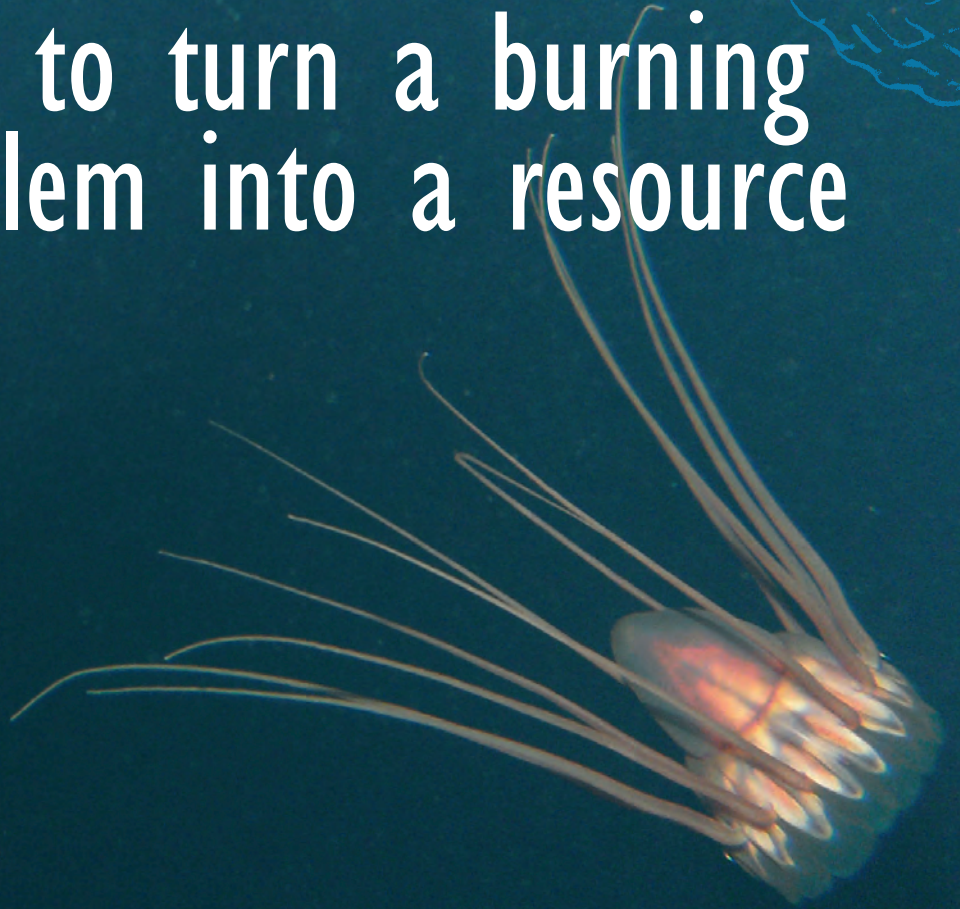


# How to turn a burning problem into a resource

Photo: Stein Kaartvedt, University of Oslo



*Periphylla periphylla*

*The teeming jellyfish in some Norwegian fjords put many people off taking a refreshing summer dip. In Asia, meanwhile, far larger jellyfish invasions have caused serious environmental problems. However, jellyfish can also provide raw ingredients for health foods, the pharmaceutical industry and fish feed. The Institute of Marine Research is currently looking more closely at these opportunities.*

BY: KJARTAN MÆSTAD

In some parts of the world, including Asia, jellyfish blooms and invasions have already had a serious impact on the environment, fisheries and the local economy.

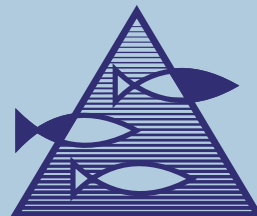
In the Far East, jellyfish densities have reached levels that have caused problems for boats by clogging up the cooling water intakes of their engines. In 2007 Northern Ireland's largest fish farm lost virtually all of its fish due to a jellyfish invasion. There have been local blooms in a number of Norwegian fjords, some of which are important breeding and nursery grounds for coastal cod.

## BIG EATERS

We know too little about the mechanisms that govern jellyfish blooms their ecological impact. Since jellyfish, which are voracious eaters, can feed on fish roe, larvae and the zooplankton that the larvae feed on, their presence along the coast may have an impact on many species of fish.

In some fjords the crown jellyfish *Periphylla periphylla* appears to have outcompeted plankton-eating fish such as sprats and herring. If those populations decline, fish-eating species no longer have anything to feed on, and it appears that jellyfish can reduce the complexity of the food chain and ecosystem.





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Hunting for fish among one ton of jellyfish.

But there are also several potential uses for the jellyfish. To learn more about them, Anders Jelmert is currently working with SINTEF and the Norwegian University of Science and Technology (NTNU) on a preliminary project to look at distributions and volumes of jellyfish, their potential for commercial exploitation and possible ways of catching them in Trondheimsfjorden.

**VALUED RESOURCE**

In Asia, jellyfish are a valued resource. They are considered a health food, and according to popular belief they help lower blood pressure, protect against heart disease, improve lung function and reduce the risk of cancer.

Although the main commercial potential for the jellyfish along the Norwegian coast is probably for export, Jelmert believes that there may also be a market for them in Norway. The best options may be as a raw ingredient for the pharmaceutical industry and potentially as a “functional food” for markets with special dietary requirements. If a sufficiently efficient harvesting technology can be developed, there may be other uses elsewhere in the world, e.g. as feed for farmed prawns.

Of the five percent of a jellyfish that is not water, between one and two percent is of interest from a nutritional point of view. Jellyfish contain a relatively large amount of collagen, a fibrous

protein, which is a valued ingredient in the cosmetics industry.

**MORE EFFICIENT HARVESTING**

If jellyfish are to become a useful resource, we must find efficient ways of harvesting them.

If they are to be used as feed or a source of collagen, as much as possible of their water content must be removed at sea, so that sufficient quantities of the raw ingredient can be carried on each journey. Further processing can then be carried out ashore. Jellyfish harvested for human consumption must in principle be landed whole, as the production process takes some time. However, as the price that can be achieved for this product is so much higher, this may still be a profitable business.

**PROJECT MAY BE EXPANDED**

Possible methods of extracting collagen from jellyfish were presented at a seminar in Trøndelag on 21 and 22 April. The results were so promising that funding will probably be requested for a bigger project which, in addition to doing further R&D into markets and products, will also investigate the impact of more extensive harvesting of jellyfish on local ecosystems.

The preliminary project was financed by The Fishery and Aquaculture Industry Research Fund and Nord-Trøndelag County Council.

