INTRODUCTION

A short introduction giving the reasons for organising this small workshop. First of all, as is well known, there is still active debate on the effects of bottom trawling on benthos. During the past half century, there has been concern that bottom trawls may plough up the sea bottom and destroy fish, shellfish and the invertebrates which are prey for fish. Some studies followed, especially after World War II when new techniques became available.

Gears and type of bottom may be very different: some mollusc dredges cut a 20-cm-deep trench into the sediment, whereas a conventional otter trawl may have the effect of harrowing, rather than ploughing. Damaged organisms, as well as infauna harrowed up by the trawl, are quickly preyed upon by fish and crabs. Within an hour of the passage of a dredge, the amount of fish and crabs found in the path of the trawl can be up to 30 times more higher than normal. Many people believe that the overall impact of trawling is beneficial, and it has been speculated that it may even result in faster growth of benthos-feeding fish by making more food accessible.

Many studies have shown that, in intensively trawled seas, such as the North and Adriatic Seas, benthos may have already adjusted to these conditions and that any additional long-term changes cannot be observed.

Benthos is also affected by natural disturbances, especially wave action and currents. Very few comparative data are available. According to some research, at a depth of 20 m, disturbance due to natural causes equals that due to fishing.

One important matter is the scale of the studies, usually very small; researches are generally limited to the short-term effects of single or repeated trawling. It is not easy to extrapolate from short- term, small-scale effects to long-term, basin-scale ones.

In Italy, despite a certain tradition in biological data collections from regularly based trawl surveys, my impression is that attention has mainly been devoted to commercial species, in terms of abundance, distribution, life cycles, population dynamics, etc. Little attention has been paid to what is called by-catch and to damage to retained and non-retained fauna.

Today, the scientific community is aware that fishing is the most widespread activity of exploitation of the sea environment and that it is considered the most ubiquitous agent among those responsible for variations in the marine biodiversity. In particular, although trawl fishing may be one of the main agents responsible for this phenomenon, scientific evidence is still rather scanty, at least in our seas, and the share of its responsability is far from clear.

With a recent general trend towards an ecosystem approach, it is more and more important to have good knowledge of the environmental role of fisheries. So this workshop is a contribution towards improving our knowledge on this complex topic.

The second practical reason for this workshop is to take advantage of the presence of a group of colleagues being here for an intermediate meeting and involved in a research project funded by the EC on "Requantification of the impact of toothed dredges

on a pan-European scale", taking place during these days. This is the first meeting, so no results to can be shown yet. But some of the people involved in the project will tell us about their experiences from previous research projects.

There will be three talks on direct short to medium-term impact of dredges used for catching scallops in Scotland and in the Adriatic; one talk on the first results of another EC project on the impact of otter trawls in the North-Western Mediterranean; and one talk on some evidence of long term changes in the structure of benthic communities in the Adriatic; so we range from short-term to long-tenu effects. An interesting talk will be given on the eco-ethology of burrowing fauna. Lastly, John Caddy will tell us about his pioneering works on scallop fisheries in Canada during the late 1960s and early 1970s.

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