

## 4. CHARACTERISTICS OF THE AREA

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### 4.1. KEY FISHERIES

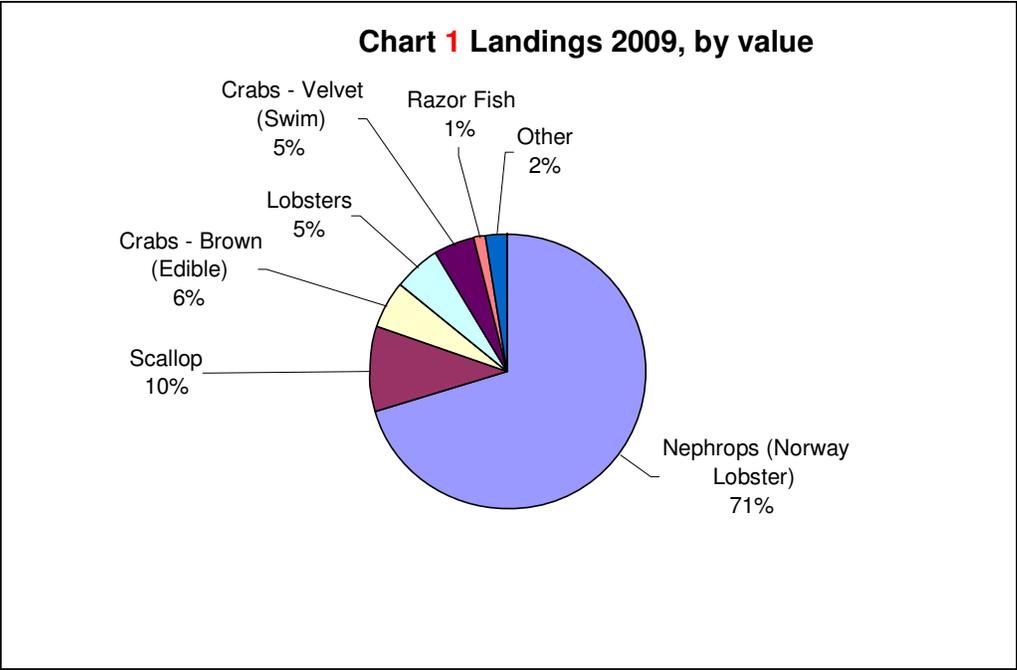
4.1.1 The Small Isles and Mull IFG region is a productive fishing area of national significance. Historically the region sustained a large and productive herring and whitefish fisheries; however declining opportunities in these fisheries have seen the inshore fleet shift to shellfish fishing opportunities. In addition to some 120 plus resident based vessels, the area sees high levels of visiting fishing effort on a seasonal basis. The main target species are presented Nephrops, crab, velvet crab and lobster, with landings from the region in 2009 totalling some £18.7m. The top 10 species landings by value for 2009 are presented in table 1.

Table 1 Top 10 species by landed value from SI&M IFG region 2009

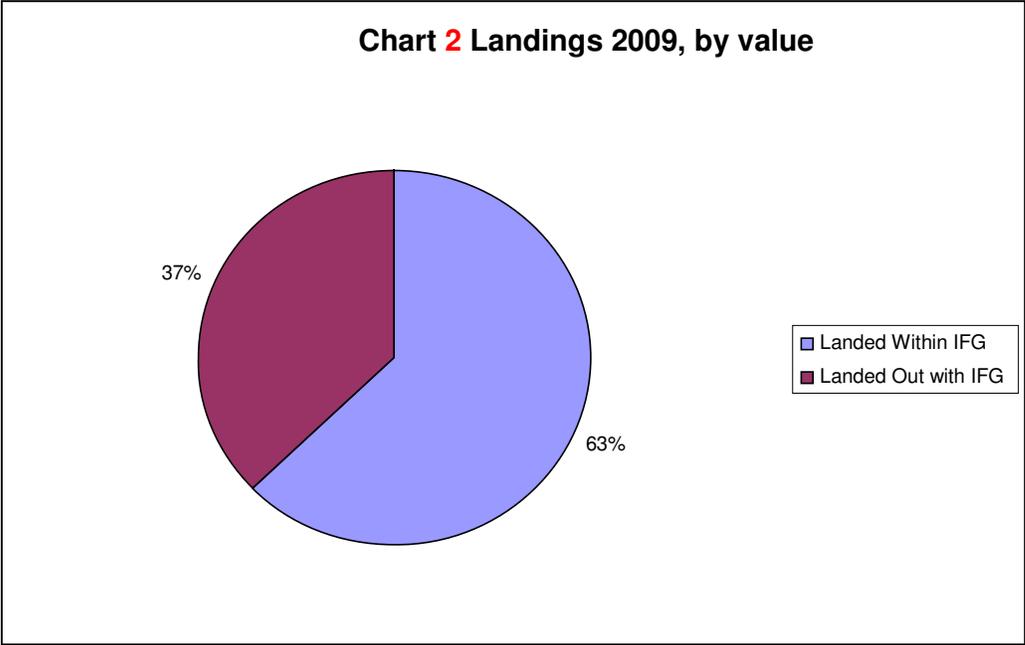
<i>Species</i>	<i>Landed weight (tonnes)</i>	<i>Value (£000's)</i>
Nephrops	4040.8	13207.2
Scallop	1006.0	1904.2
Brown Crab	1016.7	1043.5
Lobsters	101.8	1026.8
Velvet Crabs	371.6	898.7
Razor Fish	92.4	258.2
Monkfish	25.8	70.5
Shrimps	3.4	59.2
Hake	61.9	45.0
Spurdog	25.0	38.4

4.1.2 The landings data in table 1 must be presented with the caveat that catch reporting units are poorly aligned with IFG boundaries, and may not be accurately show true values. It is possible that some landings from within the IFG region are omitted, whilst other landings from neighbouring waters have been included. In terms of the relative importance of the regions fisheries these data are considered broadly representative. This is discussed more fully in [Appendix 4](#).

4.1.3 Despite the diversity of species landed from the area, in 2009 97% of the landed value came from just 5 shellfish species, with Nephrops alone accounting for 71% of the total, as shown in Chart 1

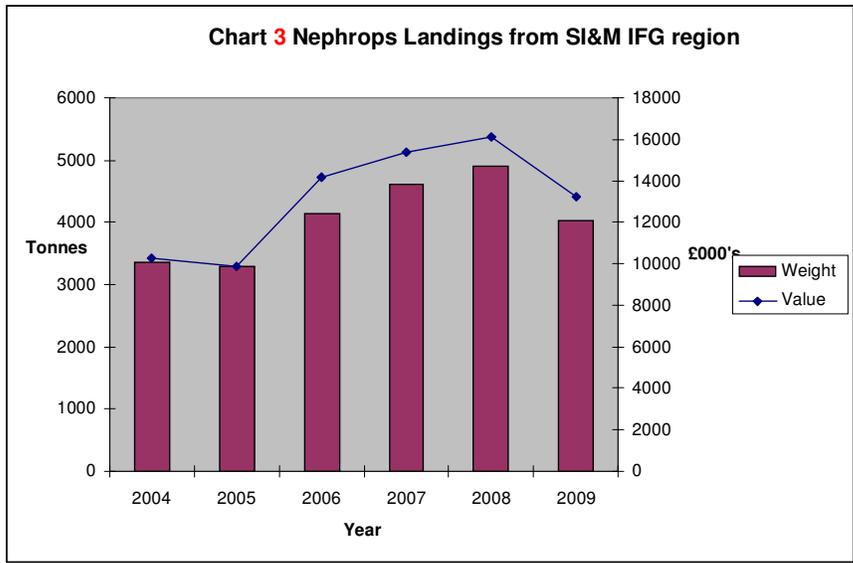


4.1.4 Chart 2 shows that of the £18m worth of landings originating from the IFG region in 2009, some 63%, or £11.8m, was landed within the IFG region.



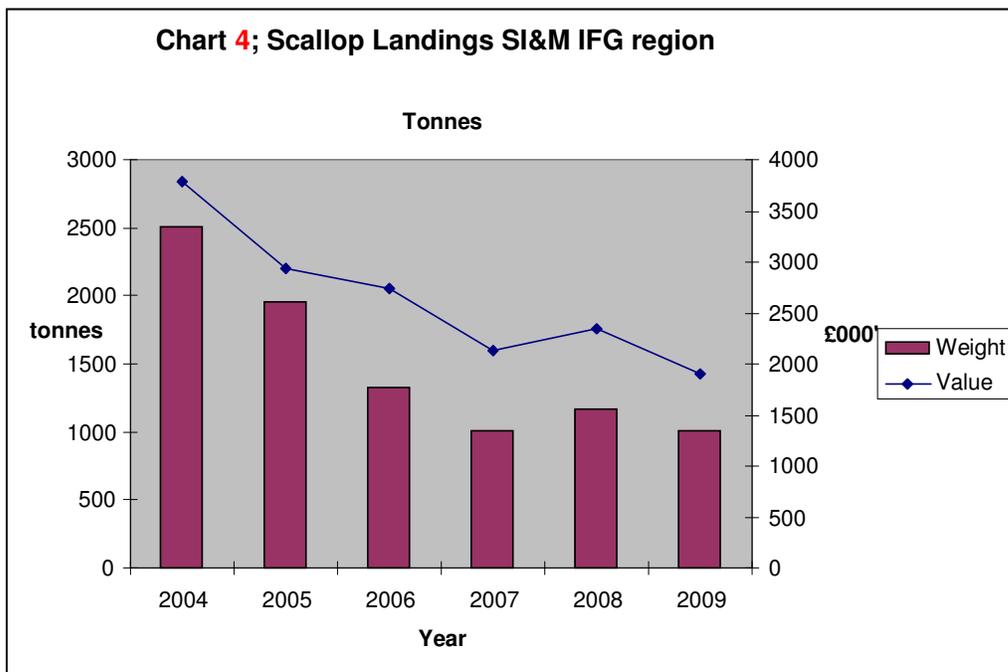
### *Nephrops*

4.1.5; The Nephrops fishery is the most significant occurring within the SI&M IFG region, contributing up to some 58% of landed volume in 2009, delivering around £13.2m, 71% of the recorded fisheries value from the region in that year. Landings over the previous 5 years are displayed in chart 3. The latest ICES advice for 2011 suggests that with a stable mean average size of individuals in catches and an estimated decline in the harvest ratios to the equivalent of the  $F_{max}$  proxy, that the Nephrops stock in the South Minch is currently being exploited sustainably (ICES 2010).



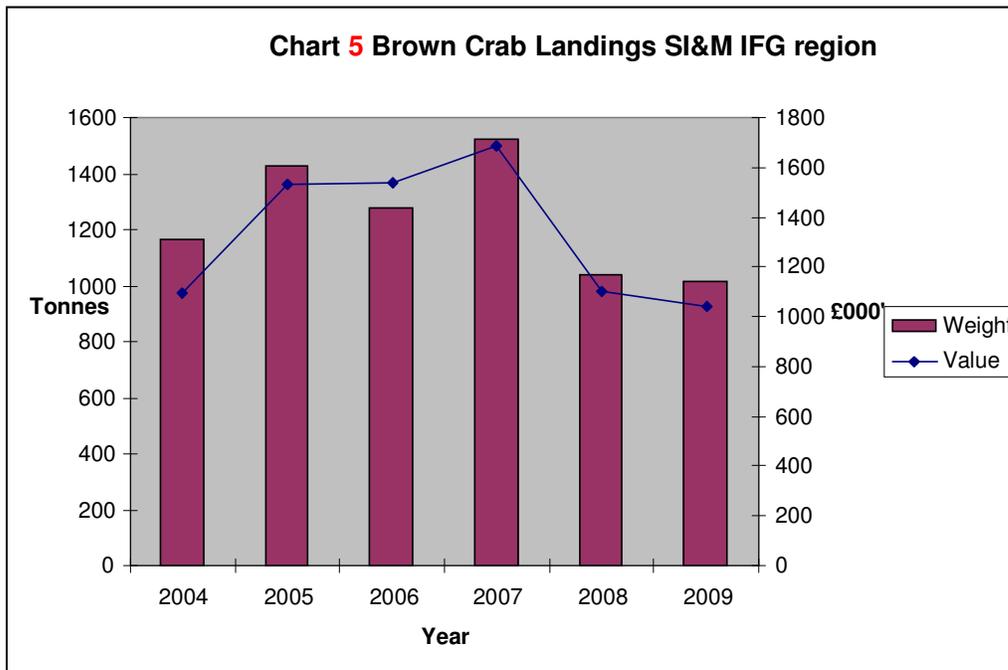
### Scallops

4.1.6; The scallop fishery is the second most valuable fishery occurring in the IFG region, contributing around 10% of total fisheries landings value in 2009, valued at some £1.9m. Landings trends are presented in Chart 4. The Scallop stocks around Scotland are assessed by Marine Scotland- Science on a regional basis, with the SI&M IFG falling almost exclusively into the North West region (with the exception of a small area of the South Eastern Sound of Mull corresponding to ICES statistical rectangle 41E4). The latest assessment available is based on landings data up to 2007 and survey data up to 2008 indicates that the spawning stock biomass has declined steadily since 1999 and is approaching its lowest estimated value. Whilst fishing mortality has declined and is still low, this decline has not been accompanied by any increase in the spawning stock biomass or recruitment. Yield per recruit analysis indicate that fishing mortality is above F0.1 and higher than that which is consistent with achieving the maximum long term yield.



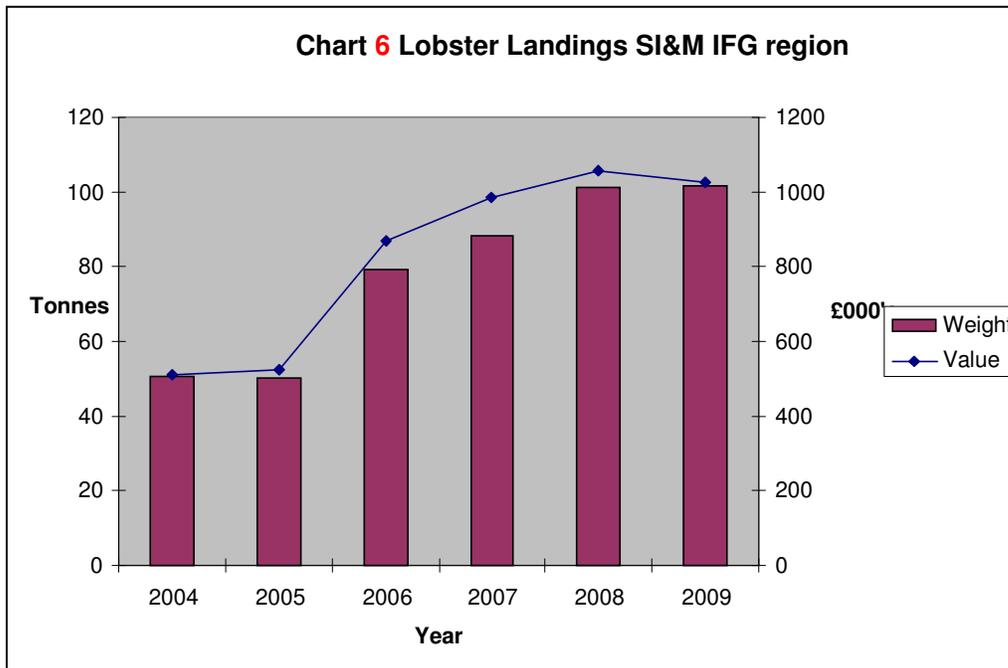
### **Brown Crab**

4.1.7 The brown crab fishery is the third most valuable in the SI&M IFG region, with landings totalling just over £1m in 2009, as shown in Chart 5. Marine Scotland- Science conducts regional assessments of brown crab stocks around Scotland on a tri-annual basis, based upon landings and market sampling data. Again however the assesment areas used do not correspond particularly well to the IFG region. The latest assesment (2006-2008) of the most relevant area (South Minch) indicates that the brown crab stock is being fished above  $F_{max}$  and not achieving the maximum potential yield per recruit.



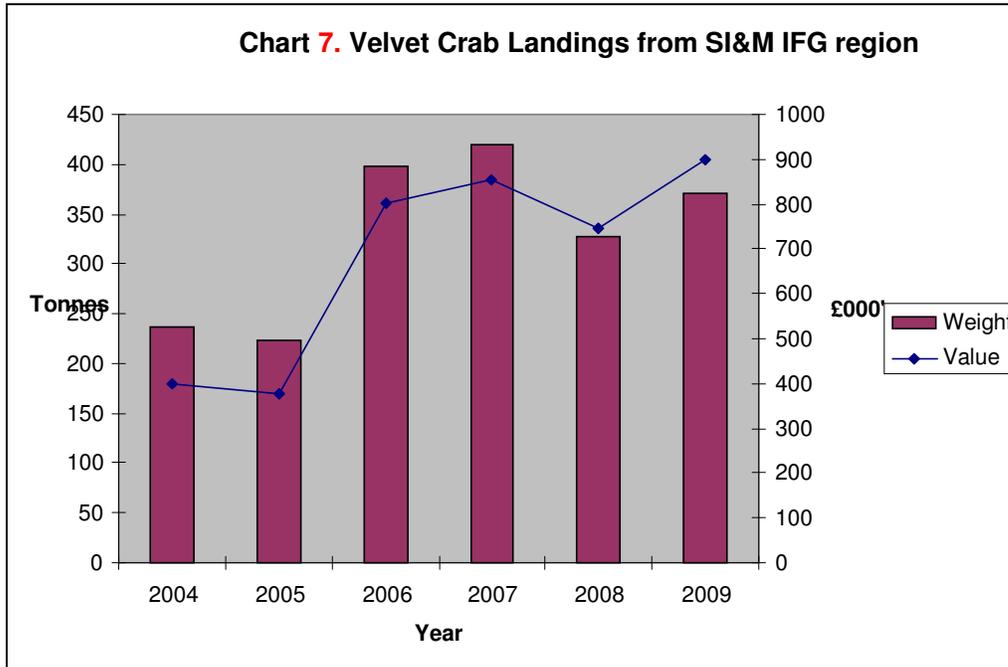
## Lobster

4.1.8 Lobster was the fourth most valuable fishery in the region in 2009 with landings of over 100 tonnes valued in excess of £1m. Chart 6 shows lobster landings from the region since 2004. Marine Scotland- Science undertakes a tri annual stock assesment for lobster on a similar basis as to brown crab. However there were insufficient sampling data for the area for the period 2006-2008 and the state of the stock is therefore unknown and not assessed.



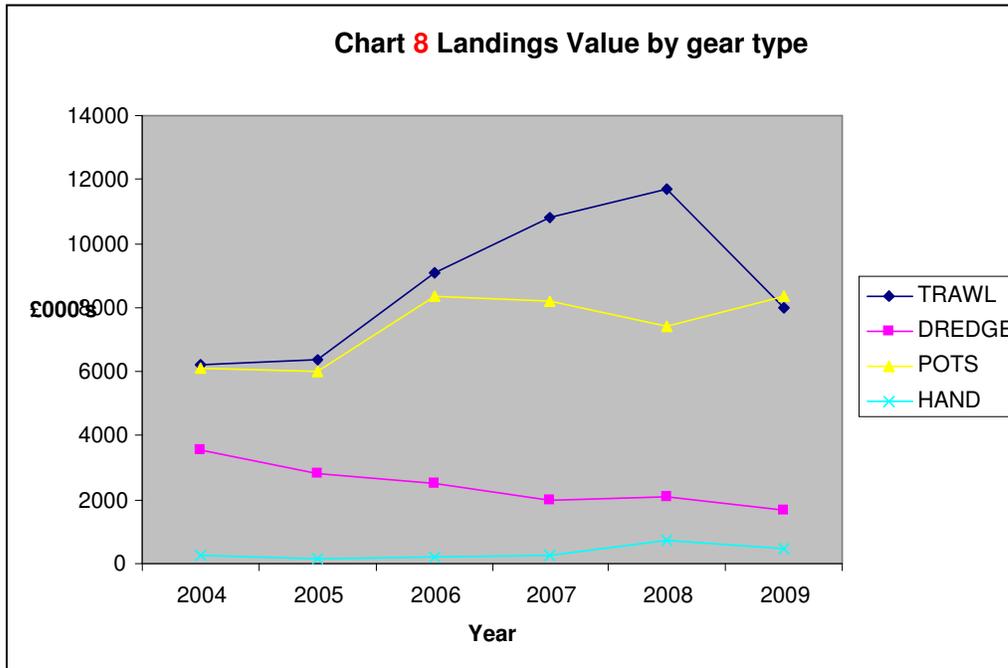
### Velvet Crab

4.1.9 In 2009 the velvet crab fishery was the fifth most significant with landings of over 370 tonnes generating almost £0.9m. Recent years landings are presented in Chart 7. The latest assessments from Marine Scotland- Science indicate that the fishery is currently exploited with effort above  $F_{max}$  and that the yield per recruit to the fishery could be increased through reduction in  $F$ .



## 4.2 FISHING ACTIVITY

4.2.1 Whilst somewhat limited in overall diversity of species targeted, the regions fishing activity is varied within the IFG region and can be subdivided in several ways. Perhaps the most illustrative division is to consider the different mobile and static gear fishing methods in the different target species fisheries; Nephrops trawler fleet, creel fleet, scallop dredge and hand gathering/dive caught. The economic contribution of each of these sectors in the IFG region is shown in chart 8.



### *Number of vessels*

4.2.2 It is not possible with current reporting procedures and data access to assess the total number of UK vessels using IFG region waters. Analysis of the UK vessels register, corrected by Marine Scotland Compliance, indicates that there are a total of around 120 vessels registered with a given homeport within the IFG region, with 85 of these being under 10m. A majority of the under 10m inshore vessels are creel fishing vessels, whilst a majority of the larger over 10m vessels are involved in the mobile gear fisheries.

4.2.3 The number of vessels overall has decreased over the last .... Years, particularly in the larger mobile gear sector of the fleet. However recent years have seen a slight increase in the number of vessels operating from given homeports within the region.

### *Nephrops trawl fleet*

4.2.3 The IFG region is a nationally important fishing ground to the mobile gear Nephrops fleet. In addition to a significant resident fleet a large component of visiting effort from East coast ports may be present on a seasonal basis. The trawler fleet in the SI&M region have traditionally delivered the highest value contribution from all fishing sectors to annual fisheries

value, delivered through bulk landings of predominantly Nephrops. An additional landed by catch component is presenting the fishery, but overall this is relatively insignificant in terms of value, with 91% of landed value being from Nephrops.

4.2.4 The Nephrops trawl fleet use either single or twin rig trawls targeting Nephrops on muddy substrates throughout the year. The main fishing grounds are in the South Minch, although more inshore grounds around island and in sea lochs can be important grounds for sustaining income during periods of poor weather.

4.2.5 The main ports for this sector of the fleet in and around the region are Mallaig, Oban, Portree and Kyle, although some smaller trawlers do operate from more remote ports. Trip lengths can range from up to 10 days for the largest vessels (even longer for those vessels with freezing capacity), to day boats.

4.2.6 There are three main markets for mobile caught Nephrops. Around half of all Nephrops are exported overseas, either fresh or frozen, or increasingly in the small trawl day boat sector, alive in tubes. The main export markets are Spain, France and Italy. The domestic market is limited mainly to the small Nephrops tails which are processed domestically to create scampi. Whilst each of these markets offers a different return to the vessel, as a whole the value per tonne obtained by vessels in 2009 fell some 16% compared to the 2008 adjusted price to £2541 per tonne live weight.

4.2.7 The mobile gear fleet are faced with significant economic issues including excessive and crippling regulation, diminishing fishing opportunities, lack of access to alternative fisheries, high fuel prices and an ageing fleet requiring expensive maintenance to remain seaworthy (the fleet age profile is detailed in Appendix 4). Average net profit in the sector in 2008 was £15.3k in for single rig vessels, representing some 10% of total revenue, and £33.9k for twin rig vessels, representing some 13% of income. A more detailed breakdown of the fleets operating economics can be found in Appendix 4.

### ***Creel Fleet***

4.2.8 The creel fishing fleet in the region target Nephrops, brown crab, velvet crab and lobster, depending on habitat types locally present. 2009 saw the first year in which the landings values of the sector exceed that of the mobile gear sector, with landings in excess of £8.3m.

4.2.9 Many vessels prosecute all fisheries on a seasonal basis dependent upon availability, whilst others may specialise in one particular fishery. Whilst it is possible to make a fairly clear delineation of targeted Nephrops fishing, due to specific gear types and fishing habitat, it is more difficult to do so with the mixed crab and lobster fisheries where each species is often caught and landed as bycatch when targeting the other species.

4.2.10 Whilst a majority of regions creeler are small under 10m vessels working day trips, there are larger vessels operating static gear within the region. There has been an increase in the number of larger vivier vessels targeting crab nomadically around the UK. At times these vessels may fish and land within the IFG region. There has also been an expansion into deeper water Nephrops creeling grounds, with over 10m vessels working larger quantities of gear further offshore with a longer soak time. Inshore creel vessels may typically work 400-1500 creels,

although some vessels may work much more. There are anecdotal reports of increasing numbers of creels deployed by some vessels in the sector.

4.2.11 The creel fleet are not centred around key large ports and harbours in the same way as the mobile gear fleet and small vessels operate may throughout the region from many isolated locations.

4.2.11 Creel caught Nephrops are a premium export product achieving a premium price of some £8.39/kg at first sale, versus an average £2.18/kg in the mobile gear sector. Nephrops are packed live into tubes and a majority exported live to market either via vivier trucks or in some instances by air. Spain is the main market, with France and Italy also significant. Little of this premium product is consumed domestically.

4.2.12 The traditional domestic demand for whole live crab has diminished in recent years favour of pre-processed products. Most of the regions brown crab catch is destined for these processors, although live markets do exist with the main export markets are France and Spain where landings are transported by vivier lorry. In recent years production has increased as investment has been diverted away from pressure stock fisheries into shellfish and an intensive offshore vivier vessel fishery has developed, mainly in the UK and Ireland. Coupled with this increase in production has been an associated drop in market price to just £1098 per tonne live weight.

4.2.13 Lobster are fished with creels year round on hard ground, although peak periods of demand for this premium product include Christmas and Easter. A small amount of product may be destined for the local food service sector and the domestic retail sector, although a majority is for live export markets. 2009 also saw a reduction in prices obtained by vessels of some 4% on 2008 adjusted levels to around £10.32/kg

4.2.14 The velvet crab fishery is targeted almost exclusively by smaller inshore vessels on shallow hard grounds close to shore. In addition to landings from the targeted fishery there is a significant component landed as by catch from the crab and lobster fishery, although it is difficult to separate these components. A majority of landings are destined for the Spanish market, with most demand being for live product. There is also a small market for cooked and frozen product. The domestic market is not developed.

4.2.15 The creel sector does not face the severe economic issues and high costs faced in the mobile gear sector. The UK under 10m creel sector showed profitability on average of around 26%, earning a £14k net profit.. A more detailed breakdown of the fleet economics can be found in Appendix 4.

### ***Scallop Dredge fleet***

4.2.16 A significant component of the dedicated scallop fishing effort in the area typically comes from the larger nomadic scalloping fleet of vessels of up to 30m length, some of which are based in the region, and which work waters around the UK on a cyclical basis. In addition there are smaller resident vessels targeting the scallop fishery year round, as well as some seasonal effort from some vessels otherwise involved in the Nephrops trawl fishery.

4.2.17 The main markets for the scallop dredge fishery product includes France and Italy. A majority of the product is processed, some locally in the IFG region, and exported as scallop meat. A small volume is destined for the UK wholesale and retail markets. The average price for scallops dropped 13% in 2009 compared to 2008, to £1728/tonne

4.2.18 As well as a decline in the prices, the fleet has been faced with declining catches within the IFG region (see Chart 4) and is faced with increasing pressures from high fuel prices. Profitability is some 12% of total income, with net business profits on average of £37k.

### ***Hand/Dive caught scallopers***

4.2.19 In addition to the dredge caught fishery, scallops are also exploited by hand with scuba diving equipment. This fishery feeds different markets to the dredge caught produce, with the scallops being sold live in the shell as a premium product. In 2009 some 63 tonnes of hand caught scallops were landed, representing just 6% of the landed total, but almost 10% of landed value with a contribution of some £183k. Spain, France and Italy are key whole shell scallop markets, although quantities are also destined for the domestic premium market.

### ***Ports***

4.2.20 The landing ports for catches from the IFG region are shown in Table 2 below. The ports with the highest value landings are generally those supporting the larger mobile gear fleet in the region. Landings into Mallaig reached some £5m in 2009, reflecting the high volume of landings into the port by both resident and visiting vessels, largely from the mobile gear Nephrops fishery. The ports with the next 2 highest landings figures of catches from within the IFG region are Oban and Portree, reflecting their close proximity to the IFG waters and large resident Nephrops trawl fleets.

4.2.21 The other smaller landings ports are generally more creel based and do not support the sizes of fleet that these main fishing centres do. Accordingly landings are more evenly spread through out the region. A more exhaustive list of landings ports for catches from the IFG region is provided in Appendix 4

Table 2 Landings of catches from the IFG region, by top 10 highest value landings port 2009.

<b>Landing Port (IFG Ports in bold)</b>	<b>£000's</b>	<b>Tonnes</b>
<b>Mallaig</b>	5384	2512
Oban	1502	799
Portree	1206	376
<b>Strathaird (Elgol)</b>	939	116
<b>Snizort</b>	862	347
<b>Fionnphort</b>	778	563
Stockinish	764	110
<b>Tiree</b>	743	213
<b>Dunvegan</b>	737	139
<b>Ardnamurchan</b>	508	80

### *Employment*

4.2.22 The number employed in the Scottish fishing industry has fallen from some 7330 in 1999 to 5409 in 2009, a fall from 0.3% of the labour force, to 0.2%. However it should be noted that the Highlands and Islands and Argyll and Bute regions maintain fisheries employment above the national average at 0.81 and 1.24% respectively. Some 508 fishermen were employed in Argyll and Bute, and 949 in the Highland region in 2009. Appendix 4 details numbers of fishermen employed in different fisheries sectors based upon to 2009 fleet economic review. In addition to the numbers employed directly in the inshore fisheries catching sector, the industry also supports a significant number of downstream employment in the fish processing and marine support sectors.

## 4.3 REGULATIONS AND LEGISLATION

### *European Regulation; Cod recovery plan*

4.3.1 In addition to routine European management under the Common Fisheries Policy, currently the West of Scotland is subject to a European Cod recovery plan, introduced in 2004, implementing a range of technical measures and catch composition regulations intended to facilitate recovery of the regions cod stocks. The cod recovery plan has had a significant impact on the fishing activities undertaken in the IFG region. The latest regulation relating to the recovery plan should be sought from Marine Scotland-Compliance. Relevant offices to the IFG region are Oban (covering within the IFG area Coll, Tiree, and Mull ), Mallaig (Ardnamurchan, Arisaig, Glenuig, Salen and Mallaig) and Portree (Bracadale, Dunvegan, Sleat, Kyle, Snizort and Strathaird)

### ***Domestic regulation***

4.3.2 Within 12 nautical miles of Scotland's coast, the Scottish Government has the ability to take non-discriminatory conservation measures, provided that the EU has not already legislated in this area. Since 1984, inshore fisheries in Scotland have been regulated primarily through the Inshore Fishing (Scotland) Act 1984. Section 1 of the Act enables Scottish Ministers to regulate fishing in inshore waters by prohibiting combinations of the following:

- all fishing for sea fish
- fishing for a specified description of sea fish
- fishing by a specified method
- fishing from a specified description of fishing boat
- fishing from or by means of any vehicle, or any vehicle of a specific description
- fishing by means of a specified description of equipment
- Ministers may also specify the period during which prohibitions apply, and any exceptions to any prohibition

### ***Fisheries Closed Areas***

4.3.4 The Southern Inner Sound is closed to fishing with mobile gear or suction dredge at certain times of year under the Inshore Fishing Scotland Order (2004), including Loch Alsh, Loch Duich and Loch Hourn. Fishing with a twin rig or trawler vessel larger than 12m is prohibited from fishing this area all year round.

### ***Shellfish Harvesting Waters***

4.3.5 Under the European Shellfish Directive 91/492/EEC health conditions are prescribed for the production and marketing of live bivalve shellfish (oysters, mussels, cockles, scallops etc). In Scotland the responsibility for assessing adherence to these conditions falls to the Food Standards Agency (FSA). The FSA must establish the areas and fix the boundaries of production areas for live bivalves from either aquaculture or fisheries activity.

4.3.6 The meat content of bivalves harvested from these areas is analysed for bacterial types and concentrations and the waters from which they were taken graded accordingly. Shellfish achieving grade A are fit for human consumption straight from the sea, whereas shellfish from category B or C must be purified accordingly.

4.3.7 The IFG region is an important bivalve production area and contains many waters classified for the harvesting of mussels, pacific oysters and razorfish. A comprehensive list of these waters and their locations can be found in Appendix 4.

### ***Voluntary Agreements***

4.3.8 A voluntary gear conflict prevention and mitigation agreement exists between Mallaig and North West Fishermen's Association and Mull Aquaculture and Fisheries Association. This was developed to try to stop the preventable loss of creels by Mull vessels to mobile gear vessels. The details of the agreement can be found in Appendix 4.

## 4.4 ENVIRONMENT

4.4.1 The marine environment of the Small Isles and Mull IFG area is both physically and ecologically diverse, ranging from very exposed waters bounded by rocky coastline to extremely sheltered sea lochs. Within and between these extremes, this area supports a diversity of seabed habitats and associated flora and fauna. Those of particular ecological and conservation interest include rocky reefs, biogenic habitats (e.g. maerl, mussel and seagrass beds), burrowed mud and intertidal sediment flats. Much important flora and fauna is contained within these areas, but they also provide foraging areas for various fish and birds, as well as supporting broader ecological functioning of the marine environment. Marine mammals are also an important feature of the natural heritage of this area.

### *Protected Areas;*

#### **Natura 2000 sites:**

4.4.2 **Special Areas of Conservation (SACs).** Designated by Scottish Ministers under the EC Habitats Directive, these areas represent the range and variety of habitats and (non-bird) species within the EU, as listed in Annexes I & II of the directive. The Small Isles and Mull IFG area has 10 SACs with qualifying marine and/or coastal/freshwater features with strong links to the marine environment (appendix 4).

4.4.3 **Special Protection Areas (SPAs).** Classified by Scottish Ministers under the EC Birds Directive, these are areas identified as the most important for rare and regularly occurring migratory birds in the EU. The Small Isles and Mull IFG area has 4 SPAs with qualifying species with links to the marine environment (including human access across coastal breeding habitat to intertidal beaches)(appendix 4).

4.4.4 **Sites of Special Scientific Interest (SSSIs).** These areas provide protection for the best examples of the UK's biological, geological or physiographical features, down to mean low water of spring tides (MLWS). Many SSSIs overlap with SACs and SPAs. The Small Isles and Mull IFG area IFG area has 9 SSSIs with biological features that are intertidal or have a link with the marine environment (appendix 4).

4.4.5 **Ramsar.** Meeting UK commitments under the Ramsar Convention, these sites are recognised as wetlands of international importance. The Small Isles and Mull IFG area has 1 Ramsar site with features relevant to the marine environment (appendix 4).

### *Protected Species*

4.4.6 **European Protected Species (EPS).** Listed on Annex IV of the EC Habitats Directive as species in need of strict protection, marine EPS in Scotland are otters, cetaceans and marine turtles. It is an offence to deliberately or recklessly injure, capture, kill, harass or disturb an EPS (for legal detail see the [Conservation Regulations 1994](#)). These European Protected species can all be expected to be present within SI&M IFG regions waters at some time (for further details see appendix 4)

4.4.7 **Wildlife & Countryside Act, 1981.** Marine species with special protection under schedules 5 and 8 of this act include basking shark, otters and all cetaceans and marine turtles. The Sound of Canna is known to be a hotspot for watching basking sharks.

4.4.8 **The Marine (Scotland) Act 2010.** This act significantly increases the level of protection for Scottish seals, including a new licensing and reporting system for killing/taking of seals at any time of the year, it is due to come into force in early 2011. The Inner Hebrides has approximately 7% of the UK's grey seal pups according to the latest (2008) Sea Mammal Research Unit Survey, and the wider West Coast contains some 22% of the UK population of Harbour Seals.

#### ***Wider Seas***

4.4.9 There are some marine species and habitats present in the Small Isles and Mull IFG area which do not receive explicit protection (except where designated as features of protected areas), but are particularly important in the context of biodiversity conservation and/or ecosystem function and may be vulnerable to fisheries impacts. Key features from the *SNH Draft Priority Marine Features List* that are present in the SI&M IFG area can be found in the appendix.

#### ***Invasive non native species***

4.4.10 The introduction of non-native species can be a risk to some fisheries sectors by competing with native species, causing imbalance in natural food-webs or interfering with the operation or efficiency of fishing gear. Non-native species can thrive in a new environment where there is a lack of natural predators or competitors. Vectors for the introduction of non-natives include ships ballasts, fouled hulls and fishing gear, or through the movement or release of live plants and animals. Fishermen may be in a good position to report on the presence of non-native species and to take action to reduce the risk of introducing non-native species. Appendix 4 provides specific information on risk species, identifies which may be a particular issue for the Small Isles & Mull IFG area, possible consequences for fishing activities, actions to reduced risk of introduction and relevant links for more information and reporting sightings.

## 4.5 OTHER ACTIVITIES

### *Aquaculture*

4.5.1 Aquaculture produces Scotland's top food export, and the sector is worth some £434 M at the farm gate. The SI&M IFG region is a nationally important marine aquaculture production area both for salmon and shellfish, particularly mussels and oysters, and the sector provides valuable employment opportunities in isolated areas.

4.5.2 Scotland is one of the world's top 3 producers of farmed Atlantic Salmon, producing 144,000 tonnes in 2009. Nationally the salmon sector is worth some £412 M and provides 963 full and part time jobs in production. However despite increases in production outputs and values in recent years increases in the levels of automation in operations and consolidation to large production sites have resulted in a decline in the need for employment in production from 1 job per 97kg in 1999 to 1 job per 150kg 2009. The shellfish farming sector is worth some £7.7 M nationally and supports 169 full time and 176 part time jobs.

4.5.3 The aquaculture sector is currently buoyant following disease issues overseas in both the salmon and oyster aquaculture industries and the opening of new international markets. The production areas of the sector are expected to expand and increase over 4.5.4 the coming years in response to high demands. A majority of the salmon farming in the region is now undertaken by large company's; Marine Harvest, The Scottish Salmon Company and Scottish Sea Farms being the largest in the region.

4.5.6 The region is already host to many active and inactive production sites. There are limited opportunities for salmon farm expansion in the typical sheltered site locations close to shore, and some firms in the sector are looking to expand into deeper more open waters. Scotland's Marine Atlas identifies 118 shellfish farms and 134 salmon in the Minches and Malin sea region, which encompasses the SI&M IFG region.

4.5.7 Highland Council have developed Aquaculture Development Plans for Loch Nevis, Loch Hourn, Loch Sunart and Loch Bracadale, details of which can be found in Appendix 4

### *Leisure and Tourism*

4.5.8 The leisure and tourism sector is an important source of income to communities in the IFG region and a diverse range of activities make use of the marine environment. The following economic values, unless otherwise stated, are drawn from Scotland's Marine Atlas 2011.

### *Sailing,*

4.5.9 The west coast of Scotland is internationally renowned as a sailing destination due to the spectacular scenery and coastline conducive to clement sailing conditions. Within the IFG region there are numerous RYA recreational cruising routes, as well as an RYA sailing area around Ardnamurchan and the Small Isles. There are innumerable anchorages throughout the region as well as large marinas, with the West Coast (Argyll- Gairloch, including the Outer Hebrides) to host 39% of the nations berthing with 1030 pontoons and 2637 moorings. There are also proposals to develop additional marinas and berthing facilities in the region, including at Mallaig and Oban. The sector in the West of Scotland region is worth some £39 M

### *Scuba diving,*

4.5.10 The IFG region is of particular interest to scuba divers due to its diverse rocky habitats and clear waters in often sheltered conditions. Key areas of activity include the north east coastline of Skye, around Loch Bracadale, and the Sound of Mull. Several charter vessel operators offer diving trips and there is also significant independent diving activity. It is estimated that there are around 8000 dive days from commercial charter vessels in the Sound of Mull annually.

### *Sea Angling*

4.5.11 Several charter boats operate in the IFG waters from the regions ports, and some sea angling takes place from the shore. Areas of highest activity are generally those most accessible and nearest to the urban areas in the region. The Sound of Mull is well known as an important angling area for common skate. Other species of interest to anglers in the region include Spurdog, Pollack, and mackerel. It is estimated that total gross expenditure by sea anglers in Scotland in 2008 was some £141 M. However, a significant majority of this would have occurred close to the main coastal population centres in Scotland, with a significantly more limited economic contribution in a rural region such as the SI&M IFG (see Appendix 4).

### *Wildlife watching*

4.5.12 Marine wildlife watching is an important attraction for the area with numerous operators of wildlife tours and vessels across the region. Nationally it is estimated that the industry contributes some £92 M and 4386 jobs to the economy, although it has not been possible to separate a relevant regional marine component from this. Marine species of particular note for supporting this sector in the region are whales, dolphins, puffins, sea eagles and seals.

### ***Shipping and Transport***

4.5.13 The IFG region does not host any major freight ports, although the Minches are a relatively heavily used shipping route with the concentration of commercial and freight activity occurring along the Western boundary of the IFG area. Scotland's Marine Atlas notes an average 2,320 passages per month through the Minches, excluding local ferry traffic and fishing vessels.

4.5.14 Ferry services are key transport links in the region and numerous routes are serviced by a variety of operators. Key ferry ports in the region are Oban (serving Mull, Coll, Tiree, Barra and Uist), Malliag (routes to Skye and the Small Isles) and Uig (Harris and Uist). A chart displaying the regions ferry routes can be found in appendix 4.

### ***Renewable energy***

4.5.15 The EU has set a target of achieving 20% of EU's energy consumption from renewable sources by 2020. The Scottish Government has made a commitment to meet 80% of Scottish demand for electricity from renewable sources by then.

### ***Windfarm developments***

4.5.16 Scotland has around a quarter of Europe's potential offshore wind resources. Its strong offshore winds provide the ideal conditions for technology which can harness this powerful resource. The IFG region provides good meteorological conditions for the siting of windfarms and production is expected to be significant in the future.

4.5.17 In the short term there is an area of search for suitable windfarm siting on hard ground to the South West of Tiree, covering some 361 sq km and potentially 1800MW in size. The commercial suitability of this potential development site, the Argyll Array, is being considered by Scottish Power Renewables. In the medium term (up to 2030) the Scottish Government are considering an additional 4 major development sites within the IFG region, as detailed in appendix 4.

### ***Tidal generation***

4.5.18 In addition to the potential for wind generated power, the regions hydrography is also well suited to the generation of tidal power. Whilst the Scottish Government has yet to identify and highlight the potential development areas for tidal energy generation in the area, there are existing proposals for an experimental site off Kyle Rhea between Skye and the mainland.

4.5.19 In addition to the installation of renewable energy generation equipment at sites there will also need to be the installation of significant quantities of sub sea cabling to reach connections to the national electrical grid.

## 5 OBJECTIVES

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### 5.1 INTRODUCTION

5.1.1 The SI &M IFG has drawn up and evaluated management objectives for local fisheries within the SIFAG high level objectives framework., as presented below.

### 5.2 HIGH LEVEL OBJECTIVES

5.2.1 The Scottish Inshore Fisheries Advisory Group identified 5 key high level objectives inshore fisheries management. These are;

**BIOLOGICAL:** to conserve, enhance and restore commercial stocks in the inshore and its supporting ecosystem.

**ECONOMIC:** to optimise long-term and sustained economic return to communities dependent on inshore fisheries, and to promote quality initiatives.

**ENVIRONMENTAL:** to maintain and restore the quality of the inshore marine environment for fisheries and for wildlife.

**SOCIAL:** to recognise historical fishing practices and traditional ways of life in managing inshore fisheries, to manage change, and to interact proactively with other activities in the marine environment.

**GOVERNANCE:** to develop and implement a transparent, accountable and flexible management structure that places fishermen at the centre of the decision-making process, and that is underpinned by adequate information, legislation and enforcement.

### 5.3 LOCAL OBJECTIVES

5.3.1 The local objectives were identified and prioritised by the IFG Executive Committee members at a series of meetings held in 2010, following discussions with their association constituents. Initially, each Executive Committee member was asked to identify and rank the 10 main concerns of their constituents. The issues highlighted and their rankings were aggregated and presented back to the Executive Committee. Subsequent discussion and exploration of these prioritised issues led to the identification of the local objectives detailed below. These were fully considered alongside each SIFAG High Level Objective to ensure consistency between the High Level and Local Objectives and to ensure that the full potential for IFG involvement was realised, rather than focussing on a narrow range of issues. This linkages between the High Level Objectives and the Local Objectives is presented in table X

#### 5.3.2

Measures were also assessed against SMART criteria - specific, measured, achievable and timely, in line with original recommendations from the Scottish Government. In all cases it was considered that the SMART criteria have been met. This analysis can be found in Appendix 5.



**Local Objective 1; *Maintain access to fishing grounds where possible***

*Issues and approach.*

5.3.4 The Small Isles and Mull IFG region is increasingly becoming subject to the pressures of increasing use of the spatial resource for leisure and industry. The IFG recognise that there are significant threats to the future access to current, historical or potential fishing grounds through the competing demands of other marine sectors. Immediate term threats to access to fishing grounds within the IFG region include marine renewable energy developments, increased aquaculture production sites, Scotland's Marine Protected Area network, and the development of a regional marine planning process and potential for increased prescribed usages zoning.

5.3.5 The nature of the Scottish inshore fishing industry is such that in order to remain viable it must exploit a range of different fishing opportunities which are often prosecuted on a seasonal and spatial basis. This pattern of use of the space at sea is not well documented or well understood by government and other stakeholders. This leads to a poor appreciation of a) the spatial extent and requirements for the fishery, or b) the potential wider effects, both commercial and environmental, of displaced fishing effort.

5.3.6 The IFG recognise that there will likely be a need for the fishing industry to defend its continued access to fishing grounds and to provide evidence to support its arguments for continued access, and that on that basis the IFG should seek to begin to collect such data and to be proactive in engaging with other competing resource users.

5.3.7 Whilst it is accepted in some cases that the current fishing patterns may not be compatible with the competing/developing demands/requirements of other marine users or conservation, it is felt that in a majority of instances there should be the potential to retain most, if not all, of the multiple fisheries uses of a piece of ground, whilst still satisfying the reasonable needs of other sectors. Through positive dialogue with other marine users the IFG seeks to fully understand the rationale for any desired restriction of access to fishing grounds and the opportunity to develop fishing practises answering or mitigating these concerns, and would seek to negotiate to ensure that any forthcoming exclusion was based upon sound evidence of incompatible demands.

**Local Objective 2; Improve the quality of data available to inform and underpin IFG management supporting inshore fisheries**

*Issues and approach*

5.3.8 The IFG Executive Committee feel that the limited fisheries data available to it are inadequate to properly inform long term local management. Reports from Executive Committee members and the fishermen they represent can often give something of a conflicting picture with regards to stock status and fisheries characteristics across the IFG region, and without hard 'evidence', by the way of facts and figures to underpin these issues, finding consensus on a particular fishery stock issue can be difficult. Executive Committee discussions can suffer from a lack of substantive, impartial, locally relevant, fishery and stocks information to underpin the observations, and it is agreed that an evidence led approach must be taken.

5.3.9 Currently there is very limited and inadequate collection of local data on both fishery activities and stock dynamics for confident application in local IFG management.

*Spatial resolution of data collection*

5.3.10 Landings data are currently reported in EU logbook for all vessels over 10m and the NEP1 and SHELL1 forms for Scottish vessels under 10m (see appendix X), and since the introduction of Sellers and Buyers, declarations are checked against sales notes.

5.3.11 The original primary motivation for collection of these data, and for which the data collection programme was tailored (with the obvious exception of the subsequent addition SHELL1 returns and non TAC species landings data), is for the management of European TAC species, and therefore does not require a fine detailed spatial resolution of the data. As a result the data recorded is attributed to a 900 mile<sup>2</sup> ICES statistical rectangle. Such coarseness is not an appropriate resolution for informing IFG management of fishing activity, or for evidencing fishing activities at a local planning level.

5.3.12 The difficulties of using these data are compounded further by the fact that these ICES rectangles do not align well with the borders of the IFG region (appendix 5), making assessments of fisheries productivity from within an IFG level very difficult.

5.3.13 It should also be noted that for inshore vessel landings Marine Scotland Compliance staff attribute vessels returns to either inside or outside 6NM from shore, however this is done arbitrarily by staff based upon their local knowledge rather than on information provided by fishers.

*Data on fishing effort*

5.3.14 The current reporting process for the creel sector lacks a basic but crucial component of meaningful measures of fishing effort. Whilst effort in the mobile gear sector is currently measured (in days absent and Kw days) and can be gathered, in the creel sector this would pertain to the number of creels set, and the regularity with which they were hauled/baited, and this is currently unmeasured and unknown in the IFG region. As a result of missing this crucial metric for fisheries science, the assessments currently undertaken by Marine Scotland scientists for the main non-TAC shellfish species in the IFG region are based on what the fishing community have perceived to be overly assumptive models. Attracting particular attention is the length cohort analysis (LCA), which is generated through sampling of market landings and examining the different proportions of the different sizes of individuals and how this has changed year to year, and using this to attempt to infer something of the status of the stock. However, the model assumes that fishing effort remained constant throughout the time series analysed, alongside consistent recruitment to the fishery, both of which are unlikely given normal annual variations. As a result scientists can only provide basic advice with many caveats recognising the limitations of the assesment, and the IFG Executive Committee display very limited faith in the current scientific advice given for the main non TAC shellfish species. The scientific assessments could be improved significantly with a better understanding of and data on creel fishing effort, combined with sampling of discards in the fishery to better understand total fishing mortality.

#### *Sampling and assesment units*

5.3.15 To inform the current shellfish assesment process, Marine Scotland undertakes market sampling according to the assesment units shown in appendix 5.

5.3.16 These shellfish assesment units do not correspond particularly well to the IFG boundaries and cover considerable sea areas outside of the IFG area. Coupled with low sampling levels this is felt by the Executive Committee to be important, particularly with certain shellfish species assessments, such as crab and lobster, where there can be considerable variation in local population characteristics between one location and another. There is not perceived to be any significant biological motivation for not integrating the sampling and assessment units for the main non TAC shellfish species with the boundaries of the IFG, and the Executive Committee believe that this would lead to the most effective and informed management of fishing activities at an IFG level.

#### *Fishing activity mapping*

5.3.17 The IFG recognise the need for the fishing sector to document its spatial activities in a way that is accessible to other stakeholder sectors in order to be able to integrate fisheries needs effectively into marine spatial planning. Within the IFG mapped fishing activity data may be of great assistance in demonstrating existing and past fisheries use of an area in order to support sustained fisheries access arguments, identifying spatial management strategies in different fisheries, improving understanding of potential displacement affects, and as a potential starting point for addressing gear conflict issues.

5.3.18 However, it must be recognised that whilst identifying the need to release such information to improve planning, there remain reservations within the IFG Executive Committee regarding the release of fine scale spatial data to competing sectors, particularly nature conservation. There is a strong fear that such information could be used for the explicit

purpose of excluding fishing from an area, as was indicated during the recent SSMEI Sound of Mull Project. As a result the IFG believe that a level of control should be retained over how the data are used when releasing this data to other parties.

**Local Objective 3; Reduce the spatial pressure on creel fishing grounds associated with increasing individual vessel creel numbers**

*Issues and approach*

5.3.19 Creels and pots of varying designs are used in the inshore industry within the IFG area to target Nephrops, lobster, brown crab, velvet crab, green crab, shrimp and a range of other potential shellfish species, as well as in a re-emerging wrasse fishery.

5.3.20 The sector has attracted participants and vessels from other fishing sectors as other opportunities have diminished and operating costs have risen. Anecdotal reports from within the IFG indicate that creel effort levels by individual vessels have also increased significantly over recent years, with some vessels working several thousand creels at any one time. It is believed by the Executive Committee that these increases in levels of effort in the sector are starting to have negative effects on the fishing community contributing both to inter-sectoral gear interactions and affecting access to grounds within the creel fishery itself. However, it is recognised that these effects may not be visible in all areas of the region. It is felt that for creel effort to continue to increase at the rate at which it is perceived to have increased in recent years will be unsustainable over the longer term, and that measures are needed to ensure levels of individual vessel creel effort in the region are maintained at an appropriate level to prevent this situation.

5.3.21 There are a great many different reasons cited within the industry for supporting the limitation of creel effort in the fishery and the effects of this increasing effort are wide ranging, and the issue is considerably muddled by the more general conflict between the static and mobile gear sectors. As a result there are some remaining detractors from the general overall support seen for this measure who maybe perceive its motivations being based in this sectoral conflict and designed to advantage the mobile gear fishing sector at the expense of the less organised creel fishing sector.

5.3.22 Unfortunately very little data collection or research has taken place with regards to static gear effort levels and the issues associated with it, and it is a generally poorly documented topic and difficult to study. As a result many of the underlying issues motivating this objective are currently unsubstantiated and require significant research to underpin with empirical evidence. It is unsubstantiated if the reports of increasing effort levels actually reflect increasing average levels of effort in the fishery, or as a result of a few key vessels operating significant numbers of creels. It is with this purpose that certain key issues, specifically the human interaction element, have been highlighted. Other issues, such as stock considerations discussed briefly below, are very likely to be relevant, but are more problematic in understanding a clear causal relationship.

5.3.23 Within the context of the IFG this objective is motivated by a recognised need at Executive Committee level to cap increasing creel numbers in order to maintain a fully

functional fishery that is accessible to the participants at what is perceived to be an acceptable level within the IFG.

#### *Fisheries stock management*

5.3.24 Whilst it may be believed by some that the increasing creel densities have had a negative affect on stock levels, there exists little empirical evidence to support this assumption in the context of management at an IFG regional level.

5.3.25 At a wider level, in the case of the Nephrops fishery for example, management is via TAC control set at a European level. Of this TAC the contribution of the creel fishery as a whole across the UK is in the region of 5%. To the wider assessed and exploited stock the effect of creel fishing landings are somewhat limited in magnitude and furthermore little is understood at a biological stock level about the interaction between creel and trawl fisheries.

5.3.26 The sector makes a greater contribution in the IFG region, where catches approach 16% of the total volume, and there may be greater localised stock effects due to intensive local exploitation. It is arguable that at a local scale, such as within sea lochs, intensive creeling operation can have a significant affect on local stock levels. In areas where the grounds are fully exploited and spatially 'choked' with static gear there is less opportunity for a fisherman to move the gear in the face of diminishing catches, and furthermore there is an incentive to keep the gear on the piece of ground to prevent another operator moving in. In such instances fishing practise has changed from the flexible hunting strategy, responding to changes in prey abundance, to a more routine re-baiting of virtually permanently located creels. This effort focused long term on the same piece of ground over extended periods of time may have significant effects on catch rates, local stock characteristics and local stock levels.

5.3.27 However, creeling activity is generally highly localised to suitable habitats and fisheries data is not yet collected at an appropriate scale to be able to investigate these possible effects within the region. Overall, whilst increasing creel effort may have some effect on the local abundance of certain stocks, we have very little understanding of how it relates to wider stock dynamics. It is anticipated that there may be some beneficial effects to stocks at a local level from the regulation of creel effort, however this is not the aim of the objective.

#### *Competition for Space*

5.3.28 The competition for space in fishing grounds in this context can be separated into two categories. Competition between creel fishing operations, and competition for access to space between the mobile and static gear sector. Both areas of competition have the potential to spill over into conflict and incidences are reported to increase as individual creel effort levels increase.

5.3.30 Whilst both mobile and static gear fisheries can coexist on the same areas of ground, the effectiveness of this relationship very much depends upon good communication between the two sectors, and a willingness to be flexible and accommodating and exploit the ground with regard to other fishing activities or at different times. Failure to do so can result in lost fishing

time and equipment to both parties. Unfortunately, historically in some areas such relationships have not always developed, and even in areas where a positive relationship has been fostered, it is often subject to occasional disruption due to the incursion of vessels unfamiliar with (or unwilling to recognise) the local arrangements, and needs regular attention to remain active.

5.3.31 The two key areas of conflict between the mobile and static gear sectors occurring on occasion within the IFG region are between the Nephrops creel and the Nephrops trawl fishery, and the brown crab creel fishery and the scallop dredge fishery. Interaction between these fisheries has occurred in the past, although prior to the removal of the 3NM mobile gear ban in 1984 such interaction was minimal as the majority of the creel industry operated well inside of this limit. Since 1984 both the static and mobile sector fishing practises have changed considerably. Advances in rockhopper trawl designs and vessels with higher towing power opened up rocky areas that were previously inaccessible to the trawler fleet and considered creeling ground. Although, subsequent to this expansion in fishing grounds the mobile gear fleet has declined in numbers, and effort is controlled by European days at sea allocation under the cod recovery plan, whilst conversely the levels of creeling activity (number of creels) have increased significantly, maintaining and increasing the competition for space and levels of conflict with the trawling sector.

5.3.32 Against a background of sometimes poor relationships between the mobile and static sectors, some static gear fishermen may perceive that an IFG creel effort limit objective is motivated by better organised mobile gear sector interests wishing to relieve areas of inshore ground of the creels and open up opportunities for the mobile gear sector. Whilst in some cases the reduction of creel effort in an area may allow the incursion of mobile gear effort, it is believed by the Executive Committee that overall the benefit of capping creel numbers to the creel fishery itself will outweigh any issues arising from the incursion of mobile fleet. Furthermore, it is not anticipated that a cap on creel numbers would necessarily result in any significant changes in the overall spatial distribution of the fisheries, rather that benefits would follow from having a lower density of creels on an existing creel fishing ground. The IFG considers that the objective of managing creel numbers at acceptable levels is a well supported concept within the creel sector in the area and is generally accepted as essential to the longer term health and well being of the sector.

5.3.34 There is concern that the increasing levels of creel effort reported will make entry into the fishery difficult for new entrants who may experience difficulty in finding space to work their gear. Whilst the best fishing grounds are highly prized and arguably have never been available to new entrants, the concern remains that with extensive areas of fishing grounds blocked off by established operators little remains for aspiring young fishermen. Noting that not all creel fishing effort is active, and that some areas of ground are blocked off to maintain territory, it is felt that access could be improved with a limit on creel numbers reducing the likelihood of surplus creels being used to maintain territory. There are reports of inactive creels being left on the ground, unhailed, as a means of maintaining territory effectively excluding both the mobile and other static gear operators. The use of such inactive or rarely hauled gear to block areas of ground from other fishing operations, whilst not necessarily malevolent, is seen as a negative by the IFG Executive Committee as it removes the opportunity from the rest of the fleet. And may continue to fish as a trap, even unbaited.

*Total creel fishing effort*

5.3.35 There is a strong argument supporting the limitation of total creel effort in the IFG region, rather than addressing individual levels of effort which could still allow for the incursion of additional vessels thereby maintaining effort levels. The IFG recognises that in order to have the desired effect of freeing the creel fishery from this increasing pressure that overall levels of creel effort should not be increased. However doing so without significant and unwelcome legislative changes regarding access to the fishery make such a measure unwelcomed by the IFG Executive Committee and an individual vessel limit approach is preferred. The Scottish government may consider access permit schemes at a later date..

*Disincentive for effort and investment transfer from other sectors*

5.3.36 As profitability in other more heavily regulated and fuel intensive fisheries diminishes, an uncapped creel fishery provides an attractive option and strong incentive to switch into the sector. It is believed that an individual cap on creel numbers will reduce any incentive for larger vessels to enter into the creel fishery in the IFG area, which to some extent will protect the inshore fishing opportunities for vessels traditionally supported by these activities. It is recognised that individual effort limitations are the most pragmatic mechanism to achieve this objective, with significantly less potential to impact on the operational flexibility required by the inshore industry than would be seen though the alternative measures of total effort limitation and the associated restricted access. The IFG are aware in adopting such an objective that ongoing monitoring of overall effort levels are required in the fishery, and that in the event of a ‘honey pot’ effect attracting more vessels to the region’s fishery that additional management measures may be required to fulfil the wider objective.

*Deeper water Nephrops creeling.*

5.3.37 In recent years a deeper water Nephrops creel fishery has developed on grounds that may in the past not have been considered for creel fishing. This deeper water fishery typically uses a larger number of creels worked rotationally with a longer lay between hauling than would be typical in the more coastal fishery (2+ days), reportedly due to lower catch rates. The development of the fishery is recognised and will be considered in the addressing of the management objective.

**Local Objective 4: *Reduce gear conflict.***

*Issues and approach*

5.3.38 Gear interaction between fisheries can always be expected due to the different nature of fishing gear and its competition for the same resources, in the same place at the same time. Where relationship between the different sectors is poor, and effective communication channels and operational protocols have not developed, this interaction can quickly degrade into gear conflict. As previously mentioned, two different key areas of gear conflict can occur within the IFG region at different times and at different locations- that between Nephrops creel and trawl, and between scallop dredgers and brown crab creeling.

5.3.39 It is hard to quantify the extent of the problems experienced. It has been a long standing issue, and whilst gear losses and entanglements are encouraged to be reported to the

appropriate fisheries office, in practise few reports are filed. There is something of a perception that it is a futile exercise to do so as there is limited scope for further action. However reports indicate that it is often a highly localised issue significantly affecting a few key parties, and it is an issue not always fully appreciated by those unaffected from other areas within the IFG.

5.3.40 Conflict between mobile and static gear Nephrops fishermen occurs in areas where they exploit the same grounds and stocks at the same time, a situation which can lead to entanglement between strings of creels and the trawls being towed. Both parties suffer. The creel operator typically may bear the brunt of the burden with losses of creels, ropes, buoys, weights, bait and the catch contained, as well as the loss of earnings associated with re-rigging and deploying of replacement creels. The trawlerman also wishes to avoid such entanglements as these could affect the fishing performance of the trawl whilst being towed, and will most likely suffer lost fishing time in removing the entanglement and repairing any resulting damage to the trawl. It is sometimes alleged that trawler vessels, particularly some of the more powerful vessels, intentionally tow through static set gear rather than fish around it, although such allegations are hard to prove.

5.3.41 The nature of any conflict between the scallop and creel sectors is slightly different. Scallop dredge gear is significantly more robust than a trawl, and high powered dredging vessels may not have fishing operations impacted by an entanglement in the same way as a trawler. In such a scenario the burden of any interaction is likely to fall solely upon the static gear operator, who may suffer similar losses to those detailed above in the Nephrops fishery. The issue is further confused by the nomadic nature of the fleet, and the cyclical nature of the scallop fishery. This detracts from the development of long term relationships between local operators and makes local knowledge on the part of the scallop skipper, i.e. in terms of which static gear vessels are likely to be working where and when, somewhat difficult to obtain.

5.3.42 There are measures that can be taken by individual creel fishermen to try to minimise the risks of gear losses, or, prevent such an event and to facilitate the recovery of lost gear. However not all operators take such measures. Gear can be clearly buoyed to aid visibility from other vessels, and marked with vessel details to allow for contact in the event of entanglement. However, regardless of any marking, gear is less visible at night when it is particularly vulnerable to accidental entanglement in mobile gear operations.

5.3.43 Codes of conduct such as that between Mallaig and North West Fishermen's Association and Mull Aquaculture and Fisheries Association ([Appendix](#)) have been drawn up in the past. Such agreements incorporate some of this good practise described above and minimise occurrences of gear loss. These can include contact details of those vessels working in the area or their representatives, and details of gear locations and seek to open up or re-enforce channels of communication between sectors and groups. Such codes of practice are generally viewed positively by industry and have demonstrated some success. Reports indicate this to be the case regarding the existing code of conduct between Mallaig and North West Fishermen's Association and the Mull Aquaculture and fisheries Association. However, not all parties are necessarily members of the associations which made the agreements, and not all are aware of it. Furthermore the success of any such voluntary agreement(s) is (are) always dependent upon the good nature of those involved, and in testing times there is not always goodwill towards ones competitors.

5.3.44 In the long term, the most robust solution is clearly to separate those fishing activities with the potential for significant operation conflict through space (with a zoning approach) and/or through time with specific seasons for specific gear fisheries in a given location. However the IFG are aware that the multi fisheries use of the sea must be preserved wherever possible to afford all sectors of the inshore industry the flexibility needed to remain viable. And hard zoning or delineated access agreements should be pursued only as a last resort when other alternative have failed to achieve success.

**Local Objective 5; *Raise the visiting publics understanding of the region's fishing activities***

*Issues and approach*

5.3.45 Significant media attention is devoted to publicising the negative effects of fishing, affecting the wider public perception of the fishing industry. Effective publicity campaigns by the environmental NGOs have often felt to have sought to demonise the fishing industry in an oversimplification of complex fisheries issues designed to further their own conservation objectives. The IFG are concerned that the UK public are presented with misleading information regarding inshore fisheries and this has negatively affected their overall opinion of the inshore fishing industry. This is believed to contribute to a lack of political will to fight for fragile fishing communities needs. Fishermen wish to feel a pride in the job that they do and to feel respected for the risks they take to bring food to the market. It is believed that the current practises of the inshore fishing fleet in the region are sustainable and it is inappropriate for the region's fishermen to be perceived as environmentally irresponsible. It is also believed that this should be demonstrable without expensive environmental accreditation unsuited to small industry. It is felt that at a local level the IFG should seek to engage with the public and improve public awareness of the fishing activities in the area and the seafood it provides. Such awareness is felt to be vital in underpinning future public support for the industry, as well as contributing to a gradual change in the UK's seafood eating habits to take more advantage of domestic produce.

5.3.46 It is recognised that any activity at a local IFG level can not be expected to impact perceptions of fishing nationwide, but instead presents a small contribution to a wider sea change in opinion. The IFG area attracts a significant seasonal influx of tourists and the industry offers a memorable visual experience. These are just at a few key locations in the region, particularly where ferries depart and passengers spend time at the quayside or on piers. The IFG believe that benefits can be delivered, by informing the general public about the fishing industry and its activities at these locations.

**Local Objective 6; *Improve fishermen's awareness of market conditions***

*Issues and approach*

5.3.47 Traditionally, the majority of the fishing sector has been slow to respond to the changing demands of the markets which it serves. For many years the focus of the sector has been more towards production rather than marketing. Whilst retail prices for seafood have risen in line with the economy over the years, the prices achieved to vessels at the first point of sale have remained stagnant or even decreased for many key species. It is thought that most sectors of the regions inshore industry could see economic benefits and improved markets through changing catching practises to more closely align with the opportunities and constraints that the markets present.

5.3.48 Some fishermen have changed catching practises in recent years. The development in the 1990s of the live tubed prawn market and increase in unit value achieved by these vessels is one local example of the benefits that can be achieved by changing catching practises to align closely with market opportunities and develop those markets. New and emerging markets will present new opportunities, yet fishermen are often at the end of long and costly supply chains and not well placed to maximise the benefits. A fuller understanding of the market and their changing conditions will enable fishermen to more effectively exploit these opportunities.

5.3.49 Ultimately, as individual enterprises, it is of course up to vessel owners and operators to assess the benefits or costs to their business of changing catching practises; this can not be dictated by the IFG. The long term aim is for fishermen diversify and shorten the routes to market for their product, and become more dynamic in their dealings with the markets. Realistically, although the IFG can provide information and support, the initiative to change must come from the individual fishermen themselves. Accordingly, the IFG objective in this area is to provide information on markets, the changes constraints and opportunities available, to vessel owners and operators to allow them to make informed decisions about their businesses, rather than expressly seeking to change catching practises.

**Local Objective 7; *Provide advice and support for new entrants to the industry***

*Issues and approach*

5.3.50 As fishing opportunities have been diminished in recent years and average earnings within the industry accordingly reduced, the number of new entrants to the fishing industry has also declined. The lack of young recruits to the industry has already caused a shortage of skilled crew, particularly in the mobile sector, and a situation in some areas of a reliance on skilled migrant labour. A lack of new Scottish entrants as deckhands on fishing vessels, as a career starting point, will also lead to a future lack of experienced and effective UK fishing skippers. The IFG note that in the long term the loss of fishing experience and expertise presents a potential threat to the future ability of the UK to effectively exploit its own fisheries resource and meet its food security requirements.

5.3.51 In part it is felt that the lack of long term career opportunities in the sector is a key deterrent. Basic training courses are run by Seafish and the Fish Industry Training Association. However, it is felt that young entrants and new skippers should be encouraged into the industry with more structured long term career progression opportunities.

5.3.52 Furthermore in the rural IFG region it is perceived that there is a lack of local support and guidance available for new entrants into the fishing industry. This at a time when regulation is has become increasingly complex and involves significant administration by skippers and vessel owners. In addition there are funding sources sometimes available to help with vessel purchase and improvements, although these are not always the most visible or accessible for new entrants to the industry. The Executive Committee have identified the need for support to be available to guide young new entrants through some of these bureaucratic and time consuming processes, and think that the IFG should support these needs and assist the development of the next generation of fishermen. .

**Local Objective 8; *Seek to establish an evidence base for the reopening of fisheries (squid trawl and crawfish tangle net) closed under emergency cod recovery measures***

*Issues and approach*

5.3.53 The 2002 reform of the CFP led to the establishment of multi annual recovery plans for stocks considered outside safe biological limits. In light of this, the cod recovery plan was adopted in 2004 with the objective of returning cod spawning stock biomass levels to the precautionary stock sizes advised by ICES. The cod recovery plan was further amended in 2008 following unsatisfactory performance, and in 2009 additional measures for whitefish and Nephrops fisheries West of Scotland were agreed at the December Fisheries Council. These measures were subsequently extended until mid 2011.

5.3.54 The current measures in place under the cod recovery plan on the West of Scotland have had far reaching consequences for certain fisheries in which the benefits to the cod stocks are minimal. This is due to a low bycatch of cod at particular certain times or in certain places. There are two key fisheries, in which cod recovery measures are thought to have unnecessarily impacts upon potential fishing activities. The squid fishery and the crawfish fishery.

*Squid*

5.3.55 Squid (*Loligo sp.*) can be found in all UK waters and small amounts are landed into many ports, often as bycatch in the trawl fisheries, to total some 2000 tonnes in 2008 with a total value of some £6.2m. Currently, the main market for UK landings of squid is as whole squid for export, and relatively small quantities are destined for the domestic market. The fishery in the Moray Firth, though variable, has supported up to 60 vessels each season and over the last 3 years and delivered on average 186,000 tonnes generating £471k.

5.3.56 There are believed to be quantities of squid to be found at times in the waters of the IFG region, sufficient to support a seasonal fishery and provide an alternative option for the regions trawler fleet and a much needed fishing opportunity. Unfortunately, under current emergency cod recovery measures in place catch composition and mesh size regulations prevent development of this fishery.

5.3.57 The aim the current emergency management in place is the protection of juvenile cod, haddock and whiting. Evidence from the Moray Firth Fishery demonstrates the potential for a clean fishery, with a limited whiting bycatch, although admittedly such comparison between different regions is of limited value. Within the SI&M IFG region reports from expert fishermen indicate that by-catch in this fishery would be minimal and/or avoidable and that the fishery could be developed without significant impacts upon the stock levels of juvenile cod, haddock or whiting.

*Crawfish*

5.3.58 (The fishery is also discussed below under local objective 11 'Establish management of the crawfish fishery) Tangle nets are prohibited under the cod recovery measures (unless worked from shore), due the perceived high levels of associated cod bycatch. However tangle nets are felt to be the only competent gear for crayfish, with traps/creels proving ineffective in the region, and the nets fail to catch any quantity of cod bycatch. The fishery is of significance to those involved due to the high value of each individual creature and seasonally can provide a significant percentage of a vessels income. Whilst the fishery is not widely prosecuted in the IFG region, in more recent times the grounds off Tiree have continued to generate landings and provide a vital source of income to the vessels involved.

5.3.59 The IFG believe that both of the above fisheries are compatible with the objectives of the cod recovery plan and that the emergency technical measures implemented are needlessly restrictive. The IFG should make it its objective to seek to establish the evidence base demonstrating a lack of bycatch and allowing the fisheries to reopen.

**Local Objective 9 ; *Improve understanding of the reduced CPUE seen in the velvet crab fishery and identify appropriate management measures***

*Issues and approach*

5.3.60 Landings from the IFG region rose from 2005-2007 to around 420 tonnes, but have fallen since to some 327 tonnes in 2008, although rising again to 371 tonnes 2009. Despite this slight rise in landings since 2008, anecdotal reports from around the region indicate that there has been a decline in the CPUE in the velvet crab fishery. Marine Scotland Science advice suggests that the stock is growth overfished across the wider region. However, the picture is far from clear. A general decline in abundance of velvet crab has been reported across the region. In the southern and northern areas of the IFG region this has occurred associated with the gradual increase in effort in the inshore creel sector. However in the central area of the region, from Ardnamurchan to Arisaig, this decline has been matched with a decline in local targeted effort and is not felt to be as a result of increased fishing pressure, at a local scale at least. However, little is understood about the migrations and interactions between areas and populations at this scale. Ultimately the reported decline in CPUE is unmeasured and poorly understood

5.3.61 There is significant latent capacity in the fishery, with access possible by all UK shellfish entitlement holders. This is of some relevance in the IFG area as effort could potentially be diverted into the fishery from the from the Nephrops fishery in future years if further reductions in the West of Scotland Nephrops TAC begins to impact upon the under 10 m sector, as is becoming increasingly probable. This, coupled with potentially unregulated effort in the fishery could lead to excessive pressure on the stocks and the fishery.

5.3.62 In velvet crab fishery management elsewhere the SSMO, established under the Shetland Regulating Order, have since 2000 introduced local management measures in the velvet crab fishery. This included increasing the minimum landing size by 5 mm to 70 mm (dates), and the establishment of a closed period during summer for the protection of moulting crab. Whilst there is no market demand for soft velvets and they are not targeted specifically, higher discard

mortality threatens the individual at this life stage, prompting the establishment of this closed period.

5.3.63 The velvet crab fishery is of significant importance to the IFG region and improving understanding of the interaction between the fishery and the stock is identified as a priority objective.

**Local Objective 10; *Identify and implement appropriate management requirements in the developing wrasse creel fishery***

*Issues and approach*

5.3.64 The use of wrasse in sea cages to predate upon the sea lice on the farmed salmon contained can significantly reduce the chemical load of alternative treatments discharged into the environment surrounding aquaculture sites. First explored in the 1990s, the use of such treatment is attracting renewed interest. The IFG is any area of extensive suitable wrasse habitat and already fish farms have been sourcing wild wrasse from the region to use as a licing treatment. Fish farms have been both purchasing fish from local vessels, and been engaging in their own targeted fishing activity.

5.3.65 It is believed that wild populations are unlikely to be able to fulfil such a requirement on a broad basis in Scotland. Accordingly, it is anticipated that the future wider role out of such a lice treatment across Scotland will be dependent upon the development of a specific wrasse breeding programme able to meet the aquaculture industry's requirement from farmed stocks. The estimate from the Scottish Salmon Producers Organisation for the development of a captive breeding programme to full production levels is 2-5 years. Nevertheless, the initial development of the treatment method, and the establishment of a captive breeding programme requires the short term development of a wild capture wrasse fishery.

5.3.66 Wrasse stocks and biology in Scotland are poorly understood and currently no assessment takes place. Therefore the impact of any fishery on the biological stock is unknown, and the need to collect data on the fishery to assist towards improved understanding is recognised.

5.3.67 In the SI&M IFG region creels have typically been used in the fishery, although fyke nets may also hold potential. There has been concern expressed that an attractive bait for wrasse creel would be the crab bycatch from the creel itself, which could likely include commercially important species. The alternative use of fyke nets may offer a method of catching which may mitigate these concerns. Potential otter bycatch issues exist with this gear type, and the use of otter exclusion devices is considered essential.

5.3.68 The IFG recognises the potential for this fishery to develop and provide additional and alternative income to vessels within the region, in the short to medium term at least. Our limited knowledge base concerning wrasse fisheries biology is an issue for the fishery, but should not

prevent its development. It is an IFG objective to seek to identify and establish appropriate management and practises to ensure sustainability of this fishery.

**Local Objective 11; *Establish local management of the Crawfish (*Palinurus elephas* fishery***

*Issues and approach*

5.3.69 The crawfish, or spiny lobster, (*Palinurus elephas*), is found all around the West Coast of Scotland. The IFG region has traditionally been a productive region for the fishery but more recent years landings have declined in line with other areas. It is found in the subtidal zone on exposed rocky seabeds in depths typically between 5-70m, but is also recorded as deep as 170m. The species is thought to undertake a pre-reproductive spring onshore migration and a reverse post-reproductive offshore migration in late autumn.

5.3.70 The status of the stock and landings in the Celtic Sea have been described as ‘residual’ by ICES. The species is of conservation interest and appears on the SNH list of Priority Marine Features. It was suggested for inclusion on schedules to the Wildlife and Countryside Act, although this was rejected. There have been calls from some areas for the closure of the fishery.

5.3.71 The Technical Conservation Regulation (Council Regulation (EC) No 850/98) applies a Minimum Landing Size for *Palinurus spp.* across the EU at 95mm and is the only management measure currently in place over the fishery.

5.3.72 Whilst traditionally the fishery was worked with creels, in more recent years tangle nets have proven more viable and effective. Some landings are also made by divers, both recreationally and commercially, which can also have an impact on stocks, particularly at local scales.

5.3.73 Whilst the species is of increasing conservation significance and overall fishing pressure should not be increased, seasonally it can be an important source of income for those vessels involved. In light of the scant management in place over the fishery it is felt that calls for its closure are a coarse, broad brush solution with unnecessary economic impacts on those remote areas where the fishery is active. It is felt that adequate management measures should be developed for the fishery in the IFG region in an attempt to safeguard the local fishery.

**Local Objective 12: *Reduce inefficient use of crippled lobster.***

*Issues and approach*

5.3.74 Lobster can lose claws due to a variety of reasons including interactions with other species or aggression with other lobster. Whilst stress hormone levels may be temporarily increased leading to a decrease in short term survivorship the lobster is not usually mortally

impaired and over the longer term the missing claw is able to regenerate to a functional extent over several sheddings.

5.3.75 The claw of a lobster makes up a significant portion of its total weight, and is a most desirable component of the landing from a buyers and consumers perspective. Clawless lobsters are clearly of lesser market value than a typical complete, heavier lobster of the same carapace length. However there is no restriction on the landing of crippled lobster, and some operators do retain them in landings. The IFG identify that this is an inefficient use of the resource and that the benefit of allowing for these lobsters to remain in the local spawning stock, contributing to egg production and allowing opportunity for the missing claw to regenerate and achieve the lobsters maximum unit value if recaught, exceeds the short term benefit of marketing that lobster. However, it is clearly difficult to quantify this inefficiency and any attainable benefits.

5.3.76 Whilst it is anticipated that such action would bring some benefit to the lobster stock through maximising egg production and minimising any negative influence of egg production on subsequent recruitment. It is recognised that this is difficult to measure or assess, but valuable to recognise that a 150 mm female lobster may produce as many as 20,000 eggs per year- more than 3 times that produced by a 90mm MLS female lobster at spawning. Nevertheless it is felt that such a voluntary precautionary action has a high likelihood of positive benefit for relatively little economic loss, and is supported within the local industry.

5.3.77 On this basis the IFG do not seek a legislative approach, but instead believe that such action should be undertaken voluntarily as part of good practise in the fishery. However, Little incentive exists for any fisherman to return a crippled lobster if the potential remains for a neighbouring fisherman to subsequently catch and land the very same lobster in the same condition. Current v-notching legislation provides protection for any lobster with a notched tail, and the opportunity is already present to safeguard any returned lobster for several sheddings.

### **Local Objective 13; *Develop a small scale local herring fishery***

#### *Issues and approach*

5.3.78 The herring fishery on the west coast was a major industry in the past and was the lifeblood of the regions main fishing ports. Dangers of stock collapse led to the closures of the fishery in the 1970s, although improved recruitment and reduced exploitation have allowed the stocks to recover. The ICES advice for the fishery in 2011 was a TAC of 22,500 tonnes.

5.3.79 Sufficient quantities of herring pass through the IFG region seasonally to provide important opportunities to support the regions fishing communities during difficult economic times. As mobile gear fisheries become increasingly spatially squeezed by competing users, the ability to develop and prosecute alternative fisheries is of increasing importance. Static gear vessels could benefit and reduce operating costs by drift netting for creel bait instead of purchasing from other fishermen of the same stock. However, lack of access to quota is preventing local vessels accessing the herring fishery.

5.3.80 The IFG wishes to seek access to the fishery in order to develop a small scale fishery for vessels based in and supporting the communities in the IFG region. Such action would provide opportunities for the mobile gear sector to seasonally diversify away from the Nephrops fishery and allow creel vessels to reduce operating costs.

5.3.81 It is recognised that any small scale drift net fishery may have the potential to interact with species of environmental significance in the area, particularly marine mammals and salmonids, and that any developing fishery must be therefore be undertaken using methods and practises which prevent these interactions.

5.3.82 It is also recognised that there is no surplus of UK herring quota. The IFG will need to establish the full economic, management and market implications of securing a greater allocation of quota for the inshore fishing community.

Table 1 IFG local objectives fulfilment of SIFAG High level objectives.

Local Objective	SIFAG High Level Objectives and rationale
<i>LO1: Maintain access to fishing grounds</i>	<p><b>Economic;</b> Essential to fleet viability</p> <p><b>Social;</b> promotes a positive interaction with other users, maintaining traditional practises</p> <p><b>Governance;</b> The IFG is an opportunity for decision-making in fisheries management to be improved through agreed actions, not simply the existence of the IFG. The IFG also creates a local focus for engagement between and with the fishing industry. It is important that there is appropriate engagement with other marine stakeholders and fisheries issues are fully integrated with wider decision-making on the marine environment.</p>
<i>LO2: Improve the quality of the advice and data available to underpin IFG management decisions</i>	<p><b>Governance;</b> Fishermen in control of the use of data and the decision making arising from it.</p> <p><b>Biological;</b> Seeks to improve management of key target stocks</p> <p><b>Environmental;</b> Evidence base will improve IFG understanding of wider impacts</p> <p><b>Economic;</b> Effective management must be properly informed to lead to more profitable fisheries.</p>
<i>LO 3: Reduce the spatial pressure on fishing grounds associated with increasing creel/pot effort levels.</i>	<p><b>Governance;</b> The IFG provides an opportunity to agree actions with fishermen at the heart of the decision making and underpinned by an evidence base.</p> <p><b>Economic;</b> Reduction in costly gear interaction, possible increase in CPUE.</p> <p><b>Environmental;</b> A cap on individual vessel effort also caps any wider negative environmental effects of creel fishing (such as by catch) per vessel.</p> <p><b>Biological;</b> Increases in effort (total creels being fished) can occur without regard to scientific evidence to identify sustainable effort levels. Some form of effort cap in creel fisheries and in some instances a reduction in effort is a priority. (OK)</p> <p><b>Social;</b> Improving interaction between users within the fishing community. Maintaining traditional activities.</p>
<i>LO 4: Reduce gear conflict</i>	<p><b>Governance;</b> Agreed through the IFG with fishermen at the heart of the decision making</p> <p><b>Economic;</b> Seeks to reduce economically costly gear interactions.</p> <p><b>Social;</b> Improved relationships between sector, greater unity in the fishing community.</p>
<i>LO 5: Improve the public understanding of the regions fishing activities</i>	<p><b>Social;</b> recognising historical fishing practices</p> <p><b>Economic;</b> stimulating interest in regional seafood, local market benefits</p>

<b><i>LO 6: Provide advice and support for new entrants to the industry</i></b>	<p><b>Social;</b> New entrants are an essential part of the future of fishing communities.</p> <p><b>Economic;</b> At sustainable levels new entrants are key to the economic benefit of the future skilled use of sustainable fisheries.</p>
<b><i>LO 7: Improve fishermen's awareness of market conditions</i></b>	<p><b>Economic;</b> Seeks to furnish fishermen with knowledge to help them maximise their returns.</p> <p><b>Social;</b> managing awareness of changing market conditions</p>
<b><i>LO 8: Achieve exemptions from cod recovery measures</i></b>	<p><b>Economic;</b> Potential for significant economic benefits and additional employment opportunities</p>
<b><i>LO 9: Improve understanding of the reduced CPUE seen in the velvet crab fishery and identify appropriate management measures</i></b>	<p><b>Economic;</b> Increased CPUE can improve profitability.</p> <p><b>Biological;</b> Seeks improved information on stock dynamics, leading to sustainable management of the stock.</p> <p><b>Environmental;</b> Velvet crab stocks are a component of the wider marine ecosystem.</p> <p><b>Governance;</b> Fishermen at the heart of the decision making, seeking evidence base to underpin local management / decision making .</p>
<b><i>LO 10: Develop regional level management for the emerging wrasse fishery</i></b>	<p><b>Biological;</b> Precautionary measures seek sustainable stock management.</p> <p><b>Environmental;</b> Conservation of biodiversity</p> <p><b>Economic;</b> New fisheries have the potential to diversify existing effort and create new employment opportunities. A diverse sector is more flexible to respond to changes in availability, market price and demand for particular products.</p> <p><b>Governance;</b> engagement with aquaculture sectors?</p>
<b><i>LO 11: Improve management of the Crawfish (Palinurus elephas) fishery</i></b>	<p><b>Biological;</b> Seeking improved management of the fishery</p> <p><b>Economic;</b> Seeking long term access to the fishery and sustained economic benefits</p> <p><b>Governance;</b> Industry led management</p>
<b><i>LO 12: Reduce inefficient use of crippled female lobster</i></b>	<p><b>Biological;</b> Marginal reduction in fishing fishing mortality. Returned lobster will contribute to egg production and population gene pool.</p> <p><b>Economic;</b> Allowing regeneration of claw maximises the economic yield of the individual.</p>
<b><i>LO 13: Allow a small scale herring fishery</i></b>	<p><b>Social;</b> Recognising a historical fishery and restoring local access</p> <p><b>Economic;</b> Has the potential to significantly improve business efficiency and resilience</p>

## 6 ACTIONS AND MANAGEMENT MEASURES

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**Local Objective 1; Maintain Access to fishing grounds where possible.**

***Actions; Identification of fishing grounds, locations and patterns of spatial use, made available in a format accessible to other marine stakeholders***

6.1 The IFG recognise the need to engage positively with other marine users, and the challenge to the industry is accommodating increasing numbers of the other marine users without impacting upon the viability of the regions inshore fisheries. The industry is in a somewhat weakened position in that often the only evidence it can often present to underpin its position is that derived from national fisheries data collection, which lacks sufficient spatial resolution to be of much benefit at a local planning level. The IFG recognise the need to collect local and regional level spatial information on fishing activities that can both inform local level planning decisions and demonstrate industry's access to areas of fishing ground. Credible evidence of past and current fishing types and activity in an area will strengthen the input of inshore fisheries activity into the the MPA planning process and help to minimise the impacts. It may also strengthen the fisheries negotiating position regarding access to designated sites.

6.2 The IFG propose to collect fisheries spatial activity data through a voluntary participatory mapping project in order to build up a composite picture of fisheries spatial activity that can clearly represent the diversity of the fishing communities' spatial needs. The additional results of a voluntary catch and effort reporting scheme spatially located with a finer resolution than the current reporting requirements (discussed below) will serve to underpin the results of this mapping.

***Action: Proactive and positive engagement with other marine sectors.***

6.3 The IFG will seek to engage positively and proactively with other sectors to identify potential issues at the earliest possible stage. In situations where there is the potential loss of fisheries access the IFG should work in partnership with other stakeholders to develop effective and positive mitigation measures.

***Action: Ensuring effective use of fisheries data.***

6.4 The IFG recognise that aggregated summary data should be made available to marine planners. However it is believed that simply providing fisheries data will not be sufficient to ensure that it is fairly and properly used, and there are concerns amongst fishermen that such data can be used against the interests of fishing industry. Understanding that the IFG would requesting fishermen in the area to voluntarily participate in it's data collection programme in the

best interests of the regions fishing communities, it is essential that the IFG recognise these concerns if any voluntary data collection is to be successful. The IFG will work to see that such data is effectively analysed to inform the economic, social and ecological consequences of fisheries effort displacement should fishing be restricted in a certain area.

<b>Local Objective 2; Improve the quality of data available to inform IFG management and support inshore fisheries.</b>
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<b><i>Action; Catch and effort reporting</i></b>
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6.5 A voluntary self completed catch return is proposed to enable the identification of effort levels, catch per unit effort (CPUE), landings per unit effort (LPUE) and identification of the most productive fishing grounds at an appropriate spatial scale. The detailed results of such a scheme are essential to the establishment of stock and activity indicator baselines within the fishery, and are required for the long term assessment of the effectiveness of management at an IFG level.

6.6 The IFG has no powers to enforce the participation of a catch reporting scheme, and the Executive Committee do feel that a legislative approach towards developing an obligation for vessels to participate in data collection is appropriate. It is instead proposed that voluntary participation should be generated. An incentive to participation may exist through marine renewable developments, which may require a fine scale spatially located track record in support of any compensation or mitigation claims arising due to loss of access to fisheries due to such developments. The IFG will work with developers to capitalise on this potential incentive when designing the scheme and succeed in achieving sufficiently informative levels of participation.

6.7 Currently vessels under 10m complete weekly returns to Marine Scotland on NEP1 and SHELL1 forms (Appendix ?). It is unreasonable to expect the industry to voluntarily undertake duplication of paperwork in order to participate in any IFG scheme, and this would be a major disincentive. Under 10m reporting is a license condition set by the Scottish Government, rather than the EC, and it is felt essential that any participants in an IFG reporting scheme are removed from this requirement. Data collected under the NEP1 and SHELL1 scheme will still be collected through the IFG programme, and can be stripped and transferred to the Marine Scotland database without any loss of quality. The completion of a haul by haul logbook is a European level obligation for vessels over 10m, and it is not anticipated that this can be avoided in lieu of participation in any IFG level schemes. In instances where over 10m vessels wish to participate in the scheme the IFG will seek access to the EU Logbook returns, complemented by additional more precise location reports from the vessel.

6.8 It is recognised that the region attracts significant fishing effort based outside of the region, and in the absence of a formal requirement for participation in the scheme that this participation can only be a sample of the fishing activity in the region. The measure will include an assessment of the effective fishery representation of the sample in order to allow relatively confident extrapolation of results to the whole regions fisheries.

***Action: Catch sampling***

6.9 In addition to target catch and effort data, information on catch, by-catch and discards will inform management in many ways including: identifying inappropriate or inefficient practises within a fishery; providing evidence of the sustainability of activity; identifying fishery specific management measures, tailoring management measures to fit a specific fishery and potential new fisheries development opportunities. Regular collection of discards can inform stock assessments, particularly if samples of discards are sexed and measured when the data can be used to identify trends in recruitment. The IFG will undertake a sampling programme within the region to collect data on these fisheries characteristics.

***Action: Market sampling and improvement of MS-S shellfish assessment local relevance***

6.10 The current market sampling by Marine Scotland is undertaken according to established assessment units which do not correlate well to IFG boundaries. Sampling levels have declined over recent years and there are currently relative limited measurements collected for shellfish (crab and lobster) taken from within the IFG region. Current assessments are made using what is perceived as less relevant data from outside the IFG region, but still within the MS assessment unit, which has led some difficulties in generating confidence in the assessment amongst the Executive Committee.

6.11 Marine Scotland – Science do not have the resources to extend the current market sampling programme. The IFG will undertake the appropriate sampling within the region in order to improve the local relevance of Marine Scotland Science’s crab and lobster assessments.

**Local Objective 3; Reduce the spatial pressure on fishing grounds associated with increasing creel/pot effort levels.**

***Action; Identify appropriate individual effort levels.***

6.12 Current creel fishing effort levels are not yet substantiated with empirical data collection, making it difficult to provide firm evidence for the reported increase in effort in the fishery. This is true of fishing effort overall (number of vessel / days), and effort at an individual vessel level (number of creel per vessel). Individual effort levels, matched to vessel and business characteristics (such a vessel size, numbers employed) will be surveyed through a questionnaire distributed through the region. The results of this survey sample will then be used to inform the IFG of the average levels of effort found in the region by vessel, economic, or regional characteristics.

6.13 The number of vessels seen to be transferring effort into the creel fishery from other fisheries can be identified from current data collection programmes to attempt to identify any

obvious trends. This will be considered alongside the levels of individual effort surveyed by the IFG when identifying an appropriate cap on individual creel effort levels. It is anticipated that the industry favoured mechanism for setting these cap levels, following investigation of the metrics collected and extensive further consultation with industry, will be set according to vessel length bandings and fishery prosecuted.

***Management Measure: Seek ability to set levels of individual creel effort cap.***

6.14 There is no mechanism under current regulation to implement creel effort levels. It is not considered a measure achievable in a voluntary context. The IFG will seek for Marine Scotland to enact legislation enabling the capping of individual creel numbers.

6.15 The IFG will seek the ability to identify the appropriate individual creel cap levels, and for this to be enacted by Marine Scotland as a license condition. This is the only measure identified by the IFG Executive Committee requiring an implementation through regulation by Marine Scotland.

6.16 Enforcement of any cap implemented would be the responsibility of Marine Scotland Compliance, although the IFG wish to emphasis that such a measure would be largely self policed by industry, with competition between operators ensuring compliance. It is anticipated that any breach of the regulation would be reported by other fishermen and enforcement action could be taken.

**Local Objective 4; Reduce gear conflict.**

**Management Measure; Re establish existing codes of conduct, extend spatial coverage and broaden buy in**

6.17 The current code of conduct in place in the IFG region between Mallaig and North West Fishermen's Association and Mull Aquaculture and Fisheries Association is thought to address the issues causing gear conflict, yet it has been reported that as time has progressed the agreements are not as current as in the past, and the lines of communication established are not as good as they once were. The weakness will always remain with any non binding code of conduct that certain parties will choose not adhere to the terms. Furthermore, any contravention of the terms is not as visibly obvious as may be seen in the contravention of an alternative tool such as access agreements, and often can not be proven. However, this supports wherever possible the mute-fishery use of areas of the sea, and it is felt that operational codes of practise are the best way to allow this multiple use with the minimum of conflict. Wherever possible, it is agreed that such an approach is favourable to a zoning approach.

6.18 The IFG will record and review reports of instances of gear conflict, and review the mapped fishing activities of the different sectors to identify any areas where interactions or conflict may arise but not be reported. Stakeholders involved will be identified and included and any underlying issues brought to the fore. Parties involved will be invited to discussions to formalise any arrangement, based upon current fishing practises in the region concerned, and using existing codes as a starting point.

6.19 Failure of any brokered agreements will lead to a review of the existing arrangements by those members involved, and further consideration of the potential for restricted spatial and temporal access arrangement will take place.

<b>Local Objective 5; Improve the public understanding of the region's fishing activities</b>
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<b>Action; <i>Present information on the local fishing industry at key locations.</i></b>
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6.20 IFG proposes the installation of informative signboards at these key locations to better help the public interpret the industry around them and raise awareness of the regions fisheries, issues, and positive steps taken by fishermen to achieve sustainability.

6.21 It will be difficult to measure the overall impact that such an initiative will have, and it is difficult to measure the number of passers by who may use such information. However, it is expected to be meaningful, and difficulties in measuring effectiveness are not perceived to be sufficient justification not to move forwards.

<b>Local Objective 6; Provide advice and support for new entrants to the industry</b>
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<b>Action; <i>Staff time and Executive Committee expertise available to support new entrants.</i></b>
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6.22 IFG time and expertise should be made available to new entrants to the industry to assist and support in accessing available resources. This may include training opportunities, assistance identifying potential funding opportunities and assistance in completing any subsequent funding applications. The IFG would also like to support any established fisheries career path, such as formal apprenticeships, in order to foster a skilled future workforce. The IFG should seek to maximise the uptake of such opportunities through its discussions with new entrants. Awareness of IFG assistance will be increased through publicity the industry, local training associations and local fishery offices.

<b>Local Objective 7; Assist fishermen's awareness of market conditions and promote market focused fishing practises.</b>
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<b>Action; <i>Hold events to raise awareness of changing market conditions and alternative catching practises.</i></b>
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6.23 The IFG will organise seminar and workshop type events to present up to date market insight to active working fishermen. Examples of the material included might be a presentation from a multiple retailer seafood buyer, the results of the market research by Seafish and Seafood Scotland, or research commissioned by the Scottish Government. Preliminary consultation with the wider fishing community should indicate any other key topic areas that could be addressed, and the potential need for tailoring the programme between locations.

6.24 The IFG are acutely aware of the pitfalls of trying to secure fishermen's active engagement in such events. Accordingly this consideration must be the primary factor in locating and scheduling the events. Owing to the difficult geography of the IFG region and the extreme road or sea distances involved in travel, several event locations will be required in order to ensure accessibility for members of the fishing community. These will be spread appropriately across the region.

**Local Objective 8; Seek to establish an evidence base for the reopening of fisheries (squid trawl and crawfish tangle net) closed under emergency cod recovery measures.**

**Action; *Seek derogation for exploratory fishery.***

6.25 The IFG is to work with Marine Scotland to begin a small exploratory fishery, with Marine Scotland Observers place aboard, to assess the level of bycatch in the fisheries and their future viability under the Cod Recovery Plan.

**Local Objective 9; Improve understanding of the reduced CPUE seen in the velvet crab fishery and identifying any appropriate management**

**Action: *Gather data on the fishery to aid understanding and establish a relevant evidence base***

6.26 Sample data on catch and effort will be recorded through the voluntary IFG log book scheme, enabling the establishment of a sampled CPUE in the fishery, and underpinning anecdotal reports from the industry. However, it is recognised that it will likely require several years of this data to identify key trends in CPUE. Sampled data will also be collected on landings and discards in the fishery, including age and sex.

6.27 In addition the IFG will seek to solicit additional research in the fishery, by students and academic institutions where available, to try and identify any key factors affecting the abundance of crab in the regions fishery, and to further improve the knowledge base for the effective and profitable management of the regions velvet crab fishery.

**Action: *Identify potential effects of an increase in MLS.***

6.28 Examination of collected advice suggests that fishing mortality (F) should be reduced in the fishery. The IFG have identified that from an industry perspective the most acceptable way of effecting this would be through an increase in the minimum landing size (MLS), under the rationale that smaller individuals are less welcomed by the market. In hand with such a measure there could be the potential to realise an increased unit value achieved with a slightly higher size grade of crab.

6.29 Assuming effort levels remain constant an increase in the MLS would result in the smaller individuals being discarded and returned alive to the fishery, and a reduction in the level of overall fishing mortality. As long as no additional larger crab are caught, this may bring the fishery closer into line with Fmax and maximise the yield per recruit to the fishery, and a greater overall economic benefit. The rationale being that with the same number of individuals being allowed to attain a slightly larger weight prior to harvest results in a greater total tonnage, which would bring the greatest total economic returns to the fishery. If a higher unit price could be secured for a higher grade of crab, then the potential economic benefits could be even higher.

6.30 However, such reasoning is not underpinned by relevant local data and firm scientific advice. Indications from the fishing community suggest that there are discrete local populations of velvet crab in the region, some of which do not appear to attain high sizes regardless of the levels of exploitation. The need for further work is identified as required to attempt to understand the potential benefits and impacts, both biological and economic, of increasing the MLS.

6.31 The IFG seek to have these potential effects identified and investigated by properly informed biological modelling, and extensive discussions with the velvet crab supply chain.

<b>Local Objective 10; Develop local level management for the emerging wrasse fishery</b>
<b>Action; <i>Work with other stakeholders to identify appropriate management</i></b>

6.32 The IFG is to work alongside the other key aquaculture interests in the developing wrasse fishery to review existing knowledge and advice about wild wrasse biology and life history, the status of the stocks in the region and key considerations for the fishery in the future. This information should be used to establish precautionary guidelines for the appropriate management of this emerging fishery, whilst maximising the potential economic benefits.

6.33 Such precautionary management may include catch and effort management, best practise guideline and spatial management measures if deemed appropriate. Whilst there is no current legislative framework appropriate for the regulation of landings or effort in the fishery, it is not felt that such a hard regulatory approach is needed. The potential market for the wrasse is very limited, and it is believed it will be targeted at a moderate scale. As a result it is anticipated that the limited market will be able to require compliance with any management measures identified by the IFG and its partners.

**Local Objective 11; *Establish Local Management of the Crawfish (*Palinurus elephas*) commercial fishery***

**Management measures; *Establish best practise maximum landing size***

6.34 A maximum landing size for individuals caught in the fishery will lower the overall fishing mortality in the fishery as these individuals are returned to the stocks. The largest individual animals have the greatest fecundity and the largest females are likely to have the greatest contribution to total egg production. Also it is to be expected that large individuals having survived and competed in the wild long enough to attain such a size demonstrate exceptional 'fitness' and provide an arguably more effective contribution to the gene pool in the fishery than smaller individuals are likely to. The largest individuals are less desired by the market and do not represent a significant economic loss to the fishery.

**Management measure: *Eliminate landings of berried female crawfish through good practise***

6.35 Whilst the relationship between egg production and recruitment is not well understood in the fishery, the contribution of a berried female crawfish to the future stock is intuitive. Certainly it is not detrimental. In addition to potential benefits to egg production and recruitment, the removal of both the largest and berried individuals from the fishery has the potential to reduce the fishing mortality, providing that fishing effort does not increase accordingly.

6.36 In current conditions the implementation of the management measures is viewed as achievable thorough best practise guidelines. Notwithstanding the current hiatus in activity due to cod recovery measures, the fishery is typically prosecuted by a small number of vessels, and within these operators such management in the fishery as a precautionary measure is understood and well accepted. It is understood that there is not a strong likelihood of additional effort being attracted into the fishery due to the discrete and limited habitat preferences of crawfish and relatively spatially isolated and limited fishing opportunities in the region.

**Local Objective 12; *Reduce inefficient use of crippled lobster***

**Management Measure; *Instigate a v-notching programme for crippled lobsters.***

6.37 Equipping vessels to voluntarily undertake v-notching of crippled females will afford protection for the notched individual under the Lobster and Crawfish (Prohibition of Fishing and Landing) (Scotland) Order 1999, making it illegal to target or retain v-notched individuals. Such protection is likely to last 3-4 moults until the v-notch has grown out, during which time the individual continues to contribute to egg production in the fishery.

6.38 Whilst landing of notched lobsters is prohibited, participation in the notching scheme will be achieved through voluntary involvement. The higher level of ownership perceived over grounds by fishermen in this sector indicates willingness by many to undertake such measures and a clear relationship between the measure and the accruing of benefits to those involved. It is harder to underpin these assumptions with scientific data and evidence as the primary relationship between egg production, recruitment to the fishery and fishing pressure is not well documented or understood.

6.39 The IFG will seek to equip all interested vessels for v notching crippled lobster and keeping records of the numbers released.

<b>Local Objective 13; <i>Develop a small scale local herring fishery</i></b>
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<b>Action; Seek access to quota</b>
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6.40 The IFG will work alongside Marine Scotland to identify any criteria necessary to seek an allocation of quota for the inshore fleet, and seek to fulfil such. Marine Scotland may be able to facilitate limited entry into the fishery through its internal quota management activities, or through international exchanges.

6.41 The IFG will also seek to identify and establish the potential social and economic benefits of increased access to the fishery, and demonstrate the fishery's potential to support fragile rural fishing communities in the region.

**Local Objective 2: Improve the quality of the data available to underpin IFG management and support inshore fisheries**

<b>Fishery</b>	<b>Status (2009)</b> <b>Marine Scotland Science</b>	<b>Actions/ Measures proposed</b> <i>(additional to national management)</i>	<b>Information requirements</b>	<b>Partners</b>	<b>Resources needed</b>
All	Insufficient	Catch/effort logbooks	none	Marine Scotland MS-S SAMS Scottish Power Renewables	Funding for log sheet administration, database creation, entry, management and reporting
		Locally relevant stock assesment	Local market , catch and discard sampling programme	MS-S SAMS/UHI?	Funding for data collection? MS-S data handling and assesment
		Mapping of fishing grounds (or activity)	Confidence in Marine Scotland project/safeguards against misuse?	Marine Scotland? University of Aberdeen Scottish Power Renewables?	Funding for Data collection, entry and processing OR Marine Scotland project

**Local objective 9: Improve understanding of the declining CPUE in velvet crab fishery, ID appropriate measures**

<b>Fishery</b>	<b>Status (2009)</b> <b>Marine Scotland Science</b>	<b>Actions/ Measures proposed</b> <i>(additional to national management)</i>	<b>Information requirements</b>	<b>Partners</b>	<b>Resources needed</b>
Velvet crab	LCA indicates F above Fmax.	Research possible causes for decline in CPUE  Identify appropriate management	Effort CPUE LPUE Market sampling (length, sex)  Locally relevant scientific advice	MS-S SAMS?	See data (2)

<b>Local Objective 10: Identify and implement local management for the developing wrasse fishery</b>					
<b>Fishery</b>	<b>Status (2009) Marine Scotland Science</b>	<b>Actions / Measures proposed (additional to national management)</b>	<b>Information requirements</b>	<b>Partners</b>	<b>Resources needed</b>
Wrasse	None	Identify and implement appropriate management	-Stock assesment -Identify appropriate yields -Habitat mapping	MS-S SSPO Freedom Foods SNH	
<b>Local Objective 13: Establish Management of the crawfish fishery</b>					
<b>Fishery</b>	<b>Status (2009) Marine Scotland Science</b>	<b>Actions / Measures proposed (additional to national management)</b>	<b>Information requirements</b>	<b>Partners</b>	<b>Resources needed</b>
Crawfish	None	Maximum landing size	ID Market preferred maximum landing size	Seafood Scotland MS-S	
		No landing of berried hens			
<b>Local Objective 14: Reduce landings of crippled female lobster</b>					
<b>Fishery</b>	<b>Status (2009) Marine Scotland Science</b>	<b>Actions / Measures proposed (additional to national management)</b>	<b>Information requirements</b>	<b>Partners</b>	<b>Resources needed</b>
Lobster	Fished above Fmax	V notch and return crippled hens	none		Funding for notching equipment

## **7 IMPLEMENTATION PLAN**

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7.1 There will be several stages involved in the consideration and implementation of the objectives set out in the IFG Management Plans. SIFAG will consider whether the management plans are consistent with the high level objectives and whether proposals in them have been assessed for legislative requirements. Marine Scotland will assess the impact of the proposals. It is expected that a Strategic Environmental Assessment will be required on at least some objectives and this will be carried out by the SEA Gateway team in Marine Scotland. These assessments will run simultaneously and on receipt of their conclusions the plans will be sent to Scottish Ministers.

7.2 Once the plans have been approved by Scottish Ministers, then the agreed appropriate management measures will be underpinned by legislation where required. Marine Scotland will be responsible for implementing national legislation where necessary to deliver the objectives which may include Regulating or Several Orders, mechanisms under the Inshore Fishing (Scotland) Act 1984 or other legislation such as the Sea Fish (Conservation) Act 1967.

7.3 Other objectives relating to improving fishing industry engagement in wider management, with other sectors, and within the fishing industry itself, and measures regarding the collection of data to inform decision making, underpin the knowledge base of the IFG, demonstrate fishing practises and establish baselines for the future management by the IFG, are not expected to require an SEA or legislation by government or ministerial approval, and will continue throughout the preparation and implementation of the management plan.

<i>Objective: 1</i>			
<b>Maintain Access to fishing grounds where possible</b>			
<i>Action</i>	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<ul style="list-style-type: none"> <li>▪ Collection and provision of supporting data (see below)</li> </ul>	2011 onwards	IFG, MS	
<ul style="list-style-type: none"> <li>▪ Positive and proactive engagement with other marine user sectors</li> </ul>	2010 onwards	IFG	Active communication and meetings, positive outcomes
<ul style="list-style-type: none"> <li>▪ Ensure the effective use of fisheries data</li> </ul>	2010 onwards	IFG	Consultations, and discussions with other sectors, positive outcomes
<i>Data;</i>			
Existing: ICES level catch records		Marine Scotland	
Required: <ul style="list-style-type: none"> <li>• Fine scale identification of traditional and current fishing grounds for different gear and vessel categories.</li> <li>• Catch data on non target species and discards</li> </ul>		IFG, SAMS, MS-S	
<i>Relationship with national measures (existing or proposed)</i>			
The Scottish Marine Planning partnerships when created will provide the forum for future integration of fisheries spatial needs, reducing the burden on IFG resources existing under the current framework.			
<i>Additional funding/ resources identified</i>			
N/A			

<i>Objective: 2</i>			
<b>Improve the quality of fisheries data and advice available to inform and underpin IFG management</b>			
<i>Action</i>	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<ul style="list-style-type: none"> <li>▪ Fisheries Mapping</li> </ul>	2011 -3-6 months collecting and processing -Annual review	IFG, Marine Scotland	Delivery of good quality data
<ul style="list-style-type: none"> <li>▪ Catch and effort reporting</li> </ul>	2011 onwards 2-5 years to establish informative data set	IFG, SAMS	Delivery of good quality data
<ul style="list-style-type: none"> <li>▪ Discard and by catch sampling</li> </ul>	2011 onwards, ongoing	IFG, SAMS MS-S	Delivery of good quality data
<ul style="list-style-type: none"> <li>▪ Market landings sampling</li> </ul>	2011 onwards, ongoing	IFG MS-S	Delivery of good quality data
<ul style="list-style-type: none"> <li>▪ Identify and apply appropriate stock assesment units and appropriate informed models.</li> </ul>	2012 onwards, ongoing	MS-S	Locally informed and relevant advice
<i>Data</i>			
Existing: ICES stat rectangle level catch returns		MS	
Required: See measures			
<i>Relationship with national measures (existing or proposed)</i>			
<p>Current national collection of &lt;10m inshore landings data through NEP1 and SHELL1 forms. IFG to integrate certain catch reporting details with MS records to remove need for vessel compliance with NEP/SHELL1 completion</p> <p>Marine Scotland's ScotMap mapping initiative could integrate with IFG mapping if key criteria are met.</p>			

<i>Additional funding/ resources identified</i>
Scottish Power Renewables, Marine Scotland

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 3</i>			
<b>Manage the spatial pressure on fishing grounds associated with increasing creel/pot effort levels.</b>			
<i>Actions and Management Measures</i>			
<ul style="list-style-type: none"> <li>Identify and consult on appropriate individual effort levels</li> </ul>	After MS ratification	IFG	General consensus within IFG membership
<ul style="list-style-type: none"> <li>Seek ability to set a cap on creel numbers</li> </ul>		Marine Scotland	Delivery of powers
<i>Data</i>			
Existing: Number of vessels per statistical rectangle		MS	
<ul style="list-style-type: none"> <li>Required: Current individual and total effort levels. (Numbers of creels, hours fished, numbers of vessels.)</li> <li>Spatial distribution of fishing effort alongside other sectoral users</li> <li>Economic impacts of different creel numbers caps</li> </ul>	2010 onwards	IFG, MS	
<i>Relationship with national measures (existing or proposed)</i>			
Marine Scotland's Inshore Fisheries Spatial Management Group			
<i>Additional funding/ resources identified</i>			
None?			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 4</i>			
<b>Reduce gear conflict</b>			
<i>Action;</i>			
<ul style="list-style-type: none"> <li>▪ Re establish existing codes of conduct, extend spatial coverage and broaden buy in.</li> </ul>	2011 onwards	IFG	Numbers of vessels 'buying in' to code, reported incidents of gear conflict
<i>Data</i>			
Existing: reported incidents		MS	
Required: <ul style="list-style-type: none"> <li>• Identification of areas affected</li> <li>• Identify parties involved</li> </ul>		IFG	
<i>Relationship with national measures (existing or proposed)</i>			
Marine Scotland's Inshore Fisheries Spatial Management Group. Proposals unknown.			
<i>Additional funding/ resources identified</i>			
n/a			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 5</i>			
<b>Raise the visiting publics understanding of the regions fishing activities</b>			
<i>Action</i>			
<ul style="list-style-type: none"> <li>▪ Install interpretation of the fishing industry at key locations</li> </ul>	2012	IFG, Seafish, Seafood Scotland	Completion of installation
<i>Data</i>			
Existing: Areas of highest tourist footfall and visible fishing activities.		IFG, Local Authorities	
Required: Appropriate publication material		IFG, Seafish, Seafood Scotland	
<i>Relationship with national measures (existing or proposed)</i>			
None			
<i>Additional funding/ resources identified</i>			
Seafood Scotland/Seafish, Local Authorities, LEADER			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 6</i>			
<b>Provide advice and support for new entrants to the industry</b>			
<i>Action</i>			
<ul style="list-style-type: none"> <li>▪ IFG staff and Executive Committee time and expertise made available to new entrants.</li> </ul>	2010 onwards	IFG, FITA, MS, Seafish	Number of new entrants engaging
<i>Data</i>			
Existing: none			
Required: none			
<i>Relationship with national measures (existing or proposed)</i>			
None			
<i>Additional funding/ resources identified</i>			
Seafish, Seafood Scotland			

	<i>Timing</i>	<i>Responsibility</i> <i>(lead &amp; others)</i>	<i>Monitoring</i> <i>(key indicators)</i>
<i>Objective: 7</i>			
<b>Assist fishermen's awareness of changing market conditions</b>			
<i>Action</i>			
<ul style="list-style-type: none"> <li>▪ Hold events to raise awareness of market conditions, changes and opportunities- Nephrops supply chain analysis</li> </ul>	Late 2011	IFG, Seafood Scotland	Fishermans attendance at events
<i>Data</i>			
Existing: none			
Required: none			
<i>Relationship with national measures (existing or proposed)</i>			
<i>Additional funding/ resources identified</i>			
Seafish IPF			
Seafood Scotland			
Supply chain experts			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 8</i>			
<b><i>Establish evidence base for reopening of fisheries closed under cod recovery measures.</i></b>		Marine Scotland	
<i>Action</i>			
Emplacement of observers in experimental fisheries.	2011	Marine Scotland, IFG	Delivery of data
<i>Data</i>			
Existing:			
Required: <ul style="list-style-type: none"> <li>· Observer verified by catch levels in pilot fishery</li> <li>· Identification of any mitigation measures required</li> </ul>			
<i>Relationship with national measures (existing or proposed)</i>			
Contrary to current cod recovery plan management.			
<i>Additional funding/ resources identified</i>			
Marine Scotland			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 9</i>			
<b>Improve understanding of the reduced CPUE in the velvet crab fishery and identify management measures as appropriate</b>			
<i>Action</i>			
Gather and assess data on the fishery to improve understanding and establish an evidence base.	2011 onwards (3-5 years)	IFG, MS-S, SAMS	
Identify potential effects of increasing MLS	2011	MS-S, SAMS	
<i>Data</i>			
Existing: <ul style="list-style-type: none"> <li>• Life history of velvet crab</li> <li>• Landings data</li> <li>• Numbers of vessels involved</li> <li>• Market data on values</li> </ul>		Marine Scotland, IFG	
Required: <ul style="list-style-type: none"> <li>• Current catch, discard and effort levels</li> <li>• Catch sampling</li> <li>• Identify local habitat and stock migration patterns</li> <li>• Economic and stock impacts of change in management</li> </ul>		IFG	
<i>Relationship with national measures (existing or proposed)</i>			
Existing 65 mm MLS			
<i>Additional funding/ resources identified</i>			

	<i>Timing</i>	<i>Responsibility</i> <i>(lead &amp; others)</i>	<i>Monitoring</i> <i>(key indicators)</i>
<i>Objective: 10</i>			
<b><i>Identify and implement appropriate management requirements in the developing wrasse creel fishery.</i></b>			
<i>Action</i>			
Work with other stakeholders to identify appropriate management		IFG, Fish farms, Scottish Salmon Producers Organisation, Freedom Foods, Marine Scotland, SNH	
Ensure early industry awareness of required management.		IFG	
<i>Data</i>			
Existing: Animal welfare requirements			
Required: <ul style="list-style-type: none"> <li>· Extent of fishery</li> <li>· Stock levels</li> <li>· Appropriate catch and effort levels</li> <li>· Market demand</li> </ul>			
<i>Relationship with national measures (existing or proposed)</i>			
None			
<i>Additional funding/ resources identified</i>			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 11</i>			
<b>Local management of the Crawfish fishery</b>			
<i>Management Measures</i>			
Establish a maximum landing size	2011	IFG, MS-S, Seafood Scotland	
Eliminate landings of berried females	2011	IFG	
<i>Data</i>			
Existing: Market requirements		MS, Seafood Scotland	
Required: Appropriate maximum size		IFG	
<i>Relationship with national measures (existing or proposed)</i>			
Fishing method conflicts with current cod recovery measure. Management also proposed in OH IFG			
<i>Additional funding/ resources identified</i>			
N/A			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 12</i>			
<b>Reduce inefficient use of crippled female lobster</b>			
<i>Action</i>			
Establish a voluntary v-notching programmes for crippled female lobsters		IFG, MS-C	Numbers notched and returned
<i>Data</i>			
Existing:			
Required: Current level of crippled female landings		IFG	
<i>Relationship with national measures (existing or proposed)</i>			
none			
<i>Additional funding/ resources identified</i>			

	<i>Timing</i>	<i>Responsibility (lead &amp; others)</i>	<i>Monitoring (key indicators)</i>
<i>Objective: 13</i>			
<b><i>Develop a small scale herring fishery</i></b>			
<i>Action</i>			
Identify appropriate and most viable routes to access quota		IFG, MS	
<i>Data</i>			
Existing: Current distribution of allocation, fishery movements, and economic values of fishery.		MS	
Required: Quantified potential economic benefits to communities of access		IFG, MS, Local Authorities, HIE	
<i>Relationship with national measures (existing or proposed)</i>			
<i>Additional funding/ resources identified</i>			

