

STIRLING AQUACULTURE

Profile

What is Stirling Aquaculture?

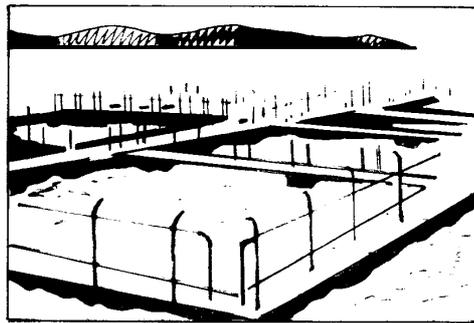
Stirling Aquaculture is Britain's foremost provider of aquaculture consultancy and project management services, and is committed to playing a leading role in the development of sustainable aquaculture systems throughout the world. Stirling Aquaculture aims to provide impartial, objective, well-informed advice, whilst paying careful attention to client needs.

What does Stirling Aquaculture do?

Stirling Aquaculture provides a full range of consulting services which include sector studies, feasibility studies, site surveys, systems design, technical assistance and project management.

What are Stirling Aquaculture's resources?

Stirling Aquaculture has a small but highly skilled staff who have many years experience in the evaluation, planning and management of aquaculture projects. It also has unique access to the resources of the University of Stirling, which include the Institute of Aquaculture, one of the world's leading centres for aquatic research and training, its own commercial fish farms, and the Department of Marketing, which has an international reputation in the marketing of aquatic products. In addition, a carefully selected group of Associates and an unrivalled network of international industry contacts are able to provide additional specialist skills and information as required.



How can Stirling Aquaculture help you?

Stirling Aquaculture provides a full range of consulting services which includes sector studies, feasibility studies, site surveys, systems design, market assessments, technical assistance, computing and information systems support, preparation of business plans and EC grant applications, and project management. It also offers "tailor-made" training courses for particular aquaculture applications, and can provide assistance in the production of aquaculture extension materials. In the area of long-term project management and technical assistance programmes, Stirling Aquaculture co-operates with various other consultancy groups, in order to achieve the most appropriate combination of management and technical skills. The group is currently involved in long-term programmes with projects in the Malta, Madeira, Africa, and South East Asia.

Working to answer your questions

Sector studies are specialist projects carried out on your behalf by Stirling Aquaculture staff, with the assistance of Institute colleagues or other experts where appropriate. These projects are usually research based, involving gathering, collating and analyzing information from a number of sources. Such studies can result in the formulation of recommendations, or products such as a database or reference manual. Some examples of the types of sector studies which can be carried out are given below:

Market assessment studies

This sort of study is often required both by aquaculture producers who wish an assessment of the market for their fish products, and by companies in related industries (i.e. pharmaceuticals, feeds, equipment). Studies of this sort involve a current and historical assessment of the industry and an assessment of the product's opportunities, including associated issues such as relevant legislation.

Project evaluation studies

A study of this type is useful when companies or investors wish to get an independent expert opinion of a proposed facility or development programme. For example, a project assessment may be performed to review the client's existing plans and facilities, and to make the necessary recommendations for improvements on facilities, management or financing.



Industry studies

This kind of study is often requested by agencies and authorities who have advisory or regulatory responsibilities to the aquaculture industry. Such studies usually require the formulation of guidelines or other advisory documents, and require not only factual information, but detailed discussion with all involved and interested parties.

Providing information

Information is frequently requested by clients involved in special projects. Where necessary, Stirling Aquaculture will gather data directly on behalf of a client. In other cases, a literature search may be carried out for clients who do not have access to library and information systems facilities.

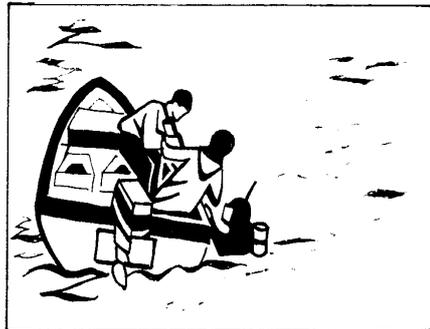
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Feasibility Studies

Will this idea work? Feasibility studies take your initial ideas and determine their viability, proposing alternative developments where appropriate. Depending on the scale of the proposed project, and the level of detail required, feasibility studies can be of varying complexity. These studies are often carried out in a number of stages, so that further resources are not wasted if early indications are that the project is not viable. This approach also allows alternative proposals to be investigated if these appear more promising.

Small scale pre-feasibility studies These are generally used to give a prospective client a background in such aspects as the species, culture system, market potential and investment opportunities of a proposed project. As such it is usually a desk-based study lasting only a few days. These studies use our extensive information bases, and contacts throughout the industry, as well as standard techniques of investment appraisal.

Larger-scale pre-feasibility studies This is used as the preliminary stage of large-scale aquaculture development projects, and involves an initial assessment of the client's goals and resources, outline review of the technical options, initial market assessment, and initial screening of sites and system options, culminating in a report which will enable the client to make informed first-stage investment decisions. These studies usually require a site visit of several days, and a total study time of two to four weeks.



Final feasibility studies These involve a more in-depth report on the viability of the project, and include a detailed site survey. Preferred development sites and system options (system type, scale of operation, outline design, levels of integration etc.) are identified, with outline investment appraisal. These studies require site visits and typically four to six weeks total study time.

Business plans Whilst the feasibility report produced may be suitable for securing investment, site acquisition or development consent, they are primarily written for the project promoter. A more formal business plan is often required which is oriented to meet the needs of potential investors, lenders and funding organisations. When based on an existing feasibility study they require relatively little additional time.

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Survey and Design Work

Developing your plans

Survey and design work usually follows on from a feasibility study, once the decision is taken to proceed with development. The site must be surveyed and detailed plans and specifications drawn up. This will usually involve the preparation of tender and contract documents, and may involve the selection of contractor(s). Detailed design work is carried out on all the proposed facilities, including the preparation of drawings, bills of quantity and cost estimates. These services can also be of value to the client wishing to upgrade or modernise existing facilities.

Computer aided design

Stirling Aquaculture have developed a number of computer models to assist in solving stock management and engineering problems, and also have a full computer aided design (CAD) system. Particular care is taken when designing pumped and recirculated systems to ensure maximum efficiency at the lowest possible cost.



Working with other consultants

Stirling Aquaculture regularly works with architects and consulting engineers in the design of aquaculture facilities. Whatever specialist advice or services are required for a particular project, Stirling Aquaculture is able to act as lead consultant, bringing in other expertise as required.

The value of experience



Whilst no two projects are ever the same, each requiring careful individual consideration, the experience gained over the design and construction of many aquaculture facilities allows many potential pitfalls to be avoided, and tried and tested solutions to be recommended.

Estimating costs

Design work is time consuming and may take several months. Payment is generally based on a percentage of capital rates.

Stirling Aquaculture works closely with the Environmental Services Group of the Institute of Aquaculture which provides environmental contract and consultancy services. The unit is staffed by experienced scientists and technicians and has modern well equipped laboratories with “state of the art” facilities for laboratory analysis and field surveys.

Field of expertise Work is carried out both in the UK and overseas in the following areas:

- all aspects of aquatic resource assessment, including remote sensing and underwater surveys, hydrography, bathymetry, sediment and water analysis, and modelling;
- fisheries assessment and management, including population estimates and production of management plans;
- environmental planning, including environmental policy formulation, environmental impact analysis and production of environmental impact statements to legislative requirements;
- environmental monitoring, including water, soil and hydrocarbon analysis;
- assessment of the impact of oil pollution;
- advice on treatment and remediation for aquatic systems;
- training in a number of environmental-related areas at a variety of levels.

Environmental Risk Assessment (ERA) Pesticides and chemotherapeutants are being used more commonly in aquaculture to combat parasitism and disease. Risk assessments are required before these chemicals can be used in the environment. An ERA gives an expert assessment of the probable environmental effects based on laboratory and other tests of acute and chronic toxicity.

Environmental Impact Assessment (EIA) This is often required for planning consents of new developments for offshore and onshore facilities. It takes into account location characteristics, production processes, potential impacts on sediment and water quality, biological and social interactions and the measures taken to avoid, reduce and remedy impacts of the future development.

Hydrography and Bathymetry Current flows and water depths are important in calculating environmental effects. Our experienced team can measure the hydrography and bathymetry of aquaculture areas within sealochs and coasts to the standards required by regulatory bodies. Computer based modelling techniques can be applied to estimate the sediment loading from sea cage waste products.

Water analysis Our water quality laboratories can undertake all statutory fresh and sea water analyses, to European and North American standards. All analyses are governed by rigorous quality assurance criteria (including ring tests with regulatory authorities) and will soon conform to ISO 9000.

Sediment and Biological surveys Surveys of sediment quality is an important indicator of environmental health and extent of effects of discharge materials. We sample physical, chemical and biological parameters of the sediments to assess environmental effects which, along with water quality and hydrographic data, enables us to formulate a plan to limit effects of discharges and to help with environmental remediation.

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Processing and Quality Control

Quality control for better products and better prices

In the competitive environment of the modern international fish trade, increasing attention is being paid to quality, and the exact matching of product specifications. Producers who fail to respond to the increasing demands of the market find profit margins falling, as buyers are less willing to accept second-rate products. Companies which excel at quality control however, command a premium price and are assured of regular orders.



Quality is not simply an issue for processors, although they will frequently take the lead role. Quality is a management concept which must be introduced and applied at every step in the production chain. For aquaculture products, quality control starts with the management methods and techniques used on the farm itself. In both the aquaculture and capture fisheries sector, harvest techniques and post-harvest handling are key factors in influencing the quality of the final product. There is however, scope for improving product handling and treatment at most processing plants, and methods of packing and distribution may also affect product quality.

How can we help?

Stirling Aquaculture, through its close connections with the Institute's fish farms, has direct experience of the problems of maintaining quality, and have the resources of the Institute of Aquaculture's diagnostic laboratories for analytical work. We also work with associate food technologists, with particular expertise in fish and shellfish processing.

Examples of the services which can be provided include the following:

- consultancy advice to identify quality sensitive processes and make recommendations for improved practices
- the establishment of quality control criteria and standards
- the development of codes of conduct
- provision of staff training in aspects of quality control
- production of manuals or other materials for training and guidance in quality control
- provision of quality auditing and inspection services for producers or buyers.
- management, marketing or staffing services.



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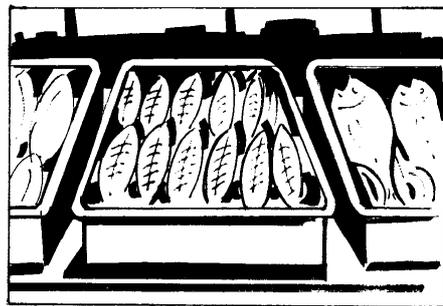
Marketing

Effective marketing for company success

Marketing is one of the most important aspects of any business, but particularly in the fish trade, where markets can be seasonal, and sensitive to issues of quality and consumer acceptance. Handling, transport and choice of market are key issues in the fresh fish trade, whilst presentation, pricing and product flow are important for value-added products.

How can we help?

Stirling Aquaculture, in association with staff from the Department of Marketing at the University of Stirling, are able to offer a range of market information services. These are available to the private sector, regulatory bodies and policy makers, who require market assessments, analysis or studies, and to equipment manufacturers or service industries who wish to participate in this sector.



Specific areas of expertise include market research, analysis of buyer behaviour, development of market information systems, customer service policy, product development and testing consumer acceptance. Stirling Aquaculture is also able to help arrange buyers for fisheries products, or help buyers locate suitable producers.

An international service

Much of the world's fish trade is now international in nature, particularly within regions such as Europe, America, and Asia. Stirling Aquaculture and the Department of Marketing are well equipped to meet the needs of trans-national studies, having worked in most regions of the world, and having a wide network of contacts involved in the fish trade at every level.



Industry suppliers

Stirling Aquaculture also carries out market opportunity studies for companies considering developing new products or services for the aquaculture sector. This includes products such as pharmaceuticals, nutritionals, feed additives, diagnostics, equipment, and services such as insurance. A typical market appraisal might include an examination of industry size, structure and trends, an analysis of need, identification of current products, practices, competitors and supply chain participants, and a cost-benefit appraisal.

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Training

Investing in personnel

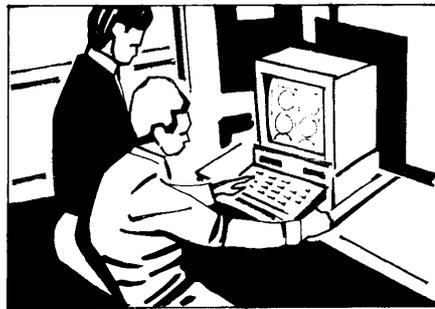
Given that Stirling Aquaculture exists in a university setting, it is to be expected that it offers a wide range of teaching, training and extension services. The Institute of Aquaculture offers graduate courses in Aquaculture and Aquatic Pathobiology, as well as offering honours degree options and post-graduate research facilities. A number of short specialist courses are also held at the Institute, covering fish diseases, financial, and personnel management for fish farmers, computers and information technology, and a three-month Aquaculture and Fisheries Extension Technology course which teaches members of both government and private organisations how to organise, initiate and run successful extension programmes.

Tailor made courses

Through Stirling Aquaculture, tailor-made courses can be arranged at your own site, at the Institute of Aquaculture, or at any other convenient location. Such courses may draw on the experience and expertise of Institute staff and other experts as appropriate. The Extension course is provided with the cooperation of Tropical Agriculture Ltd, for instance, a consultancy company specialising in extension technologies for developing countries.



Training and extension materials



Stirling Aquaculture has considerable experience in the development of teaching, training and extension materials. These may include lecture notes, distance learning materials, technical manuals, and flip charts. Computer assisted learning (CAL) packages can also be developed based on spreadsheet simulations, hypertext documents or tutorial authoring programmes. Facilities are also available for the production of videos, slide sets or radio programmes.

Curriculum advice and consultancy

Where clients are developing their own training courses, Stirling Aquaculture is able to offer advice on curriculum and programme development. External evaluation of training programmes can also be carried out.