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Fiskeriforskning (Norwegian Institute of Fisheries and Aquaculture Ltd.) performs research and development for the fisheries and aquaculture industries. The Institute covers virtually all links in the value chain – "from sea bottom to tabletop".

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### Industrial partner

Refa is one of Norway's biggest producer and supplier of fishing gear and equipment for sea-based aquaculture. Refa is active in development of new design and technology for the aquaculture industry.

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# Flat-bottom net cage for aquaculture and storage of live seafood

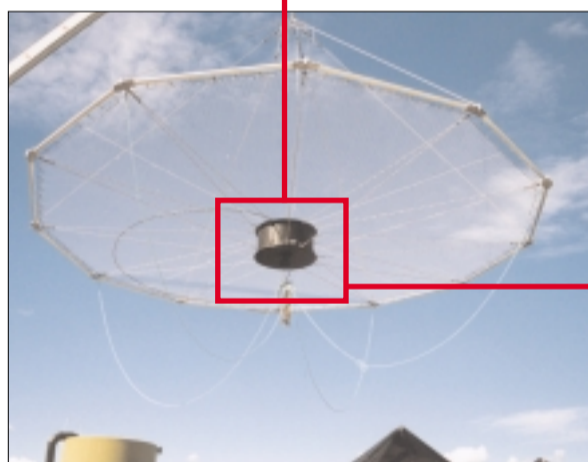
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## INTRODUCTION

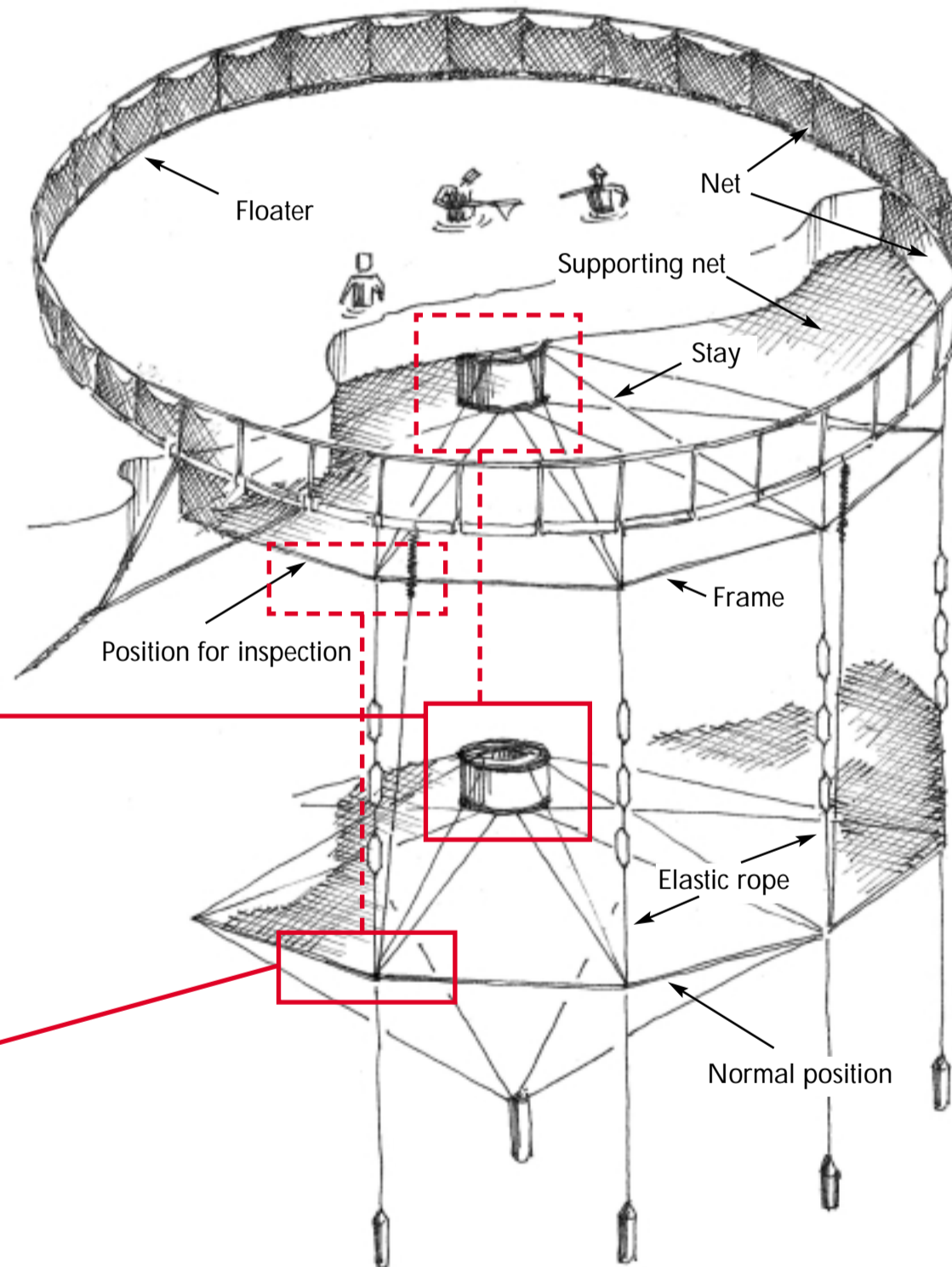
The need to extend and diversify the Norwegian aquaculture industry and a growing demand to store live seafood has led to the development of a flat-bottom net cage. This technology has improved the first hand value of seafood and motivates a better utilisation of the coastal resources. It provides practical working conditions for the emerging sea-based halibut farming in Norway and is now being introduced abroad.



Central cylinder (1,6 m<sup>3</sup>)



Aluminium bend



Acclimating newly caught cod



Rearing of halibut



Storage of live plaice and sole

## MATERIALS AND METHODS

An aluminium frame covered with a taut net supports the bottom of a traditional net. The bottom area is 180 m<sup>2</sup> and the frame consists of 12 pipes connected with 12 bends. The depth of the bottom

is altered pneumatically through inflating a central positioned cylinder. The bottom is kept horizontally at all times and elastic ropes eliminate vertical movement.

## RESULTS

About 10 tons (e.g. plaice or lemon sole) can be stored or raised in each cage. The rigid, but elastic construction enabled the caretakers to inspect the fish by waders. This cage is now in use in several areas:

- receiving newly-caught wild cod, where a flat bottom is required for proper restoration and acclimation prior to transfer to traditional net cages
- storage of wild caught species without a gas bladder (e.g. plaice, lemon sole, halibut, wolfish and turbot)
- rearing of halibut and spotted wolfish
- storage and feeding of crustaceans (e.g. king crab)
- storage and feeding of sea urchin
- intermediate storage of fish before slaughter

## CONCLUSIONS

The cage, being operated by compressed air, eliminates most of the hard labour in today's sea-based aquaculture. The taut bottom ensures that inspection, grading and vaccination can be performed as if it were land-based.