

MOLO

Fish farms, monitoring and location

For the aquaculture industry to be sustainable, the environmental impacts produced by farms must not exceed the carrying capacity of the areas where they are located. Farmed fish and shellfish must also be kept in good conditions, and aquaculture must be coordinated with other activities that take place along the coast. Finding suitable locations is therefore the key to ensuring that the industry is sustainable, by which we mean not only deciding where to locate farms, but also how big they should be and how they should be designed and run.

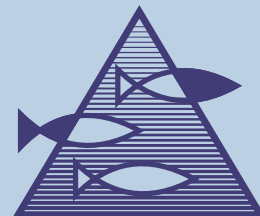
BY ARNE ERVIK

The growing size of farms has made it increasingly important to find good locations, and competition for space is now so fierce that the aquaculture industry must make optimal use of the available areas. Locating an aquaculture facility is therefore a complex procedure that involves analysing a number of local conditions, as well as taking into account environmental considerations, the needs of the farmed animals, and last, but by no means least, the wishes of the coastal population and other users of the coastal zone.

These analyses are often so complicated that they require new tools and procedures. The Ministry of Fisheries and Coastal Affairs has therefore asked the Institute of Marine Research to prioritise the development of a comprehensive system of environmental and area planning for the aquaculture industry. Work on the project, which is a collaboration between the Institute of Marine Research, Christian Michelsen Research and Hordaland County Council, has already started. The system is called MOLO (Mom – LOcation), which comes from combining



Photo: Norwegian Coastal Administration
Andenes lighthouse pier 1932



INSTITUTE OF MARINE RESEARCH
HAVFORSKNINGSINSTITUTTET

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the acronym MOM, which is a system for monitoring environmental impacts caused by aquaculture farms, with "location". MOLO will consist of three separate modules:

THE EXPLORATION MODULE

The exploration module will be used to find suitable locations and to calculate how much they can produce. It combines information about currents, depths, distances to other farms and fairways shown on electronic maps (GIS) with models to calculate carrying capacity expressed as the quantity of fish and shellfish that can be produced at a given location. The module allows you to move the farm around the map, constantly telling you how suitable the individual location

is. A prototype for locating mussel farms (www.akkvavis.no) has been developed, and a prototype for salmon will be ready in autumn 2009.

THE GOVERNANCE MODULE

The governance module, as its name suggests, is primarily aimed at the authorities. Nevertheless, it will also be useful to the industry, because it will map available, relevant information about an area. This means that it will show the results of environmental monitoring, sewage discharge locations, leisure areas, planning data, fairways, etc. The module will give license applicants, planners and the authorities access to the same background data on which decisions will be based.

THE APPLICATION MODULE

The application module is the final part of the system. It is an application generator that can create electronic applications based on templates produced by the authorities, including high resolution maps. This will simplify the application procedure, ensure that applications are properly presented and consistent, and provide an easy way of submitting applications electronically to the licensing authorities.



INSTITUTE OF MARINE RESEARCH

Nordnesgaten 50
P.O. Box 1870 Nordnes
NO-5817 Bergen – Norway
Tel.: +47 55 23 85 00
Fax: +47 55 23 85 31

www.imr.no

TROMSØ DEPARTMENT

Sykehusveien 23
P.O. Box 6404
NO-9294 Tromsø – Norway
Tel.: +47 55 23 85 00
Fax: +47 77 60 97 01

FLØDEVIGEN RESEARCH STATION

NO-4817 His – Norway
Tel.: +47 55 23 85 00
Fax: +47 37 05 90 01

AUSTEVOLL RESEARCH STATION

NO-5392 Storebø – Norway
Tel.: +47 55 23 85 00
Fax: +47 56 18 22 22

MATRE RESEARCH STATION

NO-5984 Matredal – Norway
Tel.: +47 55 23 85 00
Fax: +47 56 36 75 85

PUBLIC RELATIONS AND COMMUNICATION

Tel.: +47 55 23 85 38
Fax: +47 55 23 85 55
E-mail: informasjonen@imr.no

CONTACT

Arne Ervik
Tel.: +47 55 23 63 55
E-mail: arne.ervik@imr.no

