SLEEPING DISEASE (SD) OF SALMONIDS

By P. BOUCHER and F. BALDIN LAURENCE

For several years, a syndrome in salmonids which we have named Sleeping Disease has been observed in Brittany. It was very prevalent last spring (1994), with 15% of the fresh water trout farms being affected. Moreover, we have recently succeeded in demonstrating the contagiousness and probable a viral nature for the pathogen. Since no published description of this disease syndrome exists a description has been prepared for the EAFF Bulletin and for use in the form of a fish for an English translation of the well known German book "Was, Tun, Wenn * of Schlofeldt et al. It is also provides the opportunity to ask fish pathologists who as observed a similar syndrome to contact us.

Figure 1. Behavioural signs of sleeping disease. Figure 2. Characteristic necrosis of red skeletal muscle.
3. Temperature of outbreak:
The clinical signs are mainly observed in spring, when water temperature is 8 to 15°C.

4. Clinical signs:
Fish of any age (fingerlings to 1 kg and more) rest on their side on the bottom of the tanks or raceways (Fig. 1). If they are disturbed, they swim for some time then return down to the bottom. There are no macroscopic lesions but occasionally secondary ulcerations of the skin or petechiae on the pyloric organ.

A characteristic necrosis of the skeletal red muscle (Fig. 2) and an apparently linked degenerative and inflammatory aspects of exocrine pancreas and heart can only be seen by histopathological examination. It must be noted that in individual fish or some populations, these lesions can be present without any behaviour alteration. These lesions present some similarities with Pancreas Disease of sea water reared salmonids.

5. Mortality:
In the absence of any secondary infection, there is no or slight mortality. Nevertheless, fish do not eat for several weeks (2 to 4), their growth ceases for this period.

6. Diagnosis:
In the absence of method for isolation of the agent by cell culture or other techniques, it is based on the very characteristic behaviour and histology.

The determination of plasma enzyme activities (ASAT & CK) which increase in association to the lesions can be a useful tool for an assessment of the prevalence of the disease in farms.

7. Transmission:
Has so far only been observed in experimental conditions:
- by intraperitoneal injection or bath using kidney extract of diseased rainbow trout as contaminant
- by cohabitation between diseased and healthy trout.

8. Prevention:
Should be identical to that recommended for other viral diseases. Buy live products only from SD free farms. Since absence of transmission on eggs is not confirmed, dis-infect the eggs using iodophores.

9. What to do?
There is no known treatment for the disease. In farms where SD has been recorded, a survey based on the study of plasma enzyme activities and/or histology could allow an early diagnosis as an help for decision: a) to sell the fish if they are at commercial size b) as for Pancreas Disease, try to limit the intensity and the duration of the outbreak in decreasing the food ration. A food supplementation in vitamin E and/or Selenium has so far not been demonstrated as effective on already diseased fish. Standard approaches to stress reduction should be of interest.

The eradication of the disease on infected farms would probably need sanitary measures identical to those used for viral diseases: emptying of the ponds for a while and thorough disinfestation.

Author's address:
CNEVA Brest, Laboratoire de pathologie des animaux aquatiques, B.P. 70, 29280 Ploneiz, France

*Correspondence author P. Barrieu-Laurensin

INSTRUCTIONS TO AUTHORS

The EAFP Bulletin is a means of communication between members, publishing news and short scientific articles. Full instructions to authors were published in Vol 14(1). Members are encouraged to submit items of news, information on forthcoming meetings, meeting reports etc for publication in the News and Views section, Letters and points of view are also welcome.

Scientific communications: Maximum length of short scientific items is 4 pages, including all tables and figures. Items are normally published at the authors responsibility, but all are submitted to peer review and the editor reserves the right to reject or modify as necessary. Authors are supplied with proofs when manuscripts are accepted and may order reprints at costs listed below.

Manuscripts should be sent to the:
EAFP Publications Officer,
MAFF Fish Diseases Laboratory, The Nothe,
Weymouth, Dorset, DT4 8UB, U.K.

Manuscript Format: Manuscripts should normally be divided conventionally into standard sections e.g. introduction, materials and methods, results, discussion, abstract and references in that order. If not supplied in disk form, manuscripts are scanned into a computer using optical character recognition (OCR). Printed manuscripts should be in 12 point typeface, double spaced in a sans serif font like this.

Manuscripts on Disk Computer: Authors should also enclose a copy of the manuscript on computer disk. Only MS-DOS™ formats can be used. Common word processor formats are convenient, but also supply a plain text (ASCII) copy. Avoid complex formats, double column layouts etc. Tables should be as columns separated only by tab characters. Graphs and drawings, in addition to paper form may also be sent in computer graphic format, file formats supported include TIF, .PCX, WMF, .XL*

Photographs should be prepared with the page size of the Bulletin in mind. Use bar scales.

References: In the text, references should be as follows: (Legètre, 1900), for 1 or 2 authors and (El-Matbouli et al., 1992) for three or more. In the citation list, journal titles should be expressed as follows:

Papers:


Books and conferences:

SUBSCRIPTIONS
Members are reminded that these should be paid to their Branch Officer by the end of November each year in the local currency equivalent of 60 Swiss francs, the exact equivalent to be notified by the Branch Officer. Failure to pay your subscription before the year end will result in the halting of mailing of the Bulletin.

The subscription rate for non-members and institutions is 100 Swiss francs. For a student rate of 30 Swiss francs, a letter confirming student status is required.

ADVERTISING CHARGES
Full page advertisements are published at NOK660 per Bulletin issue (i.e. NOK2650 per annum); half page advertisements are charged pro rata i.e. NOK130per issue. Advertisers are responsible for the preparation of their own camera ready artwork.

REPRINT CHARGES (Norwegian)

<table>
<thead>
<tr>
<th>Number</th>
<th>1-2pp</th>
<th>3-4pp</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>440</td>
<td>440</td>
<td>440</td>
</tr>
<tr>
<td>605</td>
<td>605</td>
<td>605</td>
</tr>
<tr>
<td>660</td>
<td>660</td>
<td>660</td>
</tr>
<tr>
<td>715</td>
<td>715</td>
<td>715</td>
</tr>
<tr>
<td>990</td>
<td>990</td>
<td>990</td>
</tr>
<tr>
<td>1210</td>
<td>1210</td>
<td>1210</td>
</tr>
<tr>
<td>1320</td>
<td>1320</td>
<td>1320</td>
</tr>
</tbody>
</table>