultured fisheries in Hokkaido and British Columbia. Hokkaido produced about 1.7 million MT of seafood in 2000 worth an estimated ¥ 297.5 billion, or about \$C 3.72 billion using an exchange rate of 80 ¥/\$C over 3,036 km of coastline. This works out to an average production volume of about 559.95 MT of seafood worth about \$C 1,225,295 for each kilometre of coastline each year. BC on the other hand produced 304,000 MT of seafood worth about \$C 1 billion over its 27,200 km coastline. The average BC production volume and value of 11.18 MT/km and \$36,765/km correspond to about 1.9% and 3% of Hokkaido's production volume and value respectively, suggesting there is considerable unrealized production capacity in BC unless one is willing to concede immense differences in the inherent marine productivity capacities in the two areas.



Figure 9: Main building of the Otaru Fisheries Research Institute.

The tour of the Fisheries Station was looked forward to with some anticipation by all members of the party but there seemed to be a bit of problem with the arrangements as the person assigned for our tour was not available while we were there.



Figure 10: Outbuildings and research areas at the Otaru Fisheries Research Institute.

We viewed the public display in the main foyer where we got an overview of the institute's activities and facilities and had a quick tour of a tank room. The facilities in this room comprised a number of current and wave tanks where various equipment designs, the behavioural and other biological responses of various species and various interactions

between planned installations and/or operations with natural or otherwise existing coastal features can be simulated under a variety of conditions so problems and solutions can be objectively identified prior to full commitment to and implementation of new installations. We were not given tours of the other research laboratories/facilities because our guide was MIA.

There was a display of the urchins occurring in Hokkaido waters as well as a schematic of the urchins' growth patterns. These are fairly comparable to those found for GSU in BC- 30 - 60 days as larvae, 6 months to grow to 5-7 mm TD after settling, a further 2-3 months to grow to ~15 mm TD, another year each to grow to 30, 40 and 50 mm. These values are somewhat higher than those found for GSU along the BC coast but the growth estimates for the Japanese urchins are based on water temperatures of 18°C. Natural growth of the Japanese urchin is actually likely somewhat lower as these are temperate waters like BC and the such warm temperatures are likely infrequent, although Hokkaido's coastal waters are influenced along the east coast by the warm Kuroshio current in the summer months.

Day 7: November 17, 2004

The final day in Japan was given over to travel. We caught public transit to the New Chitose airport from where our flight departed for Narita at about 1430 hours. Our flight from Narita to Vancouver departed at about 1730 hours.