

## **DEVELOPMENT OF A MARINE STRATEGY FOR QESHM ISLAND**

Bruce Shallard, Bruce Shallard and Associates, bruce.shallard@xtra.co.nz

### **ABSTRACT**

This paper discusses the development of a Marine Sector Strategy for Qeshm Island for the Qeshm Free Area Authority (QFA). Qeshm Island is an Iranian island, a Free Trade Zone near the entrance of the Persian Gulf in the Straits of Hormuz. The long-term strategy of QFA is to develop Qeshm as Iran's leading centre for Marine activities. The Marine Sector Strategy has been developed with this long-term vision in mind and the scope of work and implementation strategies work towards this long-term goal. The Scope of Work provided for the strategy to cover all marine related activities including commercial and recreational fishery development and management; measurement and monitoring of marine resources, development of rules and regulations for fisheries management; post catch and downstream processing; marketing strategies; aquaculture and marine park development, and their impacts on the marine ecosystem. The study identifies interaction between marine sector users and with other sectors, infrastructure requirements and the impacts of the Qeshm marine sector on Iran and regionally. The paper presents findings from the study, the results of the analysis of potential for fisheries development and enhancement of management practises in the context of a planned marine sector in the discrete coastal and marine environment of Qeshm Island. The paper will present conclusions on the benefits of spatial planning within the marine sector and across other sectors of the Qeshm Island economy. It will also address the specific issues of fishing and the environment.

**Keywords:** marine sector, strategy, fishery development, planning

### **INTRODUCTION**

This paper discusses the development of a Marine Sector Strategy for Qeshm Island for the Qeshm Free Area Authority (QFA). Bruce Shallard and Associates leading a consortium<sup>1</sup> of New Zealand based experts was engaged by the Qeshm Free Area Authority (QFA) in May 2005 to develop a Marine Sector Strategy for Qeshm Island.

### **BACKGROUND**

Qeshm Island is an Iranian island, a Free Trade Zone near the entrance of the Persian Gulf in the Straits of Hormuz. Qeshm Island is the largest island in the Strait of Hormuz and in the Persian Gulf. With an area of 1445 km<sup>2</sup>, a circumference of approximately 362 km, and a length of 122 km. Qeshm Island is located along the Iranian mainland, at one point only about 1.8 km distant from the mainland, and Qeshm City is about 22 km from Bandar Abbas.

Much of the island is mountainous, with peaks rising to 397 m, but about one-third is low-lying plains. The 300 km of coastline include stretches of low cliff, rocky shoreline and long sandy beaches along the south coast, and extensive inter-tidal mud-flats with large areas of mangrove forest along the north coast. Qeshm Island has limited marine sector resources available to investors for development. Organisations wishing to invest in the marine (or indeed any other) sector may face competition for the right to utilise those resources, (in particular access to land and appropriately qualified labour).

Qeshm Island's marine sector is characterised as having a small, mature commercial capture fishery based on traditional fishing practices with increasing pressures on stock sustainability. These pressures are being caused by a number of factors including environmental factors, an increase in industrial fishing activity in the nearby region, and most importantly, a significant increase in participants in the fishery.

Activity in the processing and aquaculture sectors is limited with only a small number of commercial processing operations currently functioning and a very limited shrimp hatchery programme in operation. The one marine protected area at present is the Hara mangrove forest, a Protected Area under the control of the Department of the Environment of some 9,000 hectares with extensive mangrove forests and wetlands.

In summary, the marine sector of Qeshm Island is a large and important aspect of the Qeshm economy and is also a significant part of the wider regional fisheries sector (Iran and the Persian Gulf) with strong influences for change. At present the sector consists of a mature, small commercial fishery based on traditional fishing practice with unsophisticated handling, distribution and processing of product and little value add activity. There is some basic processing occurring with several facilities under development.

There is little current aquaculture activity on Qeshm beyond the existing four shrimp hatcheries that only operate on a limited basis. There is however a great deal of enthusiasm for aquaculture as a solution to many of the sector problems, without currently any clear planning or analysis.

In addition there is one marine protected area with ideas for several more but a recognition of the need for a co-ordinated approach to sector management, including marine protected areas.

The current unemployment situation on Qeshm has led to a large expansion of people wanting to undertake commercial/artisanal fishing, almost doubling the number of participants in the fishery in the last five (5) years, and resultant pressure on the sustainability of a number of species. It has also impacted on the essential infrastructure in the coastal marine area, e.g. ports and other landing facilities.

## **QFA PHILOSOPHY**

In keeping with the general philosophy outlined in QFA's Article of Association, the principal aims and purposes of the Qeshm Free Area may be summarized as optimal utilization of the Island's strategic, economic, natural, geographic and energy advantages with the aim to promote economic development, accelerate capital and technology absorption and increase economic production.

The long-term strategy of QFA is to develop Qeshm as Iran's leading centre for marine activities. This is set in the context of the QFA oversight of Qeshm development based on the importance attached to the island's historical, social and ecological heritage. This is best expressed by Mr S F Anvar Chairman and Managing Director of QFA:

“Qeshm Free Authority endeavours to signal to all Qeshm Island stakeholders that environmental, cultural, and heritage issues are not on the periphery of QFA development objectives but rather the foundation for creating and sustaining competitive advantage. The existence and effective function of this priority is intended to communicate to the Island's inhabitants, the investment sector, visitors to the Island, the QFA community, and partner organisations that the QFA leadership is guided by a definition of progress that is derived from an informed level of ecological discovery and awareness.”<sup>ii</sup>

## STRATEGY DEVELOPMENT

Development of the Marine Sector Strategy is in alignment with this long-term vision and the scope of work has reflected this long-term goal.

The Scope of Work requested for the Marine Sector Strategy provided for the strategy to cover the following:

- Post catch and downstream processing
- Marketing strategies for each identified sector or activity
- Aquaculture development
- Marine Park development
- Development of Rules & Regulations for fisheries resource management

The strategy overall identifies interaction between marine sector users and with other sectors, infrastructure requirements and the impacts of the Qeshm marine sector on Iran and regionally.

It is important to note that excluded from this strategy was a specific assessment of fish resource sustainability, boat building, and port development, except to the extent that consideration needed to be given to impacts of these on matters within the scope of the investigations. Other than in these circumstances, these areas were outside the Scope of Work.

The findings from the study present the results of the analysis of potential for fisheries development and enhancement of management practises in the context of a planned marine sector in the discrete coastal and marine environment of Qeshm Island.

The purpose of the marine sector strategy can be summarised as follows:

- Define what success will look like for Qeshm;
- Create a shared vision for the marine sector;
- Define how that vision will be obtained;
- Develop the Qeshm “brand”, and
- Define the implementation activities.

The Strategy provides QFA with the information necessary to seek further investment in the marine sector, respond to investors who express interest, and to develop communication tools to inform fishers on issues of sustainability, development, environmental protection, and management.

Where some potential developments may be inconsistent or in conflict with each other, the strategy provides QFA with a way to steer a balanced course between interests, and to ensure sustainable development of the marine sector. Such conflicts can occur where there is more than one possible use for a resource, such as water space, or where there are undesirable interactions between users of resources – such as marine park activities and fishing and aquaculture activities competing for the same water space. However the strategy proposed will be of little value unless it is used by QFA as a guide for development of the marine sector on Qeshm. It is not meant to be the final answer to marine sector management challenges, but rather should be updated regularly as the sector develops.

## PRINCIPLES

In developing the marine sector strategy we have been concerned to base the development on a set of principles or assumptions that form the basis for our recommendations. These principles are based on sustainability of resource and the economy of Qeshm; the “geographic” scope of the strategy; investment considerations, and the QFA governance and development role in the marine sector.

We have made the following assumptions in developing our recommendations:

- The concept of sustainable management of marine resources is appropriate and acceptable;
- Economic sustainability, reflecting market demand, must be demonstrated;
- The impacts of any development on the current socio-economic situation on Qeshm will be considered, especially in regard to employment, skills and training requirements, and location of labour;
- Development will be considered in the context of proposed developments on nearby islands and the Iranian mainland;
- The QFA will be able to play a leadership and governance role in the development of the sector as a whole on Qeshm; and
- The QFA will be able to take an active role in sector development by facilitating the growth of opportunities through the removal of barriers to investment and development.

Given these assumptions we developed the following principles:

All recommendations will be based on the *sustainable management of the resources that make up the marine sector* - to the extent they can be predicted, based on:

- the current stock assessment information for capture fisheries,
- current knowledge of the suitability of species for aquaculture on or around the island,
- sustainability of marine protected areas (marine parks).

For the purposes of this strategy we considered the following resources:

- within the Qeshm Free Area ( on and around the Island and what can be grown on and around it);
- that are available in the Persian Gulf waters adjacent to Qeshm;
- that are available in international waters but processed and/or marketed through Qeshm
- those suitable for aquaculture development whether native or exotic species, and
- resources that are of significant value for protection.

Having met the resource sustainability test - all recommendations will be further tested against the demand in the market, i.e. *economic sustainability*.

Combining the resource and economic sustainability tests, the QFA will then be able to assess whether the 3 key elements of resource availability, processing capability and market access have been considered and provided for in any proposal for development.

This approach will also allow QFA to consider the impacts of any development on the current socio-economic situation on Qeshm in regard to current employment, skills base, training requirements, and location of labour.

## **SUSTAINABILITY**

We have used the term “sustainability” when looking at the principles for marine sector development. We have used it both in the fisheries management sense and in an economic sense. We believe it is important to define what we mean by the term, in both circumstances.

Firstly in fisheries management terms sustainability is used in relation to sustainable use (of a fish resource) or sustainable development (of a fishery). Definitions of these terms include:

“Sustainable Use - The use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.”<sup>iii</sup> and

“ Sustainable Fishing - Fishing activities that do not cause or lead to undesirable changes in the biological and economic productivity, biological diversity, or ecosystem structure and functioning from one human generation to the next” <sup>iv</sup>

This definition is supported by the following comment from the same publication:

“Fishing is sustainable when it can be conducted over the long-term at an acceptable level of biological and economic productivity without leading to ecological changes that foreclose options for future generations.”

Secondly in an economic sense, sustainability means a wide range of things, starting from the basic classical definition of maintenance of capital, or keeping capital intact.

It is clear however that there is no simple definition of economic sustainability. It cannot be considered in isolation and must be balanced against environmental or ecological sustainability, and social sustainability. Sustainability is about balance - balancing the economic needs of people with social needs and the needs of the environment.

Given the definition of sustainable use and sustainable fishing and the need for balance to be applied to any consideration of economic sustainability, this balanced approach must be the guide for all marine sector development on Qeshm Island.

## **OBJECTIVES**

The objective for the marine sector is to maximise the value to Qeshm Island from the sustainable use of marine resources and protection of the marine environment by sustainable and environmentally safe management of the fishery. Alongside this should sit sustainable aquaculture developments and well integrated marine protected areas supporting a vibrant eco-tourism industry and international marine conservation objectives.

This must be coupled with the maintenance of good relationships regionally whilst taking appropriate consideration of social and economic factors and producing high-quality value add products to satisfy markets in the region and further afield under an enhanced Qeshm brand.

To ensure that proposed development in the marine sector on Qeshm is sustainable, the following must form the foundation for all development:

- Identified and maintained competitive advantage for the marine sector with respect to the mainland and the Persian Gulf region;
- Improved fisheries resource assessment and monitoring for Qeshm and the region with mechanisms to manage effort and inputs;
- Clear roles and responsibilities for regulatory approval across the sector;
- Established mechanisms whereby fishers and the regulatory authorities can work together efficiently and effectively;
- Clear rules and process over land ownership and water access for aquaculture and marine protected area developments; and
- Established and agreed criteria and processes for assessing, approving, and supporting development opportunities.

The key challenges faced in developing the marine sector on Qeshm Island are:

- Resource uncertainty – Uncertainty over access and over resource volumes.
- Lack of alternative employment options – Qeshm has historically relied heavily on the marine sector for employment.
- Infrastructure and transportation constraints – Development, and in particular access to markets, is constrained by existing infrastructure and transportation connections.
- Sector interrelationships and administrative inefficiencies – Several organisations currently have varying degrees of responsibility over the component parts of the sector and this has led to uncertainty and administrative inefficiencies.

These challenges are not insurmountable but it will require recognition and acceptance, and then a coordinated approach, to address them.

## **RECOMMENDED STRATEGIES**

Having determined the basis for a marine sector strategy on Qeshm and the principles and objectives that need to guide the strategy and its implementation it has been necessary to decide on a series of implementable strategies that will deliver on the objectives and enhance and develop the marine sector on Qeshm.

To achieve this we have proposed a series of strategies that collectively will deliver on these requirements.

The six broad areas covered by the strategies can be summarised as:

### **Establishment of a Marine Sector Management Council:**

Establishment of the Council will:

- provide co-ordination and integration of sector development, and
- facilitate branding and marketing of Qeshm products

Membership of the Marine Sector Council will consist of representatives from the relevant regulatory authorities, the marine sector, environmental agencies, and the local community

This strategy proposes the establishment of a Marine Sector Council (the Council) with representation from all main elements of the sector to provide guidance and advice to the QFA in management and development. We believe this is a major “foundation stone” for the effective development of the marine sector on Qeshm in a sustainable manner and should be established as a matter of priority.

Drawing membership from across the sector recognises the overlaps and interactions between the various elements. This assists with ensuring strong ‘ownership’ of ideas and helps bring agencies together. It provides a mechanism for improving compliance by involving stakeholders at an appropriate stage and reinforces the marketability of Qeshm as a unique factor for enhancing the value of the sector.

### **Fishery Management Planning**

The QFA must actively seek and support further investment in the aquaculture, processing, eco-tourism, and support services sectors – not in the capture fisheries sector, but in that sector to develop an integrated fisheries management plan (FMP), to provide the overarching mechanism for development in the capture fisheries sector

Effective long term sustainable management of fisheries resources requires a clear vision as to what are the objectives of management. Once the objectives are clear, then the methods for achieving (and for monitoring progress towards) those objectives become easier to formulate and easier to communicate to those involved in the industry.

The most effective way of achieving a clear vision of the objectives of management in Qeshm is to undertake a planned management approach using tools such as FMPs.

Once objectives are agreed upon, the monitoring of progress towards those objectives becomes simpler, but also essential. Such a planned approach is a common feature of other countries’ fisheries management arrangements, particularly Australia and New Zealand, and is usually developed in those countries through a close dialogue between Government and industry. In this way, the objectives of management become shared objectives with all parties moving towards the same goals.

Without a clear statement of the objectives of fisheries management through planned management, there is no way for the Government or others (including fishermen) to know whether management of fisheries resources is being carried out successfully.

Ideally, the management plans should have a defined life and, at the end of that period, new management plans should be prepared for the following period. These new plans should build on progress in fisheries management and take into account the extent to which the objectives of the first management plan were or were not achieved.

The critical issue is not so much the small details of the management plans but that Qeshm begins a formalised, planned fisheries management process. Responsibility for developing and implementing the fisheries management plans need to be agreed among the various agencies involved. However, a co-operative approach would assist in developing a shared vision and objectives for management.

The following objectives are suggested for FMP development on Qeshm Island:

- To recommend implementation of an efficient and cost-effective fisheries management regime;

- To ensure that the exploitation of fisheries resources and any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle, in particular the need to have regard to the impact of fishing activities on non-target species and the long term sustainability of the marine environment;
- To ensure, through proper conservation and management measures, that the marine living resources of Qeshm are not endangered by over-exploitation;
- To maximise economic efficiency in the exploitation of fisheries resources;
- To ensure accountability to the fishing industry and to the Qeshm community in QFA's management of fisheries resources;
- To ensure that the biological and economic state of each fishery is assessed on a continuing basis and that important gaps in knowledge are identified and overcome through research projects recommended to QFA; and
- To recommend to QFA on the management of data collection programmes to collect catch, effort and other information from operators in all Qeshm fisheries to provide an understanding of the characteristics of each fishery.

### **Improve Quality Management**

The QFA must seek improved quality management of the catch to add value from point of capture. Serious efforts should be made to improve the quality of the current production – from the point of capture on boats right through to markets.

Good quality, fresh fish receives a premium price in regional markets and in markets further afield. Efforts in this area must be co-ordinated and applied in a manner that improves returns from market for all participants in the sector

### **New Product Development**

QFA must promote development of new product forms to add greater value and open up new markets

There is an opportunity to develop and implement new ways of considering new product forms which are based on well identified market requirements and focused on quality in high priced niche markets.

QFA should consider the option of facilitating this development by providing active and expert marketing support and expertise to the marine sector on Qeshm.

### **Aquaculture Development**

QFA must define appropriate areas for aquaculture taking into account environmental, planning, and stakeholder interests, and introduce new aquaculture species and technologies appropriate to the Persian Gulf region

Aquaculture is a new industry that requires a clear path for development that must include:

- Clarifying roles and responsibilities for regulatory approval;
- Developing a clear statements of process over land ownership and water access;
- Developing established and agreed criteria for assessing aquaculture development opportunities;
- Introducing effective controls over the importation of exotic species;

- Maintaining a competitive position with respect to the mainland and the Persian Gulf region;
- Developing appropriate support infrastructure e.g. broodstock, feed, engineering, science, skilled labour, transportation and logistics;
- Establish appropriate areas for aquaculture taking into account appropriate environmental, planning, and stakeholder interests; and
- Improving utilisation of existing infrastructure e.g. shrimp hatcheries.

Consideration will also need to be given to introduction of new species and technologies appropriate to the Persian Gulf region by:

- Culturing of native species; and
- Development of new technologies for native and exotic species.

Potential new species for consideration will include pearl oysters, edible oysters, clams, abalone, finfish – to be determined by market demand. This must be coupled with the establishment of close relationships with the Biotechnology Centre which can fill an important development role for the aquaculture sector.

### **Marine Protected Areas**

QFA must promote integrated eco-tourism, conservation, and marine fish protection into marine protected area developments based on a clear vision and understanding of the purpose for each proposed marine protected area

The potential for marine parks based on Hara and the other sites identified is high but will require:

- Extensive development and establishment work;
- Consideration as part of the wider eco-tourism strategy;
- Development in conjunction with the other potentially competing marine sector commercial developments with competing demands being managed; and
- Decisions to be made on their primary purpose – conservation, fisheries management, or eco-tourism, and whether they are to be QFA / Government funded or self funding from tourism activities.

### **CONCLUSIONS**

Implementation of the strategies is the key to the long-term growth and sustainable development of the marine sector. The detail behind this high level framework needs to be developed through a consultative process with all key stakeholders.

We are strongly of the view that the QFA must undertake this implementation in a coordinated manner with one central focus for all aspects of implementation. There are strong linkages between each of the strategies and we recommend that they are implemented as a package.

With these strategies implemented we believe Qeshm will reflect the aims of the QFA which are to ensure that development of the marine sector must be based on management of the coastal zone in a balanced manner. Development must be based on ensuring traditional values are retained; the environment is protected, and development is sustainable.

## REFERENCES

Qeshm Free Area Authority, 2005. *Qeshm Island Marine Sector Strategy*

## ENDNOTES

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<sup>i</sup> The consortium is Bruce Shallard and Associates, the NZ National Institute of Water and Atmospheric Research Ltd (NIWA) and Deloitte

<sup>ii</sup> Pers comm.. Tehran October 2005

<sup>iii</sup> FAO (1998): Guidelines for the routine collection of capture fishery data. FAO Fish. Tech. Pap, 382: 113 p.

<sup>iv</sup> Anonymous (1998): Sustaining Marine Fisheries. A report of the Committee on Ecosystem Management for Sustainable Fisheries; Ocean Studies Board; Commission on Geosciences, Environment, and Resources; National Research Council. National Academy press