

International Council for the  
Exploration of the Sea

C.M. 1962  
Salmon and Trout Committee  
No. 143

6



Digitalization sponsored  
by Thünen-Institut

BACTERIAL DISEASES OF THE SALMONIDAE

by

Isabel W. Smith

Marine Laboratory,  
Aberdeen.

## BACTERIAL DISEASES OF THE SALMONIDAE

by

Isabel W. Smith  
Marine Laboratory, Aberdeen.

This brief report summarises the progress which has been made in the study of furunculosis and other bacterial diseases of salmonids. It brings the information given in an earlier report (Smith, 1960) up-to-date and these notes should be read in conjunction with that report.

## A. FURUNCULOSIS

Furunculosis continues to occur in fresh-run adult salmon in Scottish rivers. A few smolts have also been shown to be infected with Bacillus salmonicida; this is the youngest stage of the salmon so far shown to be infected naturally.

The survey of dead kelts has been continued and in the autumn of 1960 a reasonably large sample of dead kelts was examined from a more representative selection of Scottish rivers. This showed that furunculosis occurred in kelts in almost every river sampled but in one respect the results differed from those obtained in 1958. In 1958 almost all the salmon kelts with furunculosis were heavily infected, but in 1960 some of the kelts yielded a very few organisms and from histological considerations were apparently very lightly infected. This led to a critical examination of the results to try to ascertain whether the kelts had died from furunculosis or some other cause. The conclusion reached was that while some kelts had undoubtedly died from furunculosis, others may have died from other causes while in the 'carrier' state. All kelts should therefore be regarded with suspicion although all are not of equal danger. A report describing the results of this investigation is in the press and will be published shortly (Smith, 1962).

In 1960 a number of salmon were impounded in a brackish tidal pond (salinity ca 21‰) to try to keep them free from fungal infection till they were ready for spawning, but unfortunately all the fish died. All but one of the fish were examined in the laboratory and shown to be infected with furunculosis. This is believed to be the first real evidence of a natural outbreak of furunculosis under brackish conditions and confirms the experimental work reported previously (Smith 1960).

## B. DEE DISEASE

Further cases of Dee disease have been found again in the Aberdeenshire Dee and a report of this disease is being prepared for publication. The organism has now been grown on new media which are more standardised than that of Ordal and Earp (1956) in that they do not require the addition of human blood. This medium has been found to be very suitable for the isolation of the organism from newly-dead fish but, in common with that of Ordal and Earp, it is not selective and is no use when the fish are contaminated.

It would seem that the condition which has been described as Dee disease is the same as that described as 'kidney disease' by North American workers.

## C. MISCELLANEOUS

Two sea trout and one salmon in the sea from the north-west coast of Scotland were found to be infected with an organism morphological and culturally

similar to B. salmonicida. It differed from B. salmonicida in (a) not producing the typical brown, water soluble pigment (b) being completely anaerogenic and, (c) in not being able to grow in nutrient gelatin. On inoculation, it proved to be pathogenic to trout and histological lesions were found in the liver of the original specimen. This organism may be an achromatic variant of B. salmonicida.

Two cases of Vibrio anguillarum infection were recorded in 1962.

#### REFERENCES

- Ordal, E. J. and Earp, B. J. 1956. 'Cultivation and transmission of etiological agent of kidney disease in salmonid fishes.' Proc. Soc. exp. Biol. Med., 22, 85-88.
- Smith, I. W. 1960. 'Bacterial and fungal disease of the Salmonidae.' ICES/CM, 1960.
- Smith, I. W. 1962. 'Furunculosis in kelts.' Sci. Invest. Freshwat. Fish. Scot., no. 27, 12 pp. (in press).