REPORT ON ATTENDANCE AT THE BRITISH PYCOLOGICAL (SEAWEED) MEETING, BELFAST JANUARY 2007

I only attended those 'applied' sessions where papers on potential for seaweed aquaculture and latest developments were discussed. I presented a poster paper (the potential for a seaweed industry in the Falkland Islands) with Dr Brendan Gara (FIDC) which remained on display throughout the conference. This attracted a fair amount of interest and I made some potentially valuable contacts. (Abstract and poster attached)

1. There is a lot of interest in the use of Coralline Algae in Medical ceramics. This is fuelled by the need for more bone implants/repairs for an ageing population. Grafts using real bone material are discouraged. Most implants are made from a hydroxyapatite and it has been discovered that coralline algae (similar to the 'shells' and in the Falklands) looks and performs like bone and has a similar porosity (i.e. will allow blood flow for permanent bone growth). The purpose of the project is to use various species of coralline algae and transform the calcium carbonate to hydroxyapatite. Queen's part in a major European project is to:

   (a) investigate sustainable production of plants;
   (b) connect the Calcium Carbonate in the seaweed to hydroxyapatite.

   Falkland Island shells and samples have been included in the programme. If the material is successful, it will have high value as 'mining' of shells and deposits in the UK is now completely restricted. Cybercolloids Ltd.

2. Ross Campbell of Cybercolloids Ltd gave an excellent overview of the world seaweed industry. Most seaweed used in the world is now cultivated. The Californian kelp beds have closed down. Carrogeenan is the biggest extracts market and the highest value product. He is very interested in the Falklands and stresses that the priority is to get a survey done of what species are there and in what quantities. This information could potentially interest the main market players. He is willing to help once this has been done.

3. There were several papers on the use of seaweed as a bio-filter for sewage/heavy metals and other 'dirty water' and there are now several 'off the shelf' designs for application at a range of scales. An interesting prototype is being developed at Waterford Institute of Technology. Brown algae are best at removing phosphate from sewage effluent. Queens are currently developing a modular seaweed biofilter system for small/medium size sewage treatment works.

4. Queens has successfully developed a rope-based aquaculture system for red seaweeds and the coralline algae involved in the bone regeneration project. They have just won a contract to develop a dedicated macroalgal hatchery facility. This can be used for applied seaweed research. Staff at C-Mar would be happy to consider the application of this technology to a similar scenario in the Falklands.

5. My potentially most interesting site contract was with Dr Duika Burges Watson, a Tasmanian who is interested in promoting the value of seaweed for health and society (through Newcastle University).

The latest and most exciting development is in the extraction of microbicides from Carrogenan, a substance found in seaweeds like *Gigartina* and *Chondrus*, found in the Falklands. Carrageenan has many food-related uses but latest research has shown it has potential HIV/AIDS inhibition uses in the pharmaceutical/barrier cream field. There is a lot of excitement amongst pharmaceutical companies in this. Dr Burges Watson copied me a paper she has submitted for publication ("Mediating HIV/AIDS: the socio spatial effects of using a non-contraceptive microbicidal barrier 'Carraguard' (at a distance). Interestingly it has been found that, worldwide, only the Chilean *Chondras* resource has the suitable microbicidal properties. Significantly these beds have all been bought up by the leading seaweed company FMC Biopolymer who could ultimately control the price. Dr Burges Watson found it exciting that the Falklands has *Chondras* and, if it is of the same 'type' as the Chilean *Chondras* then, as FMC do not own any of the local resource, it could potentially increase the value of the local product substantially. This should be followed up.

6. One route (and another contract provided by Dr Burges Watson) might be through the *Small Island Research Institute*. This is a virtual institute which can help provide contacts/support for research to benefit small islands. The Falklands might benefit from this in other areas.

Overall this was a useful conference. There are some exciting developments in seaweed which it would be well worth the Falklands keeping an eye on. Having a poster presented is excellent for attracting interest throughout the meeting.

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POSTER PAPER PRESENTED 2007

THE POTENTIAL FOR SEAWEED AQUACULTURE IN THE FALKLAND ISLANDS

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The Falkland Islands (52 °S; 57-62 °W) are economically self-sufficient and the sale of offshore fishing licences is the primary income source. Agriculture, tourism and

service provision are secondary income sources. There is a general need to diversify the income source and a National Aquaculture Strategy has been proposed. The islands have a rich seaweed flora and some commercially important species for phycocolloid extraction such as the Carrogenophytes: **Gigartina skottsbergii**; **Sarcothalia crispata; Callophyllis variegata** and **Alginophytes: Macrocystis pyrifera; Lessonia** spp; **Darvillaea antarctica** may be abundant. Harvesting or culturing some of these could supply either an indigenous source of fertiliser and animal feed for organic-based farming systems or higher value product for partial processing and export. Advantages include, an extensive, sustainable natural resource, unpolluted waters, dry windy climate, available shipping. Disadvantages include lack of infrastructure and local experience, high labour and electricity costs. There is also a key lack of background research information on the size of the resource suitable aquaculture methodology and of market potential. A National Aquaculture Strategy scoping exercise based on sound sustainability principles screened a number of potential options but ruled out seaweed aquaculture initially but left the option for inclusion at a later date, possibly as part of an integrated aquaculture development programme.