Nautilus News

Summer 2000

New Director at Nautilus

Dr. John Hambrey has joined Nautilus as Director of Research.

John is a natural resource economist and analyst with a wealth of professional experience gained from around the globe.

The aquaculture & environmental economics and management expertise that he brings enhances and complements the strong coastal and fisheries management background of Nautilus.

John's association with the company goes back ten years. He rejoins Nautilus following field contracts for the Commonwealth Secretariat (through ICLARM, Solomon Islands) and DFID (at the Asian Institute of Technology, Bangkok). He currently chairs the GESAMP Committee on Coastal Aquaculture.

This renewed partnership strengthens the overall capacities of the company, already establishing new research partnerships in the UK and Asia.

Editorial - Regional Fisheries Management

The regional management of European fisheries is a hot topic at the moment. With the forthcoming review of the Common Fisheries Policy approaching rapidly and European fish stocks seeming to be in dire straits, the industry and the scientific community are hotly debating the pros and cons of regional management.

The Scottish Fishermen's Federation is backing WWF in its stance on regionalisation and the Cornish Fish Producer's Organisation has held meetings with its European counterparts to discuss regionalisation. The first steps towards regional management can be seen in the recent formation of an Irish Sea management group in response to the crises in cod stocks, and in the creation of the North Sea Commission.

Is regional management of EU fisheries feasible?

Not everyone is jumping on the regionalisation bandwagon.

Some Member States are unconvinced and fear that regionalisation could lead to loss of access to fishing grounds and a xenophobic attitude towards fishermen from other Member States. For some 'regionalisation' is viewed as an opportunity for 're-nationalisation'. The way forward should, however, be inclusive consultation by relevant groupings with the ability to deal with the specific management needs of specific marine areas.

The urge to rush headlong into regional management is strong but it should not be seen as a panacea for European fisheries and must be approached strategically with full industry consultation.

Having submitted a report on regionalising the Common Fisheries Policy to the European Parliament last year (*see article in this issue*), Nautilus is contributing to the debate and following developments with great interest.

Nautilus News in Brief

Welcome to the new look Nautilus News. A new year, new millenium and new Director herald continued progress for Nautilus Consultants.

Sustainable development remains a watchword for the industry and Nautilus continues to be involved in development projects at home and abroad.

The Brixham Harbour Regeneration Study has entered the public consultation phase. The study incorporates all aspects of town and coastal planning. Nautilus has also been involved in the development of the East African coastal zone with the new publication "*Guidelines for the Environmental Asssessment of Coastal Aquaculture Development*" for the Secretariat for East African Coastal Area Management (SEACAM).

Information technology is increasingly important in modern fisheries and here too Nautilus is involved in pioneering work. Nautilus is managing a BIM project using the latest ship-to-shore technology. The PESCA funded project will enable ten vessels to pass on up to the minute catch information to onshore buyers.

The European discards project is progressing well. Both the UK and Dutch case studies are now being discussed at a national level. The recent Norway trip produced very interesting information relating to the study. Thanks to the industry representatives, policy makers, scientists and fishermen we met in Norway for their help and hospitality.

Nautilus has also just kicked off a fisheries and aquaculture project for the National Assembly for Wales. The challenge is to produce a sustainable development strategy for inland and marine fisheries throughout Wales.

If you have research requirements, proposals or suggestions you would like to discuss, please contact us.

In this issue:

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Environmental Management of Aquaculture Development

The social and environmental impacts of coastal aquaculture have been widely reported. It is now generally agreed that aquaculture development needs to be better planned and managed if it is to achieve its potential and develop in a sustainable manner. The question is how? Five main approaches have been used either alone or in combination:

- Regulation
- Farm level environmental impact assessment
- Codes of conduct
- Integrated coastal management
- Sector level environmental assessment

Regulation is typically ad hoc and crisis driven. It is often unpopular and may be difficult to enforce, especially in developing countries.

Farm level environmental assessment (EIA) would be impractical, repetitive, and costly if applied to the large numbers of small farms typical of many developing countries. There rarely exist agreed standards (e.g. environmental quality standards) against which impacts can be assessed. Without such standards EIA's are likely to be inconsistent, ad hoc and biased according to the interests of the sponsor and / or consultants involved.

Codes of conduct may be problematic for small scale producers especially in developing countries. It is normally easier for large scale developed country operators to adhere to and demonstrate that they have adhered to a code, giving them an advantage relative to small scale producers. They have mainly been developed at a national or international level and take little account of local social, economic and environmental conditions.

These three approaches cannot address the cumulative impacts of aquaculture development (Box 1).

Integrated Coastal Management (ICM) is the ideal. It promotes vertical integration of national and local policy, horizontal integration between different sectors and comprehensive public involvement. Under ICM, aquaculture is one of many activities that must be planned and managed to meet broader coastal development or environmental objectives. Cumulative and additive impacts within and between sectors are explicitly considered.

However, there are few, if any, clear examples of the successful integration of aquaculture into ICM. A major flaw is the time and cost required to develop a strategy. ICM may also require significant institutional and legal changes with all the risks associated with such change. Coastal aquaculture has developed very rapidly in recent years and in some areas requires immediate and effective environmental management that ICM cannot deliver in sufficient time.

BOX 1: THE CUMULATIVE PROBLEM

The rapid unplanned development of aquaculture in recent years has lead to locally serious cumulative impacts, which are insignificant when an individual farm is considered but highly significant in relation to the whole sector. Habitat destruction, nutrient enrichment and the use of antibiotics all fall into this category. These problems are also *additive* – in that they may add to other development pressures in the coastal zone.

Although some of the social and environmental problems associated with aquaculture may be addressed at the individual farm level, these cumulative and additive problems can only be addressed through more strategic and planned approaches.

Sector level environmental assessment (Box 2) offers a more practical and cost effective way forward in most real world situations. It is also an essential input to more broadly based ICM initiatives. The most important practical output of sector EA should be an environmental management plan for a specified area, which effectively addresses all environmental issues, including the cumulative problem. The plan should include agreed environmental management objectives and indicators, and a set of instruments for promoting these objectives, such as:

- zoning
- infrastructure (water supply & treatment)
- EIA procedures
- codes of practice
- disease prevention & management strategy
- sectoral waste limits
- regulations related to design, location, technology & management

It is important that such plans are carefully monitored and adapted as required.

A thorough sector level assessment can be expensive, but in the long term it should result in significant savings.

There should be less, if any, need for farm level EIA. Improved environmental management should result in higher productivity for the aquaculture sector itself, and for those other sectors with which it shares resources. A well formulated environmental management plan for the sector may also allow for some form of environmental labelling and associated price premium.

Defining and assessing environmental capacity is not easy and sector EA is not likely to be as effective as full blown ICM in terms of addressing the problems of cumulative impacts across sectors, or interactions with other sectors.

In practice there is no universal model for the environmental management of aquaculture. The appropriate response will depend on the existing institutions and the need for better planning and management.

BOX 2. OUTPUTS FROM SECTOR EA

- agreed environmental quality standards against which impact assessments should be measured
- description and evaluation of actual and potential coastal aquaculture in the region
- discussion of the relationship between possible land/water use for coastal aquaculture and existing land/water-use policies
- description of the conditions and locations in which coastal aquaculture development might take place
- discussion of the environmental capacity of these locations
- comparative evaluation of aquaculture development alternatives, covering significant adverse and beneficial impact, and mitigation possibilities for different technical options
- an environmental management plan for the whole sector
- a monitoring plan and response procedures

Sector EA undertaken in parallel with the development of locally appropriate codes of conduct may serve as a necessary compromise between the long-term ideal of ICM and the inadequacy of project level EIA.

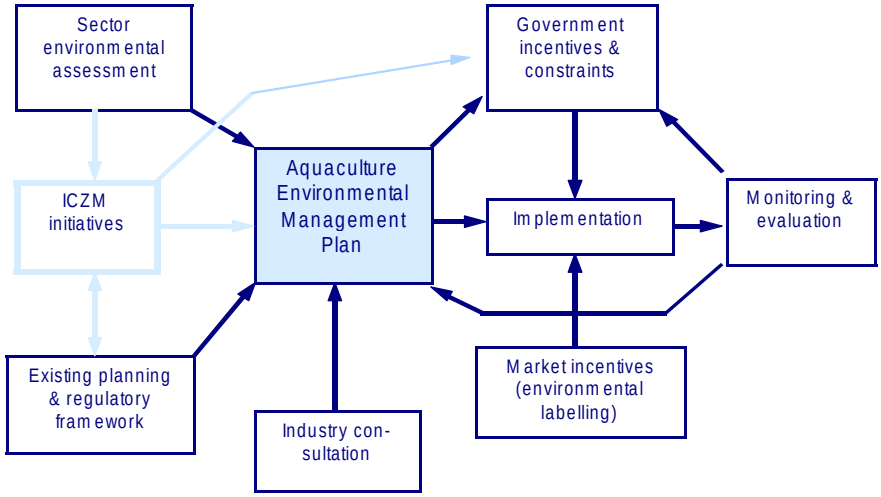
There must also be much greater emphasis

on practical incentives and constraints to improved environmental management, whether these be economic (taxes, subsidies), infrastructure and service provision or market driven incentives such as environmental labelling schemes.

John Hambrey

Director of Research

Figre 1. Key elements for improved environmental management of the aquaculture sector



Discarding in Fisheries - The Norwegian experience

The discarding of both commercial and non-commercial species continues to be a problem in European fisheries. It is acknowledged that a reduction in fishing pressure through capacity reductions should lead to fewer discards. With fishermen attempting to maximise the value of their catch of quota species, however, even a reduction in the fleet could still foster a culture of highgrading (discarding lower value fish for higher value fish to gain more revenue per unit of quota).

The fishing industry itself is only too aware of the disparity between certain management policies and attempts to conserve stocks. It is illegal for a fishing vessel in EU waters to land any fish of a quota species without sufficient quota for that species. Should the vessel catch more fish than it has quota for the skipper must discard that fish or risk a large fine and possible loss of licence. This policy results in saleable fish being discarded - sometimes in large quantities.

> "the 'discards ban'...is not the cornerstone of policy ...The two main thrusts are gear selectivity and closed areas"

Dutch researchers have found that for commercial fish species the mortality rate for discarded fish is very close to 100% - even fish seen to swim away after discarding die soon after. Throwing dead or dying fish back into the sea does not help anyone (unless you are a seabird). But will the alternative of landing everything that is caught cause more damage to the stocks and result in expanding markets for juvenile fish?

The Norwegians are approaching the discards problem from a different angle and with a very different attitude.

The push for many legislative changes in Norway has come from the fishermen themselves. They recognise that in the long term it is they who will suffer if they catch too many juvenile fish. The Norwegian fishing industry was and continues to be consulted on proposed legislation. A high level of co-operation appears to exist between fishermen, the Directorate of Fisheries (which draws up and implements fisheries legislation) and the Coast Guard (which enforces the regulations) on a day-to-day basis.

The aim of Norwegian fisheries policy is to avoid catching juveniles and Norway has implemented a very strict management regime in order to minimise the possibilities of catching juvenile fish.

The Norwegian legislation has made it illegal to discard dead or dying fish - all fish caught must be landed. This is the 'discards ban' that is so talked about by observers within the European Union, but this regulation is not the cornerstone many outside Norway assume it to be. The two main thrusts of management policy are gear selectivity and closed areas. The discards ban is mainly an attempt to ensure landing figures relate more closely to fishing mortality for stock assessment by the scientists.

Norwegian fishermen have traditionally targeted the larger cod in the Northern North Sea and the Barents Sea - their nets have therefore had larger mesh sizes than their European Union and Russian counterparts. For many years Norwegians have been using 135mm mesh nets in the Barents Sea (compared to the EU minimum of 100mm in the North Sea). Despite this, stocks have continued to decline.

Scandinavian countries have also developed and implemented sorting grids, initially for the deep-water prawn fisheries, and these are now compulsory in the Barents Sea cod fishery, even in bad weather when grids become more difficult to handle. The latest development is the use of flexible plastic grids rather than metal ones.

Since the 1983 Fisheries Act, closed areas have been used in an attempt to protect recognised spawning areas and in 1988 closing and opening areas on a real-time basis was introduced. The closure of an

(Continued overleaf)

area is triggered by the fishermen themselves - if they catch over 15% juveniles, they must move to a new fishing ground. Intensive sea-based enforcement from the Coast Guard ensures that fishermen do not continue fishing in an area with high numbers of juveniles. In practice fishermen have changed their behaviour as a result. Fishermen now often:

- conduct a short test trawl (1 hour rather than the usual 4 - 5 hours),
- leave an area when juvenile bycatch is well below the 15% maximum (often if over 5%),
- notify the authorities if an area has a high proportion of juveniles,
- request to have on-board inspectors observing bycatch levels (which the fishermen pay for) in order to re-open an area.

The continued support throughout the industry for this tough legislative framework is impressive considering that in the last couple of years cod quotas have still been cut. While there are various reasons given for the stocks not recovering as expected (poor recruitment due to global warming, too many seals and minke whales), few suggest the fisheries management policies are at fault. All parties recognise the common sense of avoiding the capture of juveniles and not throwing dead fish back if they are caught.

There are many challenges in implementing similar policies for European fisheries. Some suggest the difficulties are insurmountable. EU fishermen are recognising the need to do more to conserve stocks - their attitude is changing. It is hoped the change is quick enough and that policy-makers encourage and support that change.

Rod Cappell

Industry Analyst

Regionalising the Common Fisheries Policy

A recent Nautilus study for the Directorate General of Research of the European Parliament examined the issue of regionalisation of the Common Fisheries Policy (CFP).

The CFP is designed to manage the fisheries of the entire European Union. This is a diverse resource utilised by a wide range of different user groups. The CFP is seen as unweildy and unable to react to the specific needs of different fisheries and fishing communities. The expansion of the EU to incorporate Eastern European nations will only increase this problem and some form of regionalisation is seen as inevitable.

> "..some form of regionalisation is seen as inevitable."

The Conservation Policy is viewed as fundamental within the CFP but the centralised approach of the CFP has been unable to achieve the main aim of the Conservation Policy - the conservation of fish stocks - because it has become compromised by relative stability and other related arrangements.

Regionalisation requires the defining of specific regions and fisheries to be managed. Regions can be defined primarily on the basis of natural sea areas - the Baltic, the North Sea, the Mediterranean and the Atlantic Arc. These regions may be further subdivided on the basis of fish stocks, fishery dependent areas and existing relative stability arrangements. Within each region there are likely to exist several types of fishery. Three basic types can be defined - inshore fisheries, offshore fisheries and pan-European fisheries. Each needs to be managed using the most appropriate approach. Regional management, like the CFP, would apply a system(s) of limited entry. This is essential if the pressure on the resource is to be controlled. Limited entry should not, however, be confused with or equated to a barrier to the free movement of people, goods and services.

Even under a regional fisheries management programme, certain elements should remain common to all areas. The Conservation Policy should continue to be central to fisheries management but malleable to the specific needs of a given fishery region.

Other elements of the CFP such as a harmonised fleet register and logbook system could be retained and changes to the markets, trade, research and environment elements of the CFP could remain centrally controlled.

The Nautilus report describes only one possible regionalisation scenario, which is described only briefly here. For more information about this or any other Nautilus report, please contact us.

The Future....

The future for fisheries, aquaculture and other natural resources worldwide is unclear, but it is evident that these are critical times for natural resource management.

Stakeholder participation, sustainability and, socio-economic and environmental concerns are finding a place in the traditional resource management decision-making process.

It is not sufficient that management teams be multidisciplinary. These managers should apply a truely interdisciplinary approach to problem solving. This is still all too rare, with few biologists being familiar with economics and few sociologists treating technical solutions to problems seriously.

An interdisiplinary approach has long been advocated and applied by Nautilus Consultants and using this approach we hope to continue to be at the forefront of the evolution of natural resource management.

In future issues of Nautilus News, we will discuss aspects of natural resource management in the UK, Europe and worldwide, including ITQ's, electronic auctions, environmental impact assessments and aquaculture development.

If you would like information about any of the articles in this issue of Nautilus News, or about Nautilus Consultants' services, please contact us.

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