

DRAFT FISHERIES & AQUACULTURE TOPIC AREA PAPER

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GENERAL OVERVIEW

In the minds of most people, the word “fisheries” probably conjures up images of nets bulging with silver harvests of herring, cod and haddock and quaysides awash with baskets of fish being sold to an army of dealers from the UK and beyond. Such days are past, probably never to return. The UK fishing industry has been in decline since the war and the final nails in its coffin have been the loss of its 200 mile exclusive fishing zone during the infamous “Cod Wars” of the 1970’s, and the introduction and subsequent perpetuation of the EC’s Common Fisheries Policy.

Over-fishing of high seas fisheries by UK and other Member States’ fleets has contributed to a dramatic decline in the stocks of a number of species and continues to threaten many more. Efforts through the CFP to combat this have been hampered by the philosophy of “equal access to a common resource” which underpins, and at the same time renders entirely ineffective, the entire European fisheries management programme. Management of fisheries through catch regulation (quotas and Total Allowable Catch) rather than effort limitation has led to continuing over-exploitation of fish through discards and under-declaration and a failure of the species recovery plans and the Multi-Annual Guidance Programmes. A recent review of the CFP has done little to improve the situation.

Largely overlooked in all this by the EC, the UK Government and the Welsh Assembly Government is the inshore fishing sector which comprises small, 5 to 12 metre, one man or limited crew vessels which fish the coastal waters of the UK out to, and sometimes beyond, the 6 mile limit. Worth about £8 million p.a. to the Welsh economy and employing approaching 900 people on vessels or in hand gathering shellfish fisheries, the inshore sector principally comprises pot fisheries for crab, lobster, whelks and prawns although netting for fin fish is still important in some areas. The sector operates out of small ports and harbours all along the coast, selling over 90% of its catch directly to intermediary dealers supplying continental markets. Very little remains in Wales to provide added value for fishermen and processors or the basis for a Welsh branded product range. The numbers of licensed inshore fishermen operating in Wales is decreasing year on year.

Aquaculture is hailed by many as being the saving grace of the fish (rather than the fishing) industry in the UK. Commercial trout farming has been expanding since it really took off in the UK in the 1950’s such that it now produces some 16,000 tonnes per annum in the UK, 75% for the table market and 25% for restocking. Commercial salmon culture, although a more recent innovation, has expanded even more dramatically with 2001 UK production figures of 139,000 tonnes. Technological advances and increasing knowledge and experience is opening up opportunities with species that have not been possible before and the sector clearly has a major and expanding role to play in the UK fish industry. With production of salmon having increased to such an extent that there are now many times more Atlantic salmon in salmon farms than in the wild. Aquaculture is seen as the timely answer to the decline in the wild fisheries. Turbot, bass, cod, sea

bream, halibut and other species are now being farmed commercially, the two first named within Wales.

However, the huge development in the salmon farming industry in the last quarter of the 20th Century has highlighted both the potential and the dangers of large scale, intensive fish culture practices. A legacy of the salmon farms is public disquiet about the quality of the product, its effect on the environment, and the possibility that it has caused a decline in wild stocks through parasite / disease introduction and escapement of genetically diverse strains of fish. Recent developments and refinements in the technology of land based, closed circuit, re-circulation systems has opened up what many believe is an environmentally and fish friendly alternative to the traditional pond, raceway and cage systems currently in use. This technology maintains a high quality environment within the rearing system through water purification processes requires very small volumes of input water and discharges low volumes of high quality effluent. The principal drawbacks of conventional culture techniques are therefore resolved.

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WHAT DO WE HAVE IN PEMBROKESHIRE?

(i) High Seas Sector

The Port of Milford Haven has been the centre of Pembrokeshire's fishing industry since the 17th Century. At its height, Milford Haven was home to Britain's fifth largest fishing fleet comprising 130 vessels providing work for 4000 people. Annual catches averaged 40,000 tonnes of herring and mackerel, topped by an all time record 58,000 tonnes in 1946. Since this heyday, the catches have declined and by the mid 1960s the annual catch sold through the Milford Fish Market was down to 10,000 tonnes and has subsequently declined still further. Despite a slight upturn in white fish landings in recent years, the current level is around 6,000 tonnes per year with 537 landings totalling 6,099 tonnes recorded in 2001, a drop of around 10% on the year 2000 figures. (Milford Docks Company records)

DEFRA landing statistics for the Milford Haven fishing area as a whole for 2001 (the most recent records available) records white fish landings totalling 2,675 tonnes with a first sale value of nearly £5 million and total shellfish landings of 469 tonnes and a first sale value of £1.132 million. A full detail by species is given in the report "UK Sea Fisheries Statistics 2001" published by The Stationery Office on behalf of DEFRA.

SWSFC figures 2001; Molluscs - 765t/£1146000; Crustaceans- 703t/£1717000

Pembrokeshire no longer has an indigenous high seas fishing fleet. The bulk of the white fish landings are made by Spanish flagship, French and Belgian vessels. The managing body for the high seas vessels is the Wales and West Coast Fishing Producers Organisation Ltd. which has an office in the Milford Docks.

The international electronic fish auction at Milford Docks has gone through changes in fortune over its short history and is now under the sole management of the Milford Docks Company. There has been an upturn in activity recently with the 2001 year end summary showing a turnover exceeding £1 million. It is still true; however, that the great majority of white fish landed is transported overland to European markets with little being left for local sale. Any potential benefit to the local economy is therefore lost.

(ii) Inshore / Coastal Fishing Sector

The inshore fishing fleet comprises mainly vessels of <10 metres length fishing predominantly within the 6 mile zone. Historically the fleet is highly fragmented and nomadic in its operation competing with visiting fishermen from other parts of the UK and beyond and with unregistered vessels fishing in the “black economy”. This has contributed to “boom and bust” fishing pressures on local stocks. The inshore fishing sector is important to Pembrokeshire for the addition it makes to the diversity and richness of the economic activity and culture of coastal communities. This in turn enhances the attractiveness of coastal areas for tourists and residents and provides an identity and a range of fresh products for local hospitality, retail and catering businesses.

The principal ports and harbours in Pembrokeshire from which inshore fishermen operate are : - Saundersfoot, Tenby, Stackpole Quay, Freshwater East, Milford Haven, Neyland, Pembroke Dock, Little Haven, Solva, Porthclais, Porthgain, Abercastle, Goodwick, Lower Town Fishguard, and St.Dogmaels. A summary of the number of vessels operating and their activities is given in a report to the Wildlife Trusts (UK) Marine Programme entitled “*Marine Fisheries and Wildlife in Pembrokeshire 2000 ; Sustainability and Biodiversity*”, University of Wales, Aberystwyth. The local inshore fleet has been in decline year on year, the number of permits issued in Pembrokeshire by the South Wales Sea Fisheries Committee falling from 154 (144 shellfish and 10 whitefish) in 1998 to 135 (127 shellfish and 8 white fish) in 2000, compared to South Wales totals of 265 and 232 permits respectively (SWSFC Annual Report 2002). The importance of landings in Pembrokeshire can be seen from the following figures which give the approximate percentage contribution of the total South Wales catch for each respective species : -

Lobster/brown crab – 95%; Spider crab – 100%; “Other” crustaceans – 100%; Whelk – 100%; Catch by trawler – 50%; Bass – 40% - 60%; Oysters – 90%. The annual shellfish catch in Pembrokeshire in 1999 totalled 1,315 tonnes with a first sale value of £1,632,945.

The principal problems affecting the inshore fishery are : - declining stocks; over-exploitation in some cases; increasing costs and declining returns; under-investment in boats and gear; fragmented and uncoordinated activity; under-investment in the identification of new fishing opportunities; regulatory restrictions; inadequate harbour and related facilities. An endemic resistance to working together and to pooling their resources has meant that the value and potential of the industry has been little recognised in the past and the sector is poorly equipped and prepared to respond to the many challenges that now face it.

The recent amalgamation of existing Fishermen’s Associations across South Wales to create the South & West Wales Fishing Communities is a major move towards the creation of a more cohesive, professional and sustainable industry and the regeneration of the industry’s fortunes. The Association is seeking to tackle the above problems through accessing Objective 1 funding. This will include the establishment of offices with full time staff in Pembrokeshire and the Swansea area. Amongst the Association’s aims is the creation of local co-operatives to develop processing and marketing of locally caught products to give added value and create employment in coastal communities. The Association also represents the interests of charter angling boat skippers in South Wales. Pembrokeshire has considerable potential for the development of a major angling tourism industry in conjunction with other West Wales counties and in partnership with the accommodation and hospitality, farming and charter boat sectors.

The impact of the recently introduced environmental designations on much of the Pembrokeshire inshore waters has yet to be fully realised by the inshore fishing sector, but it is already clear that the restrictions, regulations and closed areas that are likely to come will increase the pressure on fishing businesses. The uncertainties make forward planning and investment by the industry impossible and there is a great concern that the restrictions on activity and the ability to diversify will result in increased pressure on existing stocks and those areas open for fishing. In addition, there is concern that increasing restrictions on the high seas sector will cause them to turn their attention on inshore stocks and fisheries bringing further pressure to bear. Regulating Orders to restrict access to fisheries to local fishermen are now being considered as a means of protecting the interests of local businesses.

(iii) Aquaculture

Aquaculture in Pembrokeshire has been slow to develop. Reasons for this include a lack of suitable sites for conventional freshwater units, industry concerns over water quality and pollution risk for conventional marine units and lack of local entrepreneurship and inward investment. Attempts by a Norwegian company and others to establish cage salmon farms on the Milford Haven Waterway in the 1980s were unsuccessful for a number of reasons. A long standing cage culture unit at the Warrior site opposite Burton Ferry which originally reared rainbow trout has been producing sea trout in recent years, but this has suffered badly from seal damage and other factors. In recent years, and particularly since the "Sea Empress" oil spill, insurance companies and brokers as well as aquaculture consultants and potential developers have seen the Milford Haven and surrounding coast as being a bad insurance risk and this has undoubtedly been a major barrier to the development of the considerable aquaculture potential of the area. An objective appraisal of the risk and the mitigating measures that could be incorporated in any operational design needs to be carried out if the potential is to be realised.

The only significant conventional aquaculture enterprise belongs to Pembrokeshire Fish Farms and comprises 3 freshwater units, two grower units on the Syfynwy tributary of the River Eastern Cleddau and an early rearing unit at Hundleton near Pembroke. These units produce rainbow trout and processed trout products for the wholesale and retail markets. A carp unit on a tributary of the River Taf near Whitland supplies the garden pond and table markets and a number of small trout units exist as restocking adjuncts to recreational fisheries. A cage unit located in the Milford Haven Waterway at the old "Warrior" site opposite Burton has previously reared rainbow trout and more recently sea trout. A number of attempts to establish salmon rearing cages in the Haven have failed for technical reasons.

With the advent of the more advanced technologies associated with land based, closed circuit, re-circulation systems, the potential for expansion of aquaculture activity in Pembrokeshire is considerable. Given the identification of suitable sites ("brown field" sites around the Milford Haven Waterway are top contenders) and sources of venture capital together with improved perceptions of water quality and pollution risk, the door is open for both large scale, stand alone developments and for smaller scale developments as adjuncts to other enterprises, e.g. agricultural businesses. A Report on agricultural diversification opportunities produced by the Scottish Agricultural College for the Welsh Assembly in the late 1990's identified aquaculture as one of the prime areas of potential diversification for farmers and land owners. Aquaculture Wales, based in Swansea, has been established recently as a means of focusing and initiating small and large scale "green" aquaculture development and research in Wales and this will hopefully create a

climate and momentum which will unlock the considerable potential that Pembrokeshire has for increasing its aquaculture and mariculture activities both in the coastal zone and inland.

The quality and potential of Pembrokeshire's fish and fisheries has been underestimated and under-developed historically. The establishment of Pembrokeshire Fish Week by Pembrokeshire County Council in recent years has highlighted this quality and potential and has raised awareness and participation locally and further afield.

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HOW IS IT MANAGED?

Responsibility for the regulation and management of marine commercial fisheries falls ultimately on the Directorate General XIV – Fisheries of the European Commission. The overarching legislative framework is the Common Fisheries Policy which has been subject to a 10 year review over recent months and has been amended in the light of that review. The ultimate purpose of the Common Fisheries Policy is to provide a Europe-wide framework for the equitable management of marine fish and shellfish resources on behalf of all Member States through the introduction and enforcement of Technical Measures. These Measures seek to ensure or restore sustainability of marine fisheries by regulating exploitation either through : -

1. catch limitation through regulating the quantities of fish taken in given time periods through the imposition of area and species specific catch quotas, or
2. catch size limitation through technical measures such as mesh size, gear specification and use, etc., or
3. effort limitations through reductions in the size of the fleet (decommissioning schemes, restricting new build), controls over vessel capacity, or limitation of days at sea, or
4. a combination of all the above.

In reality, it is widely accepted that the CFP since its inception 20 years ago has failed to deliver sustainable exploitation of fisheries resources. It is also true that, through a combination of historical precedent, poor representation of the UK industry on the international stage and circumstance, the UK high seas and inshore fisheries have been sidelined and seriously disadvantaged by CFP developments in contrast to their European counterparts. It is hard to see how the UK industry is going to recover from this and decline is seen as almost inevitable.

Within this framework, the UK Government through DEFRA has little capability or freedom to improve and develop the UK industry even if it had the will to do so. DEFRA has the responsibility to introduce and administer the EU fisheries regulations for UK fisheries outside of the 6 mile limit.

1) Inshore Commercial Fishing Sector

Responsibility for regulation and enforcement for marine fish and shellfish fishery management within the 6 mile zone in Pembrokeshire rests with the UK Government (DEFRA) and the Welsh Assembly Government through legislative Orders and Statutory Instruments and the South Wales Sea Fisheries Committee, one of two in Wales, through the application and enforcement of Bye-laws. The enabling legislation for the latter is the Sea Fisheries Regulation Act 1966. The Environment Agency Wales has responsibility for managing salmon and sea trout fisheries out to 6 nautical miles through the introduction and enforcement of Byelaws. Byelaws created by the Sea Fisheries

Committee and the Environment Agency Wales are submitted to the Assembly for consideration and confirmation. The Welsh Assembly Government has devolved responsibility to 12 nautical miles offshore with respect to the licensing of the Welsh fishing fleet and quota management. The Assembly also has devolved responsibility for harbour regulations within designated fisheries ports as defined by the Sea Fish Industry Act 1951 and administers several and Regulating Orders under the Sea Fisheries Act 1967 which allow specific individuals rights to shellfish within areas defined by the specific Order.

The South Wales Sea Fisheries Committee has a patrol vessel and a number of Officers whose job it is to enforce the Byelaws, monitor catches and fishing activity and to provide advice and information. The work of the Committee is funded through relevant Local Authorities, all of whom are represented on the Committee. Since 1992, the Committee has also had a statutory duty under the Sea Fisheries (Wildlife Conservation) Act 1992 to have regard to wider conservation issues when enforcing or carrying out its fisheries functions. The Sea Fisheries Committee is empowered under the Sea Fisheries Regulation Act 1966 to establish and regulate Bass Conservation Areas to protect juvenile bass and there is a cross warranting arrangement with Environment Agency Wales officers to aid enforcement. A co-operative agreement between the SWSFC and the EAW has resulted in the establishment of byelaws to restrict netting in some coastal areas as a measure to protect salmonids. The Committee issues permits to fish but licensing of vessels rests with DEFRA which also has other statutory fishery enforcement powers under UK legislation within the 6 mile limit. The overlap of 3 organisations (DEFRA / SWSFC / EAW) with fisheries regulatory powers and responsibilities within the coastal zone is seen by many as being far from ideal.

The implementation of the Habitats Directive and in particular the introduction of Special Areas of Conservation and Special Protection Areas brings the Countryside Council for Wales and the Welsh Assembly Government into the regulatory picture. The majority of the inshore waters of Pembrokeshire now have some form of environmental designation and this will impose a number of new restrictions, regulations and closed areas on the inshore fishing sector. Such restrictions, regulations and closures will be determined by the CCW and the WAG, but they will need to be introduced through the South Wales Sea Fisheries Committee Byelaw making powers. Enforcement will fall on the Committee although no additional funding has been provided to pay for the additional resources required.

2) Licensed Commercial Salmonid Fisheries

The regulation of migratory salmonid (salmon and sea trout) fisheries in marine and estuarial waters rests with the Environment Agency Wales which applies appropriate Byelaws under powers granted by the Salmon and Freshwater Fisheries Act 1975 and the Salmon Act 1986. A number of commercial salmon and sea trout fisheries exist in Pembrokeshire's coastal / estuarial waters. These are licensed by the Environment Agency Wales and are subject to Net Limitation Orders which restrict the number and mode of issue of licences issued annually. The Agency operates a system of Byelaws specific to these fisheries. Sometimes referred to as "heritage" fisheries because of the historical nature of their activities and the fact that they are in decline and in danger of dying out, these fisheries form part of the cultural richness of the County.

The archetypal traditional Welsh salmon fishing vessel is probably the coracle. 12 coracle fishing licences are still issued annually by the Agency for the stretch of the

River Teifi between Llechryd Bridge and the bottom end of the Cilgerran Gorge. Fished in pairs usually at night with a small, shallow trammel net worked between them, coracles are still made in the traditional way on the Teifi, although the skills are in danger of disappearing.

The seine net fishery at the mouth of the River Teifi at Poppit Sands near St. Dogmaels has 6 licences available annually and there is just one seine net licence available on the mouth of the River Nevern at Newport. The Cleddau compass net fishery on the Eastern and Western Cleddau above Picton Point has 8 licences available. Both these fisheries operate with a single, specialised boat, the former taking a large net in a sweep out from the shore and encircling fish as it returns to the same shore, the latter being moored in mid channel across the tide with a net on a triangular frame which is cantilevered under the boat to catch fish in the bag which bellies out in the current. Concerns about the serious reductions in runs of salmon and sea trout and the demands of the freshwater angling sector have raised questions about the future of these fisheries which some see as anachronistic and exploitative.

3) Aquaculture

Aquaculture development is subject to normal planning regulations, the relevant Planning Authority being dependent on whether the development is within or without the National Park. If in coastal waters, then the development would also be subject to authorisation by the Crown Estates Commissioners. The Environment Agency regulates through, licences and consents, any aspects of the development which are likely to have an environmental impact such as water abstraction (Water Resources Act 1991), discharge of effluent (Environment Act 1990; Pollution Prevention and Control Act 1999); obstructions in the watercourse, (Land Drainage Act 1991 as amended 1994); fish transfers and screening to prevent fish movement (Salmon & Freshwater Fisheries Act 1975).

The monitoring and control of fish health is carried out by the Fish Health Inspectorate under DEFRA and the National Assembly for Wales Agriculture Department. Public health issues relating to the sale and consumption of fish and shellfish and their products are the responsibility of the Food Standards Agency and the Local Authority (Pembrokeshire County Council). Wild fisheries or intensive mariculture enterprises for bivalve molluscs need to be registered and inspected on a regular basis to ensure that they meet designated standards. If the standards are not met these fisheries may be subject to closure orders until acceptable samples are again obtained.

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ISSUES

The issues identified below have been gathered via a variety of means including Topic Group meetings, Coastal Surgeries, other reports and plans, questionnaires and general communications. They are not the views of the Forum, but instead a culmination of concerns from a broad range of individuals as well as organisations from the public, private and voluntary sector. These issues will now be further analysed and will form part of an 'Issues Report'. It is not the

purpose of Forum to resolve each of the individual issues identified, but instead to pass on the concerns to each of the relevant organisations responsible. Where these bodies do not exist, or where there is a need for a more collaborative approach, this will form the focus for the strategy, action plan and future Forum work.

COMMERCIAL & RECREATIONAL FISHERIES

1. Ecological & environmental impacts / biodiversity loss

- Some forms of commercial fishing can have significant environmental impacts including disturbance of or damage to substrates and their associated communities; entrapment of non-target species
- Depletion of stocks of fish and shellfish through over-fishing and other means reduces biodiversity and affects ecological balances
- Stocks of native oysters (*Ostrea edulis*), a Bio-diversity Action Plan (BAP) species, have declined in recent years
- Hand gathering of species can have environmental effects including : - species depletion; ecosystem effects and physical disturbance. Commercial gathering, because of the increased intensity of exploitation, is of particular concern in localised areas.
- There is a risk of entanglement of turtles, seals and cetacean species in fishing gear and pot / mooring ropes
- The whelk fishery in Carmarthen Bay is believed by some to be leading to whelk population decline
- Unregulated bait collection can have environmental effects, including : - species depletion; ecosystem effects; physical disturbance; Commercial gathering, because of the increased intensity of activity, is of particular concern in localised areas.
- The introduction of environmental designations (SACs, SPAs, etc.) is perceived by the inshore commercial fishing industry to pose a serious threat to the developmental potential and viability of the sector
- No compensation or 'set aside' payments are payable for fishermen who are displaced from their traditional fishing grounds or prevented from diversifying into new fisheries by environmental protection measures, e.g. SACs, NTZs

2. Local / Regional management limitations

- Sea Fisheries Committees are not adequately resourced to the job that is required
- There is no commitment or significant funding allocation to provide accurate data to establish and manage sustainable inshore fisheries
- There is a lack of suitable commercial moorings in the Milford Haven Waterway
- There is currently no 'V-notching' lobster conservation scheme in South Wales
- Fishing activity in some harbours / marinas can lead to anti-social effects (smell, litter, hazards, obstruction, etc.) and conflict, e.g. Saundersfoot Harbour, Milford Haven
- Unmarked buoys and other gear can make tracing of owners difficult and time consuming
- Intertidal fisheries can cause damage to habitats and ecosystems due to trampling and/or vehicle passage

- Obstructions to the migration of salmon and sea trout still exist in some river catchments thereby reducing the potential abundance of these species in coastal and estuarial waters
- Inadequate fish screening arrangements at some fish farms and other abstraction intakes causes loss of juvenile migratory salmonids
- Illegal fishing in spawning tributaries and the lower reaches of rivers continues to be a problem
- Failures to achieve salmon spawning targets for the NeVERN, Eastern and Western Cleddau have been identified

3. Ineffective UK / EU management of fisheries

- The lack of true Regional control of fishing and other activities out to the 12 mile limit seriously restricts the ability of the regulators to effectively manage and develop the fauna, flora and habitats of coastal marine waters
- Adherence to the principle of “shared access to a common resource” and the nomadic ‘rape & pillage’ behaviour of other Member States provides little incentive to the local inshore fishing industry to adopt conservation measures and practices
- Inappropriate management regimes are having a damaging impact on stocks and the industry
- Offshore fishing vessels operating to less stringent rules and regulations can lead to damage to and impoverishment of inshore fisheries through e.g. damage to gear and over-cropping of under-sized fish
- Inappropriate and unbalanced funding and Government support in some European Member States is damaging to fisheries and markets and prejudices the viability of local fishery businesses
- Unlicensed fishing and ‘black economy’ sales of fish are seriously undermining the viability of many bona fide fishing businesses who rely on local sales
- The financial and other resources available through the UK Government and the EU are inadequate to support the sustainable development of fisheries and the industry
- ‘Industrial’ fishing for prey species for use in fertilizer and fish meal is impacting on commercial prime fish stocks
- No legislation currently exists to specify the minimum or maximum size of a marker / mooring buoy or the length of mooring ropes

4. Research

- The effects of climate change on the movement and ecology of fish and shellfish stocks and marine biota generally is not well understood

5. Conflicts between user groups

- There is spatial conflict between commercial fishing activity and recreational and commercial craft activity in some areas, in particular in the Milford Haven Waterway
- There is a risk of spatial conflict between fishing activities and renewable energy installations, oil and gas exploration, aggregate dredging, etc.
- MOD firing areas impose significant restrictions on fishing activity
- Competition for declining stocks and a game angling sector perception of damage to rod fisheries threaten the future of the ‘heritage’ compass, seine and coracle net fisheries
- The use of drift nets in some areas can create a hazard and obstruction to other recreational and commercial water users

- Net and pot buoys and other gear can be a hazard or a nuisance to other water users, particularly in restricted, multi-use areas such as the Milford Haven Waterway and the approaches to Solva
 - Competition between the recreational and commercial fishing sectors for some stocks and key fishing locations needs an integrated and co-operative approach to the management of the resource
6. Litter / pollution
- Fishing and other boat related litter creates a hazard to wildlife and humans and causes environmental and aesthetic degradation
 - The long term impact of the Sea Empress oil spill on migratory salmonid stocks in the area is unknown
7. Predation
- The increasing population of grey seals around Pembrokeshire's coast is reducing profitability and therefore viability of some commercial fishing operations through damage to gear and to loss of / damage to fish in nets
 - Predation by piscivorous birds is perceived to have a damaging effect on some freshwater fish stocks

AQUACULTURE

1. Water Quality
- High levels of bacteria and viruses in estuarial and coastal waters inhibits the development of shellfish mariculture businesses
2. Lack of regional / national support
- There is inadequate funding support for the development of large aquaculture enterprises in Pembrokeshire
3. Ecological / environmental impacts / biodiversity
- Mariculture of mollusc species can have adverse environmental impacts, including : - localised modification of sea bed substrate; increased sedimentation; changes in nutrient input; physical impacts from foreshore access; physical disturbance; habitat / species loss and alteration.
 - Conventional land and sea based aquaculture can have environmental impacts, including: - discharge to the waterway of nutrients, pesticides / antibiotics / hormones; escapement of non-native species / genotypes into the wild; feed stock sourced from unsustainable fish populations; loss / modification of species and habitats; ecosystem effects; interactions with predatory species.
 - Conventional cage and land based culture units carry a risk of disease / parasite transfer between wild and farmed stocks and a risk of escapement of stock which could cause genetic modification of wild stocks
 - The aquaculture industry is currently dependent on the use of large and unsustainable quantities of 'industrial fish' caught in the wild to produce the feed for the reared fish
 - Mariculture is unlikely to be permitted within environmentally designated areas therefore severely restricting the potential for the industry to develop in the County
4. Perceived pollution risks
- A perception of poor water quality and high pollution risk, particularly from the oil industry, in the Milford Haven Waterway impedes the development of aquaculture businesses

- In the aftermath of the “Sea Empress” incident, marine aquaculture businesses in the area of the Milford Haven Waterway have become virtually uninsurable for oil related risks
- Local aquaculture businesses have experienced great difficulty in obtaining fair treatment and recompense from ITOPF following oil spillages which have affected their businesses.

Last amended December 2003