

Scottish Environment LINK

23rd October 2015

Dear Rob and members of the RACCE Committee,

Re: A Comparison of MPA economic studies by GRID Economics (Scotland) Ltd

Scottish Environment LINK Marine Taskforce members, on whose behalf I now write, acknowledge and welcome the significant effort made by Members of the RACCE Committee to understand the implications and concerns about fisheries management proposals for Scotland's inshore Marine Protected Areas and Special Areas of Conservation. We note recent correspondence between the Committee and the Cabinet Secretary on this important matter.

Members of the LINK Marine Taskforce have long advocated for the protection and recovery of our marine environment as a contribution toward the LINK network's broader, shared commitment to sustainable development, seeking a fair society that lives within environmental limits. Whilst advocating for sites to be designated based on science, as we still do, at every stage in the MPA process we have recognised and welcomed that important socio-economic matters are for legitimate Ministerial consideration when deciding on site management measures.

We noted that a report commissioned by the Scottish Fishermen's Federation was submitted as evidence to the RACCE Committee in advance of the 23rd September session that took evidence from commercial fisheries representatives. To inform our own view on the likely socio-economic consequences of the fisheries management proposals for inshore MPAs, we therefore sought to compare the approaches to assessing socio-economic impacts taken by the Scottish Government and MKA Economics. The result was "A Comparison of the "Business And Regulatory Impact Assessment" of the MPAs undertaken by ABP Marine Environmental Research and the "Socio-Economic Effects of the Proposed Marine Conservation Order 2015: A Scoping Study" undertaken by MKA Associates" (appended below). For expediency, this was commissioned by one of our members, the Marine Conservation Society (my own organisation). It has since usefully informed LINK Marine Taskforce members' shared understanding of the socio-economic costs and benefits of MPAs during this important stage in the development of a network of well-managed Scottish MPAs.

We share the attached in the hope that it is a useful document for your consideration.

Yours sincerely,



Calum Duncan
Convenor, Scottish Environment LINK Marine Taskforce

A Comparison of the “Business And Regulatory Impact Assessment” of the MPAs undertaken by ABP Marine Environmental Research and the “Socio-Economic Effects of the Proposed Marine Conservation Order 2015: A Scoping Study “ undertaken by MKA Associates

Alan Radford and Geoff Riddington, GRID Economics (Scotland) Ltd

Introduction

As part of the study of the effects of the proposed Marine Protected Areas, ABP-MER undertook an analysis of the economic impacts of each of the Marine Protected Areas. The initial Scotland wide study was published in July 2013 and a revised study in July 2014 after consultation had suggested possible changes in areas and management (e.g. allowing some trawling within an MPA). In addition the BRIA for each area was also published. Following a further round of consultation in June 2015 the BRIAs associated with Management Conservation Orders for four of the MPAs were issued. These incorporate more data and a slight modification of method and were, in general, slightly larger than the “intermediate” estimate of July 2014 but consistently less than the Upper Estimate.

The results were challenged by the mobile sector who commissioned their own analysis from MKA Associates. This suggested impacts considerably larger than those found by ABP-MER. As a consequence the Marine Conservation Society commissioned GRID Economics to carry out a Peer Review of both studies to identify the strengths and weaknesses of each.

This study is structured as follows. Firstly we look at the objectives of each. We then examine the data sources used and then the methods used to create the forecast impacts. Finally we compare the results and conclude on their reliability.

Objectives of the Studies

Economic impact studies conventionally attempt to forecast changes in employment and income both directly and indirectly (via the multiplier) at a specific point of time for a specified location. In addition, Cost-Benefit Analysis (CBA) can be undertaken. Within the CBA framework the effects of a policy initiative are measured in terms of the consequential change in economic costs and economic benefits to a particular group (typically the Scottish people)¹. ABP-MER follow both approaches providing employment and income forecasts and the economic costs (though not generally the economic benefits) for the period immediately after the imposition of restrictions on fishing associated with MPA designation. At this stage there was a broad assumption that the same level of costs and benefits will persist into the future and these are discounted by a social discount rate of 3.5%. One may argue about the assumptions made to obtain the forecast, or the appropriate time

¹ Within economic analysis an economic costs arises when we get more of something we do not want (polluted air) or less of something we want more of (biodiversity). An economic benefit arises when we have more of something we want (more fish for the table) or less of something we do not want (fuel usage).

slot to examine (why not 5 years after the imposition) or even the boundary (if more local is different from Scotland wide) but the objectives are clear.

MKA produce what they define as A Scoping Study. The normal characteristics of such a study are

1. It is quick
2. It seeks only to identify the main features and research boundaries. In doing so unstructured interviews of **all** those stakeholder groups potentially affected are often used to ensure key elements are not overlooked.
3. It would examine other research in the area to identify where further work is necessary either because of weakness or absence.
4. It would discuss data sources available

Following the scoping report one would normally expect a project plan which would look at the methodology to be employed including survey frameworks and methods, resources required and a provisional time plan. It is only at the Final Report stage that one would expect results to be published. Anything produced earlier would have a tendency to confuse.

It would not be unfair to say that MKA have not produced a scoping study. Apart from speed none of the other characteristics are present. As an example the only interviewees appear to be those in the mobile sector or supplied by the mobile sector. Thus the impacts on other marine users, let alone the general public, have not even been referenced although any properly conducted scoping study could not conceivably have ignored them. The conclusion is drawn that the study was not actually concerned with identifying socio-economic impact but rather on producing quickly an estimate of the costs imposed on one sector of the fishing industry.

Data Sources Used

The Fishing Industry is unique in having an extremely detailed record of all of its activity both in terms of vessel movement and output. Vessels over 15m are tracked using the Vessel Management System (VMS) and a census of the fishing activity of vessels under 15m was undertaken in 2007-2011 (known as ScotMap). All landings by vessel are recorded electronically. We believe statistics aggregated from automatic recording of activity in real time cannot be bettered.

ABP-MER used the VMS system for large vessels and ScotMap for small to allocate landings in an ICES rectangle to either inside or outside the specific MPA. There is no doubt that the vessel by vessel approach is very specific and it is difficult to suggest any possible improvement for larger vessels. For smaller boats ScotMap data is rather dated and coverage not complete. However, once again, it is difficult to suggest improvement.

It is difficult to comment on the data sources used by MKA as none are referenced and it is often unclear what is being measured. For example it is stated that *“there are around 60 – 70 vessels currently working in the Clyde, with the majority working out of Tarbert, Campbeltown and Carradale”*. There are 40 >10m and 53 <10m vessels whose registered home port is Campbeltown, Carradale or Tarbet. We suspect that most of the small vessels are creelers and most of the large are trawlers or dredgers. However many operate outside the Clyde (e.g. some work near the Small Isles) and some vessels from outside work in the Clyde. We believe that the 60-70 vessel estimate

refers to trawlers and dredgers and might be on the high side. The source needs to be made clear. Similarly the ratio of 4 crew per vessel used is unsourced and too high.

The problem re-occurs at every stage. Seafish publish quite detailed information on fishing revenues and costs and landings data provides information on the value of fish landed; the revenue. MKA prefers “primary sources” and “consultation with fishermen”, which appears to mean what local mobile fishermen have told the researcher.

A critical data element is the ratio of on shore jobs to off shore. MKA puts this at 5 without providing any reference or study. The Fraser of Allander Institute (2002), estimates that every shell-fishing job at sea created 0.5 onshore jobs – not 5.0. Anderson and Curtis (2008) estimate that 1 additional job in catching shellfish would create 1.53 jobs across the wider economy (i.e. an additional 0.53 in the Kintyre peninsula and beyond).

Before leaving what must seem to be rather damaging comments about the data used by MKA it is important to correct the statement made and impression created in the paper that the communities involved are fragile and deprived. Jones(2013) and Riddington and Radford (2014) examined in some detail, the extent that these communities are deprived using the Index of Multiple Deprivation Scores data-zone by data zone. Both papers found that they were no different in level and variability than other communities in Scotland. The two villages identified in the case studies, Tarbert and Mallaig , are in fact better off than the Scottish mean with their geographical isolation being more than compensated by better education, lower levels of crime, better housing etc. and higher levels of income and employment. In terms of employment in the fishing industry Mallaig could be viewed as dependent but, despite the claims of MKA , Tarbert most certainly is not.

Methods Used

As discussed earlier ABP-MER use landings data and VMS to estimate for the mobile sector the potential loss of revenue and associated gross income and employment. They then use published multipliers to calculate the indirect employment effects. The underlying assumption is that the impact is proportionate to the area closed and that there is no displacement into areas outside the MPA. As they make clear *“the potential socio-economic consequences of designation of proposed MPAs on the commercial fishing sector (and hence the fish processing sector) as, ultimately, this will depend on the extent to which the fleet can access alternative fishing grounds, and that is unknown. The quantitative estimates presented for this sector, therefore, assume there is no redistribution of fishing effort - all affected landings are lost - and hence represent worst-case estimates.”*

The potential costs of most of the other sectors such as energy (offshore wind farms) and oil and gas development are also assessed and discounted to provide an overall measure of the total cost of the proposals.

What appears to be unreasonable is that no attempt is made to assess on a case by case basis the potential economic benefits of the protection. In our view, other assumptions underpinning the BRIA estimation procedures mean that the GVA and job loss in commercial fishing is almost certainly overestimated.

Assumption 1: The costs are not offset against any benefits from the increase in the use of creels or hand-diving. This is a significant assumption. Constraints on *Nephrops* trawls and dredgers should

release additional territory for creels and hand diving to expand into. For example, it would not be unreasonable to expect that two creelers each working 800 to 1000 creels for seven days probably require less sea bed than one trawler operating for 5 days. There is some evidence that employment in commercial fishing and even value of output might actually increase.

Assumption 2: The costs are not offset by improvement in stocks that may occur over time as a result of the MPA designation. Scallop dredging and to a lesser extent *Nephrops* trawls damage sea bed habitat and biodiversity and the biomass of benthic species. The constraints on dredging and trawling should increase the potential yield from a given seabed area. Mangi (2008) *inter alia* provides evidence of this effect.

The omission of benefits to other users by ABP-MER does not apparently reflect an assumption that they are unimportant but rather difficulties in estimation. Quantifying some elements in a Cost-Benefit Analysis and simply reporting others is the current approach in Transport Appraisal but in the opinion of the authors it is potentially misleading. There is inevitably a perception bias that those factors quantified are more important than those left un-estimated, which as Riddington and Radford (2014) show is wholly inaccurate.

The methods used by MKA to obtain the estimates are surprising. First they obtain estimates of the vessels operating from a non-random sample of local trawlermen for an undefined area such as “The Clyde” or “The North West”. They then make an assumption that a fixed percentage of these vessels will leave the industry whatever the size of the proscribed area. The percentage leaving the industry is set at 50% for undefined reasons. Thus if the protected area is 0.2%, 2% or 50% the impacts are the same. With crew levels set at 4 and multipliers at 5 the calculations generate figures that are simply not credible. The British Employment Survey gives 1135 people employed in the fishing industry (catching, processing or supply (ropes, repairs etc.)) on the Clyde or on the West Coast of Kintyre (including Oban). MKA estimate that 840 of these (74%) will lose their jobs for a closure of less than 2% of the area to trawlers.

The Results

Table 1 summarises the results of the ABP-MER analysis. As discussed earlier these provide the variability around the worst case of no displacement of either trawl location or fishing method to other areas and no resulting jobs and income growth in other marine sectors. **The ABP-MER should be seen as significantly biased against the MPA case.**

The different estimates reflect different management options proposed but so far agreed for four only in June 2015. The Upper Estimate incorporates options such as a ban over the whole MPA and no hand diving for scallops, options which are not ever likely to be implemented².

² For example for South Arran the Intermediate Estimate is based on 1) Closure to mobile bottom-contact gear from the management area following the south coast and 2) Reduce beam trawl and dredge pressure (gears likely to affect ocean quahog) by 50% across the ocean quahog feature. The Upper estimate is based on 1) Closure to mobile bottom-contact gears (whitefish, nephrops and other trawls and seines, beam trawls and dredges) across the pMPA. 2) Prohibit hand collection and diver-operated hydraulic gears from maerl beds, maerl or coarse shell gravel with burrowing sea cucumber, seagrass beds, and ocean quahog.

Table 1: Impact on Gross Value Added (GVA) and Immediate Job Loss resulting from selected MPAs

	Intermediate Estimate July 2014	Upper Estimate July 2014	Estimate July 2015
Clyde Sea Sill			
Average annual change to GVA	0.097	0.158	
Direct and Indirect reduction in Employment	2.6 jobs	4.0 jobs	
South Arran			
Average annual change to GVA	0.053	0.340	0.106
Direct and Indirect reduction in Employment	1.3 jobs	9.3 jobs	6 jobs
Small Isles			
Average annual change to GVA	0.031	0.250	0.057
Direct and Indirect reduction in Employment	0.9 jobs	7.3 jobs	5 jobs
Loch Sunart to Sound of Jura			
Average annual change to GVA	0.008	0.238	0.061
Direct and Indirect reduction in Employment	0.2 jobs	5.8 jobs	3 jobs
Wester Ross			
Average annual change to GVA	0.052	0.160	0.033
Direct and Indirect reduction in Employment	1.4 jobs	4.6 jobs	2 jobs
Total for 5 MPAs in Clyde and North West			
Average annual change to GVA	0.718	1.146	
Direct and Indirect reduction in Employment	6.4	31	

Table 2 records the equivalent MKA estimates

Table 2: Impact on Gross Value Added (GVA) and Immediate Job Loss resulting from selected Areas

	MKA Estimate
Clyde	
Average annual change to GVA	£20.5m
Direct and Indirect reduction in Employment	840 jobs
North West	
Average annual change to GVA	£10m
Direct and Indirect reduction in Employment	408 jobs
Total	
Average annual change to GVA	£30.5m
Direct and Indirect reduction in Employment	1248 jobs

The GVA estimates are 43 times (4,300%) those of ABP MER whilst the job estimates are an incredible 200 times (20,000%) bigger than those of ABP MER, and we contend that that even these are probably over-estimates of the impact.

Conclusions

The failure of ABP-MER to incorporate the economic benefits to other users, specifically creelers and sea anglers, is unfortunate given the otherwise competent assessment of the possible impact of the MPAs. ABP-MER are clearly aware of these other economic benefits and the associated literature but they appeared to feel uncomfortable with what inevitably would be rather speculative estimates. In our view this presents a distorted picture of all the economic costs and benefits arising from MPAs. Indeed it is conceivable that, even excluding the massive conservation (non-user) benefits, for some MPAs such as Wester Ross, the economic benefits could still exceed the economic costs and the net impact on employment could be positive. However, since the ABP-MER approach only focuses on the economic costs and initial job losses, these possibilities are not explored.

Interestingly ABP-MER do incorporate non-user economic benefits derived from and McVittie and Moran (2008), in their final conclusions. For Scotland as a whole the CBA Table should look as in Table 3

Table 3: Costs and Benefits of MPAs in Scotland

Costs	Lower £m	Upper £m
Commercial Fishing (Mobiles)	£1.78	£49.62
Energy	£0.11	£2.84
Oil and Gas	£1.20	£33.83
Other	£0.80	£1.80
Total Costs	£3.89	£88.09
Benefits		
Commercial Fishing (Statics)	Not Estimated	
Sea Angling	Not Estimated	
Other Direct and Indirect Users (Sub-Aqua, Water Sports, Wildlife Watching)	Not Estimated	
Non User	£239	£583
Total Benefits	>£239	>£583

What this table shows is that even without consideration of all the benefits there is still a substantial positive CB Ratio from creating MPAs.

For the MKA study it is important to recognise that MKA has not yet responded to this critique which alleges serious deficiencies in their work. That said it must be made clear that currently our conclusion is that the MKA Report, if taken seriously, would significantly mislead decision makers.

Because the estimates are of a profoundly different order of magnitude to the ABP-MER estimates, MKA are using these differences to argue that the economic impact assessment should be re-done;

“The whole issue under scrutiny has been raised as a result of the initial proposals and there are more iterations to come. We respectfully suggest that now and for the future a view might be taken by the committee on the importance of improving socio economic impact assessment to include the local level, and the testing of proposals against the evidence for appropriate environmental protection”.

However, these differences arise not from any deficiencies in the work of ABP-MER but because MKA Economics have produced a very poor piece of work. On the evidence, the costs of further research on the impact on the mobile sector, including the costs from further delay, could not conceivably be matched by any benefits.

Alan Radford

Geoff Riddington 30/09/2015

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