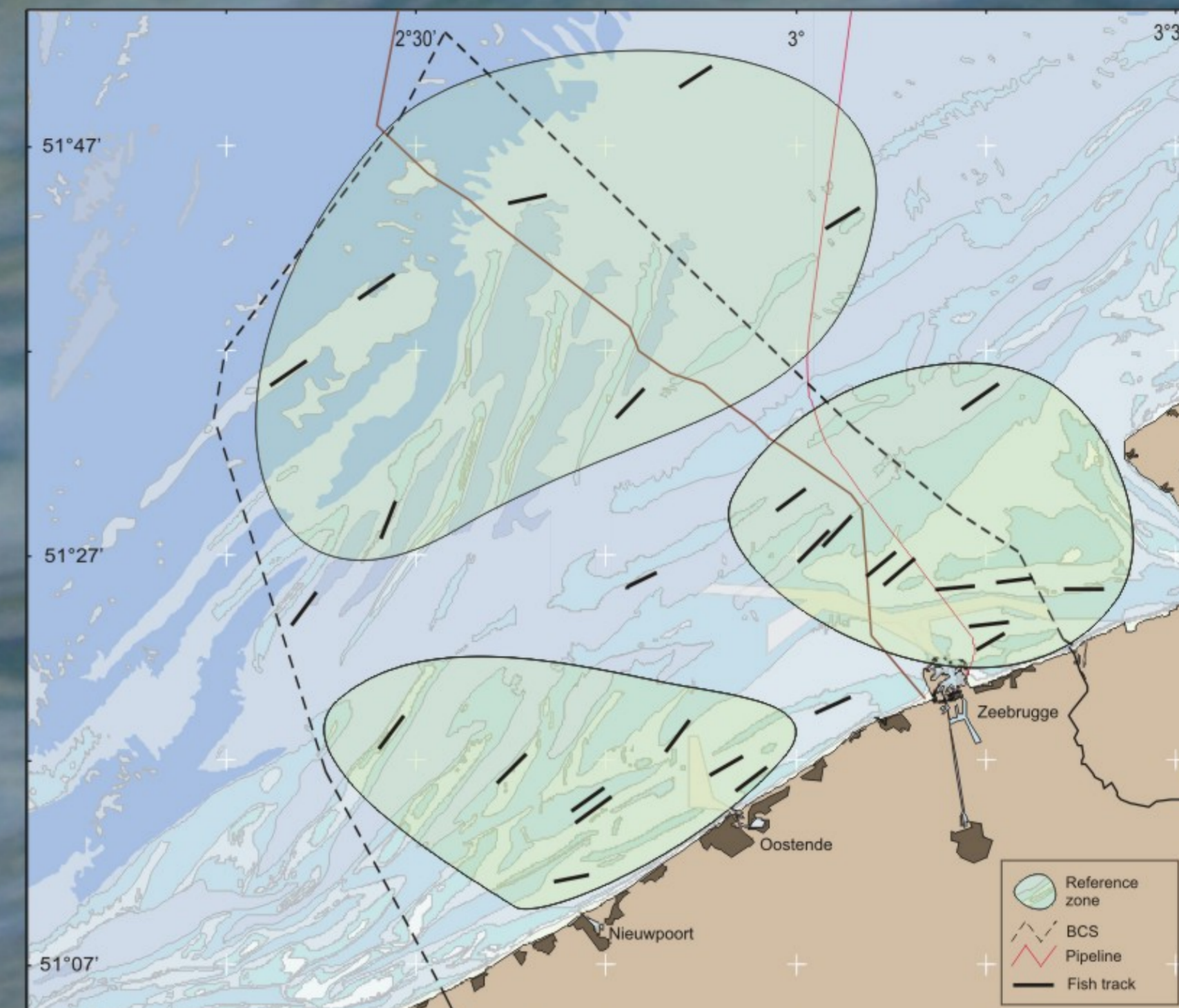


Fish Diseases and Parasites on the Belgian Continental Shelf

Karen Bekaert - Stefan Hoffman - Hans Hillewaert

INTRODUCTION

During spring and autumn, ILVO-DVI carries out sea-going surveys for environmental monitoring purposes. Fish disease quantification is an integral part of biological and chemical monitoring. The aim of the present study is to monitor diseases and parasites of demersal fish on dredge spoil disposal sites on the Belgian Continental Shelf (BCS) in the period 2004-2005 to detect possible a higher prevalence due to pollution. An important number of infectious and parasitical anomalies of the epidermis, the gills and the mouth of several fish species are recorded.



METHODS

Samples were taken on the dredge spoil dumping sites : Nieuwpoort, Oostende, Zeebrugge, S1 and S2 and on three reference zones. Reference zone 1 is formed by Steendiep, Vlakte van de Raan and Gootebank. Reference zone 2 includes Westdiep, Oostendebank and Oostdyck. The third reference zone is formed by the northern edge of the Belgian Continental Shelf, Scharrebank and Bligh Bank. Dab (*Limanda limanda*) is an ideal organism for use in monitoring programmes of fish pathology because it is a demersal fish with a small mobility. The utilized organisms should as well be abundant and exhibit diseases which are easily recognized. In the examined zones, dab was not always sufficiently present. Therefore, the monitoring was extended to most of the commercial flatfish (dab, plaice, flounder and dover sole) and roundfish (whiting, pouting and cod).

RESULTS

Diseases



Papilloma on *Limanda limanda*



Lymphocystis on *Limanda limanda*



Hypermelanisation on *Limanda limanda*

Skin ulcers were found on flounder, dab, plaice, whiting and cod in very low frequencies (1 to 4%). Nevertheless in autumn 2005, a higher prevalence of ulcers was registered in cod on the dumping sites (11%). In dab, higher prevalence was detected on the dumping sites and the reference zones.

Lymphocystis has a viral etiology (*Iridovirus*) and the nodules are the result of hypertrophy of connective tissue cells. The prevalence of lymphocystis on the BCS was very low in recent years, compared to other areas of the North Sea. The disease was not detected in 2004 and 2005.

The cause of papilloma on the skin of marine fishes is unknown. Important skin papillomas were never observed on the BCS. In 2004 and 2005, a prevalence between 1.8 and 5.8% was observed in dab in reference zones 2 in 3.

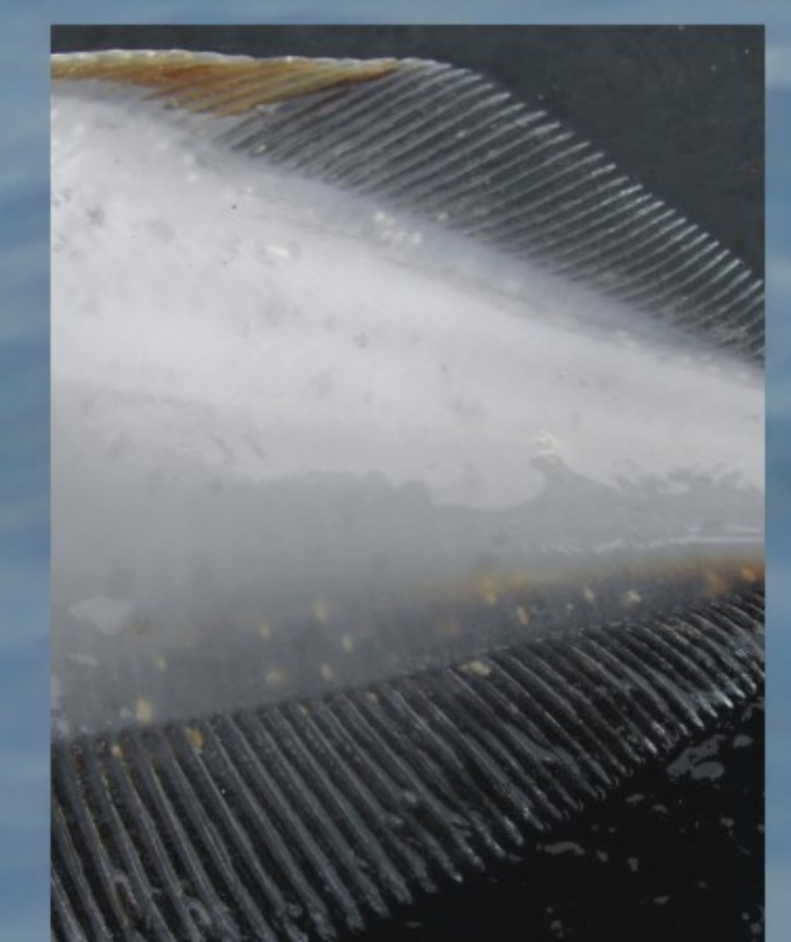
Parasites



Lernaecera sp. on *Gadus morhua*



Lepeophteirus sp. on *Platichthys flesus*



Stephanostomum baccatum on *Limanda limanda*

The parasitical copepod, *Lernaecera branchialis*, was observed in whiting, cod and pouting. The prevalence varied according to the species, the zone and the period and was in most cases between 2 and 12%. Only pouting showed an infection rate of 50% in spring 2004 in zone 1 and of 39.5% on the dumping sites in autumn 2005.

The prevalence of the trematode, *Stephanostomum baccatum*, was high in dab on all reference zones in spring 2004 (between 20 and 30%). The individual infection rate was low (1 to 2 parasites per fish). In 2005, a low prevalence of 2 to 3 % was only observed in reference zone 2.

Externally attached copepods, such as *Lepeophteirus*, are considered harmless. Especially flounder (*Platichthys flesus*) is host to these crustaceans. The prevalence varied between 45 and 95 %.

CONCLUSION

Severe diseases such as skin ulcers, nodules, skeletal malformations and lymphocystis, which can indicate effects of pollution, are rare on the investigated zones of the BCS. No significant differences could be detected between the dumping sites and the reference zones. Most of the observed anomalies were due to parasites, which show considerable variation in spatial and temporal distribution, and could not be related to a specific zone.