



International Conference Center in Kobe, Japan and was hosted jointly by the Japan Seaweed Association, the Japanese Society of Phycology and the Japanese Society of Marine Biotechnology. This was the second ISS meeting organized in Japan (the first took place Sapporo in 1971) and attracted some 535 participants from 46 different countries; of this, 90 participants were student delegates.



Some of the South African delegates who attended the conference. Left to right: Mark Rothman (MCM), Deborah Robertson-Andersson (UCT), Karen Whyte (West Coast Abalone) and Gavin W. Maneveldt (UWC).

The conference theme was *Seaweeds: Science and technology for Traditional and Modern Utilization*. To accommodate the large number of participants and presenters, the conference was organised daily into 4 parallel sessions of invited speaker mini-symposia, followed by 4 parallel sessions of contributed papers; the surplus papers were presented as poster presentations. All of these were preceded by an opening plenary lecture by a world-renowned specialist. All in all, 4 plenary lectures, 108 Mini-symposia, 79 Contributed papers and 167 Poster presentations were delivered. The opening day of the conference was supplemented by 4 workshops ranging from an *Introduction to Seaweed Industries in Japan* to *Seaweed Cultivation in Asian Countries* to *Functional Components of Seaweeds* to the *Ectocarpus Genome Project and Biology of Ectocarpus Species*. In addition, a special commercial seaweed exhibition was held for much of the duration of the conference.

Did you know?

BMW door parts are made from green tides of *Ulva lactuca* in France and pot plant pots made of *Ulva* produce bigger and healthier plants compared to ones grown in ordinary clay pots?

An experience of the XIX ISS by Deborah Robertson-Andersson

The XIX ISS was held on the man made Port Island in Kobe Bay in the Seto Inland Sea. The island was originally a mountain that had taken 20 years to move into the sea. Kobe – meaning to pay taxes – is the fourth largest city in Japan with a population of over 1.5 million.

This conference was different to the other two I had attended in Cape Town (Jan/Feb 2001) and Bergen (June 2004). The conference has changed from its past history of largely supporting the phycocolloid industry to a much wider range and diversity of research topics, some of which I was unaware.

I was amazed to learn that seaweeds may play an important role in the future of global warming with seaweeds being cultivated not for bio-fuel or for food, but as a sink for excess CO₂. This is particularly being funded in Korea. There were discussions about growing seaweeds and then attaching them to the ocean floor and swapping this production for carbon credits from the Kyoto protocol. I was also interested to learn that a non-spermicidal microbicide called Carraguard, derived from the carrageenan found in certain seaweeds and used in the food industry as a thickener, emulsifier and stabilizer, had finished its phase three clinical trials in South Africa. Carraguard may block the transmission of HIV/AIDS and provide women with opportunities to lower the risks of contracting the disease. This product was first mentioned in the symposium in Bergen and it was great to hear a follow up, particularly as the research and development costs then were estimated to be US\$775 million over five years and the product was deemed non profitable.

I particularly enjoyed the integrated aquaculture (Thierry Chopin has coined the term **Integrated Multi-Trophic Aquaculture** or **IMTA**) mini-symposia, which for the first time ran for an entire day. There were talks by most of the leading researchers in this field and it was fascinating to see the range and diversity of projects that can be considered integrated aquaculture. I was also



Nori gift-packs ranging from simple packed sheets to executive containers.



Mark Rothman purchasing some seaweed sweets (photos: GW Maneveldt).

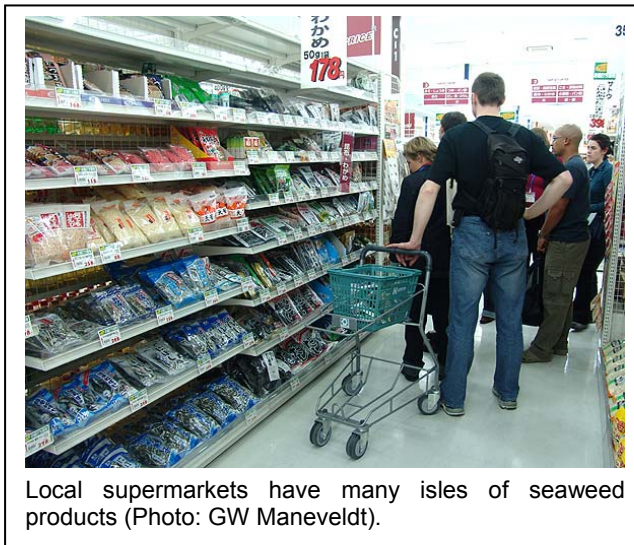


A display of kombu products.

impressed to learn that this type of aquaculture is not just about providing an alternative food source, but also a means of conservation. In Thailand, for example, it is being used to encourage the use of abandoned shrimp ponds and even thought to expand the life and production capacity of existing shrimp ponds. The biggest integrated aquaculture project at the moment is the salmon, mussels and seaweed project in Canada involving 61; the project I have been working on wasn't far behind with 41 people. Most of the studies showed that there was not only a need for integration across trophic levels and the environment, but also with researchers and between researchers and industry. The Canadian project was also interesting in that their biggest problem was changing the existing legislation, which at the time prevented this type of cultivation. In South Africa we are fortunate in that our legislation actually encourages this type of cultivation.

I spent an afternoon in the seaweed exhibition centre and was amazed by the variety of products, both food and otherwise, that were available from seaweeds. I was asked to taste test some new seaweed cup-a-soups and I must say, one of them

was by far the best I had ever tasted. In South Africa we can typically buy nori sheets in only one size. At the exhibition one company sold nori from China, Japan, Korea and Vietnam, and marketed each of these as different products, and in different sizes. To my untrained eye and also because I can't read Japanese they all looked the same. This was reinforced when we later went around to a supermarket in which I counted five isles of seaweed products. At the exhibition I was even able to get seaweed shampoo, a seaweed facial, seaweed soup, seaweed noodles, a light shaved kombu snack, some jelly made from seaweeds, seaweed sweets and even ice-cream.

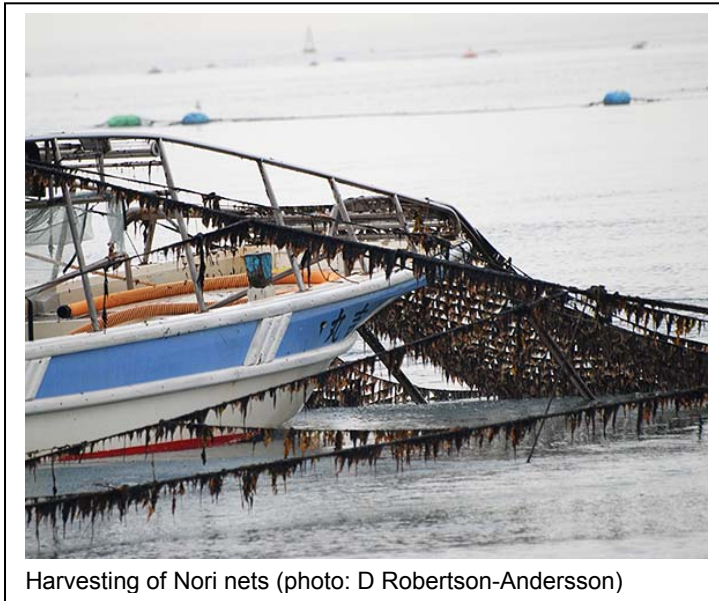


Local supermarkets have many isles of seaweed products (Photo: GW Maneveldt).

For the mid symposium tour I chose to visit a fisherman's co-operative nori processing plant. The co-operative consisted of 1250 people with about 360 families growing nori. This co-operative handles about 50% of Japan's total nori sheet production (roughly 100 billion sheets). The seaweed production and quality in this area had decreased due to an increased environmental effort to reduce fertilizers and nutrients in peoples' gardens which then leached into the bay, and this meant that in 2006, Japan had to import about 25



billion sheets from China. Although all the seaweeds were produced here during one season, they were sold at 4 auctions during the year, during which about 60 different companies came to assess and buy the nori sheets. While one sheet of nori cost 80¥ (±R5.20) in 2005, it now sells for only 10¥ (±R0.65) in 2007; currently, a sheet of Chinese nori sells for only 6¥ (±R0.39). The Japanese nori is, however, supposedly of a better quality and about 10% of the Chinese population eats the Japanese nori.



Harvesting of Nori nets (photo: D Robertson-Andersson)

From the plant we were taken out by boat to the nori farms and were shown the nets, which stretched out to sea as far as the eye could see. We were also shown how the nets are harvested and how they are washed to remove epiphytes. I was struck by how seemingly clean the water was even though the bay was exceptionally calm and we had not had any wind for the whole time I had been in Kobe. From there we were taken to a nori (The Awaji Nori Centre) and a wakami (*Undaria*) seeding facilities.

My lasting impression of Kobe was a city that has rebuilt itself twice in the last 50 years, from complete destruction through man-made and natural events, to a modern and vibrant city owned by the people. Visiting Japan showed me what could be possible in South Africa.

Awards received by PSSA members

Japan Seaweed Association – First Prize in Applied Seaweed Research

Hurtado AQ, Trespoey A, Bleicher-Lhonneur G and Critchley AT. Effects of epiphytes on the growth and carrageenan quality of *Kappaphycus striatum* var. *sacol* at different stocking densities, days and depths (presented by Alan Critchley).

The University of British Columbia Award for the best student oral paper – Second Prize

Robertson-Andersson DV, Bolton JJ, Troell M, Anderson RJ, Maneveldt G, Halling C, Smit AJ, Probyn T and Peall S. The Evolution of Integrated Seaweed cultivation in temperate Southern Africa.

3. Department of Trade and Industry – Aquaculture Development

May 28, 2007

The Department of Trade and Industry (DTI) has contracted Enviro-Fish Africa (Pty) Ltd (an independent company operating under the auspices of Rhodes University) to review the current status of aquaculture production in South Africa, and to recommend strategies that the DTI could implement to promote sector development. The DTI is a key government player responsible for promoting trade and sector development, and aquaculture, being a very young industry, has special development needs, which fall within the DTI mandate. The DTI initiated its SMEDP Aquaculture Policy in 2003, has co-funded the establishment of a shellfish sanitation programme to enable shellfish producers to export to the EU, and provided support for SEDA to promote aquaculture projects. While these interventions have been welcomed by industry, their impact on sector development has perhaps not always met expectations, and it is clear that much more can be done by the DTI to support aquaculture sector development. The DTI now wishes to develop customized, sector specific interventions to promote the development of the aquaculture