



## **REPORT ON THE OUTCOMES FROM THE SARF WORKSHOP “THE FUTURE OF SCOTLAND’S MARINE ECONOMY”, HELD ON 13<sup>TH</sup> SEPTEMBER 2012 AT THE MASTS ANNUAL SCIENCE MEETING**

SARF Secretariat  
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### **INTRODUCTION**

The overall aim of the workshop was to consider all aspects of Scotland’s marine economy, with a view to identifying:

- Sectors which had the most opportunity for future growth, either organically or by way of strategic encouragement
- Opportunities for different sectors to work synergistically together
- Challenges facing key sectors, either individually or as ‘partners’
- Possible solutions to the identified challenges.

The coverage of individual sectors was necessarily brief, but several of these had already been discussed in more detail during the earlier sessions of the MASTS meeting. The key advantage for the workshop was seen as the opportunity to gather a range of expertise from within the MASTS community together – an opportunity that would be difficult to replicate at other times in a normal year.

The workshop was attended by 25 delegates, and was structured to provide several opportunities for group discussion. The powerpoint presentation that was used to introduce and facilitate the discussion session is also available on the SARF website. Whilst the workshop was organised by SARF, delegates were encouraged to consider all types of marine industry and to draw upon their own fields of expertise in marine science.

In addition to notes taken throughout by the SARF Secretariat, delegates were encouraged to complete and return three hand-out sheets. This report is based upon an analysis of these sheets, supported by the notes taken during the workshop.

### **DISCUSSION 1: Sectors Which Have Growth Potential**

The categories of the marine economy considered were largely based on those used in Scotland’s Marine Atlas, with some additions. Delegates were also invited to suggest additional sectors. Table 1 illustrates the main sectors that were considered. Military activity was also noted by one delegate, and although the UK military research budget is quite large, the group agreed that further discussion concerning military developments was not appropriate for this workshop.

**Table 1. The main sectors of Scotland’s Marine Economy.**

Coastal defences
Renting of water transport equipment
Aquaculture: salmon; marine trout; mussels; oysters; scallops;
Commercial Fishing: inshore, deep water
Processing and preserving of fish and fish products
Sea and coastal water transport and supporting activities

Marine leisure and tourism: natural heritage; tours; diving; sea angling; leisure craft
Building and repairing of ships and boats
Service activities incidental to oil and gas extraction excluding surveying
Extraction of crude petroleum and natural gas
Offshore renewable energy: wind; wave; tidal
Offshore algae: bio-fuels; food; animal feeds; chemicals
Offshore aquaculture: which species?
Marine Education
Service sector for offshore renewables

The group discussed various aspects of the different sectors, and also highlighted the fact that sustainability over the long term was an important consideration for all activities in the marine environment. It was recognised that Scotland has the longest coastline in Europe (compared with all other Member States), and that it therefore has significant potential advantages in terms of 'marine economy'.

The analysis of Discussion 1 hand-out sheets is illustrated in Figure 1. Delegates were asked to consider whether different sectors of the marine economy were likely to expand as a matter of course, and whether any of the sectors had potential but required active encouragement to develop yet further. 13 delegates returned sheets for this discussion session.

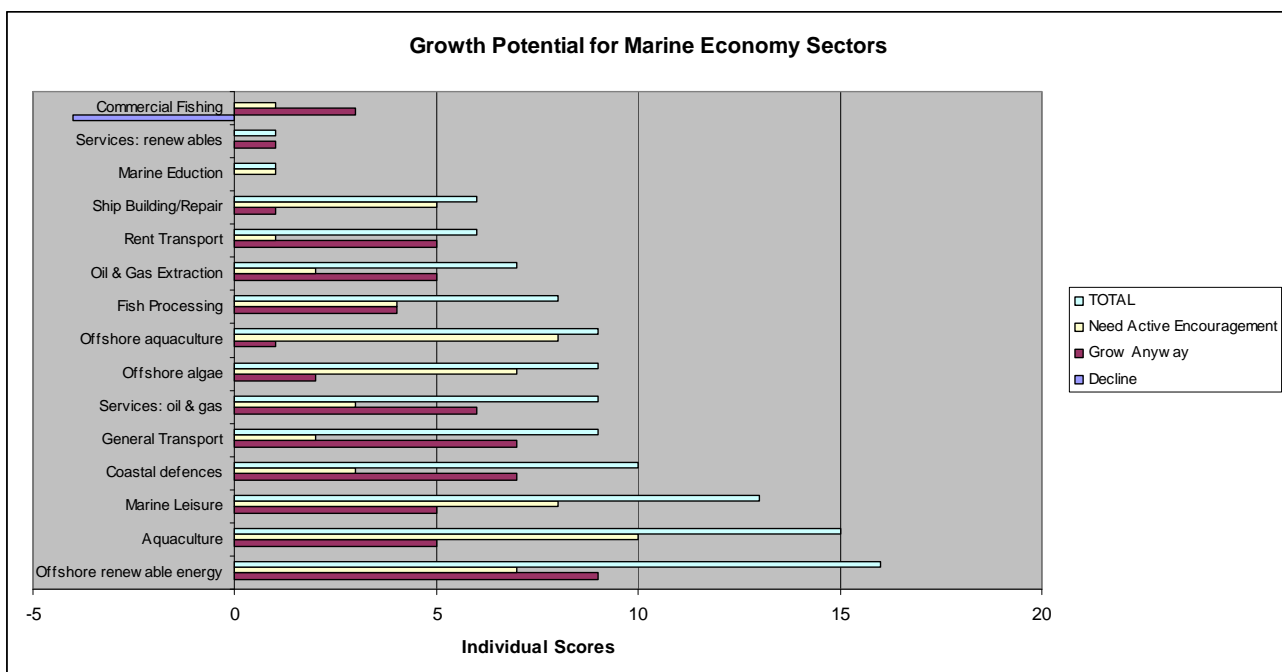


Figure 1. Results of Discussion Session 1.

Delegates were not restricted to the number of sectors they could comment on in the sheets. Some delegates considered that certain sectors had the potential to grow as a matter of course, but that they also warranted further encouragement as well. Several delegates commented upon the potential for sectors to decline, and several also supplied a few words of explanation relating to their views on some sectors. Figure 1 indicates the numerical scores obtained from the sheets, with each mention of a sector awarded one point, whether in the 'Grow Anyway' category or the 'Need Active Encouragement' category. Negative single scores were recorded where delegates indicated that a sector might decline. Figure 1 also shows the total scores for each sector.

Observations from Figure 1:

- Offshore renewable energy, aquaculture (as currently practised) and marine leisure/tourism received the most attention from delegates – 37% of all scores recorded
- Several other sectors achieved similar levels of score, somewhat below the top three: coastal defences; general marine transport; services for oil & gas; offshore aquaculture; offshore algae production and fish processing
- Commercial fishing was the only sector to score negative points – some delegates considered it would decline, and some specifically noted that it did not warrant ‘active encouragement’
- The disparity between delegate’s views about whether a sector would grow of its own accord or whether it needed active support was quite clear. For example:
  - Marine leisure, aquaculture and offshore renewable energy all scored similar total scores, but more delegates believed that leisure and aquaculture required active encouragement, in comparison with offshore renewables
  - In the second tier of sectors, although total scores were similar, delegates generally thought that offshore aquaculture and algae production were much more in need of active encouragement, compared with the other sectors
- Fish processing scored relatively strongly overall, but more than one delegate pointed out that this was dependent upon raw material supplies from fisheries and (mainly) from aquaculture. The hand-out sheet did not prompt delegates to consider marine ‘trade’, i.e. imports and exports of different products, and the topic was not discussed within the group – although it might have been relevant in relation to the fish processing sector
- Marine education and services to offshore renewables were categories added to individual sheets by two different delegates, and these were not specifically discussed by the group as a whole. Had that happened, scoring for these two sectors might have been quite different.

Additional comments on the sheets indicated some diversity of view in relation to different sectors. For example, it was notable that some delegates considered algae production to be an unlikely sector in terms of future development; others supported it in terms of its role in providing possible bio-fuels but not food/feed; one delegate believed that heterotrophic algae might become a future food/feed sector.

One particular topic became prominent in discussion session 1, and continued to be important in subsequent sessions: the role of government in terms of who should/could provide ‘active encouragement’ for newer sectors. The key point, which the group largely agreed upon, was that if a particular sector had potential for growth, it should by definition have commercial/industrial sponsors trying to drive it forward. Government’s main role might then be to facilitate developments by way of regulatory changes and improvements, rather than by direct financial investment at such an early and speculative stage.

## **DISCUSSION 2 – Opportunities for Synergy**

The group next considered whether there were (new) opportunities for synergy between different marine economy sectors. The background to this was other ongoing activities in relation to efficiency and collaboration between different EU structural funds programmes – although synergy between sectors was noted to be only a small sub-set of such activity.

Several concepts for future synergies were discussed by the group, and the main ones considered (and recorded in 9 returned hand-out sheets) are included in Table 2.

Whilst the possibilities outlined in Table 2 have theoretical potential, the group was generally very cautious about immediate prospects for investing in these sectors. Typical reasons were:

- Lack of an identifiable commercial ‘champion’ to drive the ideas forward
- Inappropriate for government to invest at such a speculative stage
- Existing sectors all focusing on their core business – little interest in or capacity for taking risks in speculative new ventures

One possible way of moving forward was to start with regional or local initiatives, and seek to scale these up in the future if appropriate. The CopraNet and COREPOINT initiatives were mentioned as an example – and in the former case the initiative was funded under a European Regional Development programme: INTERREG IIIC.

**Table 2. Analysis of Sheets relation to opportunities for synergy between sectors.**

SECTORS	ADVANTAGES	CHALLENGES	PARTNERS
Offshore Wind + Shellfish (perhaps finfish in future)  <b>(5 delegates mentioned this area of possible synergy)</b>	Better use of existing infrastructure. More protected locations. Reduce operational costs. Food supply & energy supply are clear drivers in future.	Still an exposed environment. Potential for conflict of interest; relative investments different. Technical challenges; lack of communication. Planning/regulatory challenges. Would mussels offshore be a 'non-native' introduction? Mussel lines might interfere with cable access.	Offshore operators + large shellfish companies (or finfish). Crown Estate?
Pharmaceuticals + Natural marine products (algae?)	Access to novel compounds. Market advantage "natural production"	Cost of production perhaps too high compared with synthetic sources	Cosmetic/Pharma companies + algal farmers [But the latter do not exist as yet]
High tech marine systems – vessels & systems. Design and manufacture.	Reduce operational and fuel costs.	Retention of IP; manufacturing capacity.	Academia + commercial fishing + recreation + defence + offshore renewables.
International knowledge exchange; marine science.	Build better relationships; more direct routes.	Academic metric of 'success' is not linked to business growth. Industry investment in R&D is very limited.	Academia + industry + government.
A marine 'business' organisation similar to MASTS: resolves sectoral problems		Getting this started.	Business gateway; HIE
Fisheries + monitoring;	Improved understanding of each other's areas.	Working together.	
Fisheries + tourism	As above.	As above.	
Coastal defence + marine renewable energy.	Erosion implies high energy impacts on the coastline (wave, tide) – could this be harnessed for generation.	Developing systems suitable for inshore application.	?

Multitrophic aquaculture.	Finfish, shellfish & algae = reduced environmental impact.	Current farmers not sure of benefits. May need more physical space.	Aquaculturists from different sectors.
Adding more value to aquaculture.	Niche products; smoking etc. Develop artisanal skills.	Ensuring there is a niche market (or creating one).	Aquaculture + Processors.
Coastal defence + shellfish.	Spatially efficient.	Unsure whether feasible.	
Leisure/recreation + offshore renewables.	Artificial reefs. Large closed areas suitable for recreational fishing.	Regulations. Exclusion zones. "One-use-only" planning approach, spatially.	
Oil & gas services + oil & gas extraction.	Decommissioning work. Newer (deeper) sites for extraction.		
Oil & gas services + offshore renewables.	Marine engineering/surveying expertise. Similar technologies.	Synergy opportunities not realised. Poor communication: "different circles".	
Ship building + offshore renewables.	As above.		
Commercial fishing + offshore renewables	Diversification of skills from the fishing sector.	Managing change within the fishing sector.	

### DISCUSSION 3 – Overcoming Constraints

The group considered some of the constraints identified, and also considered possible routes for support to help overcome the constraints. Research budgets were discussed, but also other areas of public funding, including structural funds.

The discussion about lack of existing champions for ‘new’ marine developments continued into this discussion session, and the overall tone was generally pessimistic. Key points that emerged included:

- Constraints on available areas for development
- Perceptions of constraints
- Historical sectoral interests
- The need for flexible multi-use of the marine environment – although this did not appear to be the way marine planning was heading
- Potential need for incentives
- Funding restrictions
- Regulatory issues
- Practical or technical issues
- The importance of core business.

Only 3 delegates returned hand-out sheets for this session.

Two of these both focused on the potential opportunity for shellfish farming together with offshore renewables, and identified that there was no locus for this in Scotland in terms of existing sectoral organisations and public bodies. The proposed solutions included setting up some sort of forum, identifying specific opportunities, and taking these to pilot scale testing. However, it was unclear who should lead/fund such suggested initiatives.

The third returned sheet focused on three strategic issues, as shown in Table 3.

**Table 3. Discussion Session 3.**

Knowledge or credibility or strategic investment gap	Action to Bridge Gap - 1	Action to Bridge Gap - 2	Action to Bridge Gap - 3
1. Allocation of publicly funded academic resources to “innovation” and commercial development.	Align metrics of academic success with economic growth and investment metrics.	Establish credible incentives to encourage industry investment in R&D.	Invest in a co-ordinated approach to development
2. Benefits of establishing de-facto MPAs in renewable production areas.	Set up baseline studies & ongoing monitoring strategies to assess potential benefits.	Financial and regulatory incentives to encourage and support work in this area.	
3. Industry investment in R&D.	Insufficient incentives: thresholds; need to change tax credits radically.	Intervention rates: public funding/commercial gain.	

## SUMMARY AND CONCLUSIONS

The workshop covered many areas of marine science and marine industry, and informal feedback at the close of the event suggested that delegates had found it stimulating in terms of 'blue skies' thinking. The key outcomes from the workshop were:

- All of the existing sectors of the marine economy were considered
- **Aquaculture, offshore renewables** and **marine recreation/leisure** were seen as the most important in terms of the need for further growth, and the need for active encouragement and support
- Several opportunities for synergy between different marine economy sectors in the future were identified
- For both individual 'new' sectors and 'synergistic' opportunities, the group concluded that if there were no obvious commercial sector champions driving development, there was little that government or other bodies could do to stimulate innovation and demonstration projects.