Action: The Committee is invited to note the contents of this paper and discuss any issues within its remit arising from this paper or its visit to a salmon farm.
AQUACULTURE

Purpose

1. This paper is intended to provide members with background information on fish farming in the UK for the Committee’s visit to a salmon farm in Scotland on 24 June 2003 and to help inform ACAF’s subsequent discussion at its twentieth meeting. This paper outlines the nature and extent of fish farming in the UK as well as giving an indication of what fish are fed and a summary of relevant legislation. The factual content of this paper has been provided by DEFRA, the Veterinary Medicines Directorate and the Animal Feed Unit of the Food Standards Agency.

Background

2. At its eighteenth meeting on 11 February 2003, the Committee noted that it had not looked in any detail at the feed aspects of aquaculture to date. It was agreed that members needed to be better informed on fish farming in order to decide whether there were any feed related issues of concern that it needed to pursue. The topic was added to its forward work plan and it was agreed that the Committee would visit a fish farm in Scotland around the time of its twentieth meeting.

Nature and Extent of UK Fish Farming

3. Aquaculture is an important part of the fisheries sector with some 1,067 finfish and 428 shellfish (including crayfish) active farm sites in the United Kingdom. Individual commercial fish farm businesses may own more than one site. More than 3000 people are employed directly (with over 6500 in supporting sectors). First sale value of aquaculture production at “farm gate” and through secondary processing is in excess of £500 million (placing the UK among the leading players in Europe of aquaculture producers).

4. The main finfish species are salmon and rainbow trout. Almost all salmon is produced on the west coast and outer isles of Scotland. Rainbow trout is farmed throughout the UK. The industry has shown a readiness to take up new species such as cod, halibut, turbot and bass and to invest in new production systems making use of innovative technology such as water recirculating systems. The main shellfish production is mussels.

5. Production figures for the five year period up to 2001 (the latest year for which complete data are available) are as follows:
Finfish species (*primarily for human consumption*)

<table>
<thead>
<tr>
<th>Year</th>
<th>Atlantic Salmon**</th>
<th>Rainbow Trout**</th>
<th>Brown Trout**</th>
<th>Halibut</th>
<th>Cod</th>
<th>Arctic Char</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>99,197</td>
<td>16,268</td>
<td>478</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>1998</td>
<td>110,784</td>
<td>16,656</td>
<td>450</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>1999</td>
<td>126,686</td>
<td>17,288</td>
<td>403</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2000</td>
<td>128,959</td>
<td>15,353</td>
<td>551</td>
<td>5</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>2001</td>
<td>138,519</td>
<td>16,403</td>
<td>621</td>
<td>80</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>

(*Figures in tonnes to nearest whole number)

(**Figures include some production for restocking)

Shellfish species (primarily for human consumption)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pacific Oyster (000s)</th>
<th>Native Oyster (000s)</th>
<th>Scallops (000s)</th>
<th>Queens (000s)</th>
<th>Mussels (tonnes)</th>
<th>Cockles (tonnes)</th>
<th>Clams (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>4,424</td>
<td>154</td>
<td>870</td>
<td>4,257</td>
<td>13,000</td>
<td>20</td>
<td>36</td>
</tr>
<tr>
<td>1998</td>
<td>4,252</td>
<td>391</td>
<td>392</td>
<td>3,676</td>
<td>11,000</td>
<td>53</td>
<td>22</td>
</tr>
<tr>
<td>1999</td>
<td>4,136</td>
<td>314</td>
<td>214</td>
<td>2,855</td>
<td>10,000</td>
<td>52</td>
<td>19</td>
</tr>
<tr>
<td>2000</td>
<td>4,742</td>
<td>169</td>
<td>313</td>
<td>2,084</td>
<td>14,000</td>
<td>150</td>
<td>25</td>
</tr>
<tr>
<td>2001</td>
<td>4,911</td>
<td>250</td>
<td>733</td>
<td>1,882</td>
<td>17,000</td>
<td>105</td>
<td>34</td>
</tr>
</tbody>
</table>

6. The Government’s policy on fish farming is to encourage the development of viable and environmentally sustainable enterprises, within a framework which protects the health and welfare of farmed and wild stocks, safeguards the environment and benefits the local economies. This policy is being progressed on a number of fronts: through the Government’s Strategy for the Conservation and Sustainable Development of our marine environment published on 1 May 2002 (www.defra.gov.uk/environmentmarine/stewardship/default.htm); and most recently the Scottish Executive’s long-term strategic framework for Scottish aquaculture.

7. The European Commission has published, in the context of the reform of the Common Fisheries Policy, a strategy for the sustainable development of European aquaculture (http://www.europa.eu.int/comm/fisheries/reform/proposals_en.htm). The strategy outlines action across a range of areas over the next 10 years to develop a sustainable and stable aquaculture industry, which is able to guarantee long-term secure employment and development in rural areas and the availability of healthy and safe products. The strategy has been broadly
endorsed by both the Council of Ministers (Agriculture and Fisheries) and by the European Parliament.

**Fish Feed**

8. Feed for farmed fish include primarily fishmeal and fish oil in varying proportions according to the intended species and purpose of the feed. Fish require different feeding regimes at different stages of their lifecycle.

9. The protein and fish oil requirements for fish vary greatly both between species and within species at different stages of growth, and this directly influences the amount of fishmeal and fish oil required in aquaculture diets.

10. Globally the fish used for aquaculture feed are sourced from non food grade fisheries, usually from fisheries off the coasts of Peru and Chile, the North Atlantic, North Sea and Baltic Sea.

11. As mentioned in paragraph 7, the recently published Commission strategy for the sustainable development of European aquaculture seeks to address fishmeal sustainability. The Commission considers that research to find alternative protein sources for fish feed should be given 'top priority', in order to allow further development of carnivorous fish farming and, at the same time, ensure the sustainability of industrial fisheries.

12. Issues of fishmeal/fish oil sustainability have also been considered under the Scottish Executive’s long-term strategic framework for Scottish aquaculture published in March this year.

13. The Scottish Executive/industry "A code of practice to avoid and minimise the impact of infectious salmon anaemia (ISA)" has a supplement, Appendix II, which covers feed deliveries from the perspective of fish disease transmission risk (attached).

14. Controls for notifiable diseases, (e.g. infectious salmon anaemia (ISA), viral haemorrhagic septicaemia (VHS) and infectious haemotopoietic necrosis). Designated Area Orders and Thirty Day Notices can prohibit the movement of feed on and off the farm without the approval of Ministers.

15. Industry associations have their own code of practice on fish food and feeding built into their quality assurance documentation.

**Legislation**

16. Legislation concerning animal feedingstuffs, which includes feed for farmed fish, is harmonised throughout the EU and based on Decisions and Directives negotiated in Brussels. This legislation is currently given force
in England by the Feeding Stuffs Regulations 2000, which consolidated a number of amendments to the 1995 Regulations and covers aspects of the marketing, labelling and composition of animal feedingstuffs.

17. The main provisions relevant to fish feeds include:
   - a list of additives (vitamins, minerals, colourants, flavourings, binders, etc.) which may be incorporated in animal feed,
   - maximum permitted levels of certain undesirable substances (i.e., contaminants),
   - minimum information that must be provided to purchasers in the statutory statement of fish feed e.g., the declaration of ingredients, analytical constituents (protein and fibre) and the presence of certain additives.

18. In addition there are general powers in the Agriculture Act 1970 (as amended), which have provisions in relation to the control of ingredients in feedingstuffs. Separate but parallel Regulations apply in Scotland, Wales and Northern Ireland.

19. Directive 1995/69, implemented in the UK in the Feeding Stuffs (Establishments and Intermediaries) Regulations 1999, requires that premises making, selling or using certain feed additives must be registered with the enforcement authorities. Fish feed manufacturers incorporating such additives are required to be registered with their local authority. Registration involves certain compliance with various standards relating to equipment, facilities, personnel storage and record keeping.

20. The Feeding Stuffs Regulations 2000 have been amended three times since they came into force in October 2000. The most relevant amendment as far as feed for farmed fish is concerned is the Feeding Stuffs (Amendment) Regulations 2003, which transposed into law Directive 2001/102 laying down maximum permitted levels for dioxins in animal feedingstuffs, including feed (fish oil and fishmeal) used in fish feeds. The Food Standards Agency’s Animal Feed Unit is currently undertaking public consultation on a further amendment which would transpose Directive 2003/7 reducing the maximum permitted amount of the colourant canthaxanthin in fish feed. (See Annex for further details).

21. Other legislation also applies to animal feedingstuffs. EC Regulation 1774/2002, which is directly applicable in Member States, lays down the health rules for animal by-products not intended for human consumption, i.e. animal material which may be recycled into animal feed. This is being transposed into UK legislation in the Animal By-products Regulations 2003. Under these rules, only material classed as of the lowest risk (“category 3”) may be recycled in this fashion. This could include material of piscine origin for feeding to farmed fish – the UK has been granted a
transitional period to permit the feeding of processed animal protein from all fish to farmed fish until the end of 2003. However, the aquaculture industry advises that it does not recycle waste fish material from the processing of farmed fish for human consumption (fins, heads, etc.).

The use of veterinary drugs in fish feed and the arrangements for enforcing legal requirements in this area.

22. There are eight authorised veterinary drugs in fish feed for use in food producing fish. The legal classification for these products is MFS (Medicated Feedingstuff).

23. These products can only be supplied to the fish farmer on receipt of an MFS prescription issued by a veterinary surgeon.

24. The Medicated Feedingstuffs Regulations 1998 require that anyone manufacturing or distributing a medicated feed must have been approved as premises on which a medicated feedingstuff may be manufactured (or distributed). Approval would follow an official inspection and approved premises would go on a register of approved premises. To remain on the register, regular inspections would follow to ensure compliance with the Regulations.

25. The VMD has been in consultation with the Scottish Executive Environment and Rural Affairs Department (SEERAD) in Scotland and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) for England and Wales to try and ensure that the Regulations are implemented in the most cost effective and least disruptive way for fish farmers. The aim is to arrange inspections to be carried out by SEERAD and CEFAS which will coincide with other inspections which SEERAD and CEFAS already carry out on fish farms. This would hopefully keep costs down and prevent duplicity of visits.

26. VMD are in the final stages of consultation and hope for the Regulations required to implement the requirement to be in place by the end of the year.

Action

27. The Committee is invited to note the contents of this paper and discuss any issues arising from this paper or its visit to a salmon farm. Members are reminded to focus on feed related issues only. Fish welfare and the wider environmental issues of aquaculture are not within the Committee’s remit.

ACAF Secretariat
Canthaxanthin

1. Canthaxanthin is authorised as a feed colourant and its principle purpose is to enhance the colour of farmed salmon and trout and of the yolk of hens’ eggs. In April 2002 the Commission’s Scientific Committee on Animal Nutrition (SCAN) gave the view that the maximum levels of canthaxanthin should be reduced in order to prevent extreme consumers of eggs and farmed salmon and trout from exceeding the acceptable daily intake (ADI), which was set in 1997. The current limit for canthaxanthin used as an additive in feed for salmonids and poultry feed is 80 mg/kg. The SCAN opinion suggested a revision to 25 mg/kg in feed for salmon and trout (and broiler chickens, and 8 mg/kg in feed for laying hens).

2. At the ACAF meeting in July, the view was expressed that the SCAN had used very conservative assumptions in reaching its conclusion, including assuming that all fish eaten was salmon and trout. In fact, the calculations assumed such consumption as 300 grams per day. This point was also raised when the Food Standards Agency sought views from interested parties on the SCAN Opinion and on the Commission’s subsequent proposals. The comments received indicated that the new levels would not have any material effect on usage of canthaxanthin in laying hen or broiler feed. There would however be an impact on the colour of salmon presented to consumers and on costs to the industry.

3. At the Standing Committee on Animal Nutrition on 20th December 2002, a vote took place on reducing the levels in line with the SCAN advice. The reduced levels adopted by a qualified majority were 8 mg/kg for laying hens and 25 mg/kg for other poultry and for salmonids. The UK abstained in the vote. It was felt that the aim of protecting consumers was right, but that the approach was wrong in the SCAN calculations and that the potential impact was not justified by the science. Moreover, controls should apply to all fish imported into the EU. In response, the Commission said that it would consider urgently the need to set maximum residue limits for canthaxanthin in fish flesh. These would apply equally to imported and home produced fish.

4. The Directive requires transposition into national legislation by 1st September 2003 and must come into force from 1st December 2003. The Food Standards Agency is consulting stakeholders on the draft implementing Regulations and on a related Regulatory Impact Assessment. In the meantime, the Food Standards Agency has
continued to press the EC Commission for progress in labelling foods coloured via animal feed in order to help provide consumer choice.