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AN EXAMINATION OF SURVIVING TRADITIONAL FISHING KNOWLEDGE IN THE VILLAGE OF ARNEMUIDEN

Author:
Jack Dooms, Municipality of Middelburg

Cover Photo: Boat Restoration Traditional Ship Wharf of Meerman , Courtesy of CHERISH

Introduction

This report focuses on the village of Arnemuiden and issues surrounding the loss of 'Traditional Ecological Knowledge' relating to fishing in this region. The report combines a synopsis of facts covering the current situation in the local fishing sector with participatory research techniques concentrating on first person interviews of fishery knowledge holders.

Background to the Fishing Industry of Arnemuiden

Arnemuiden is a small fishing village with a big commercial value for the regional economy. This is mostly due to its fishing fleet. Arnemuiden has been a fishing village for several centuries but owing to siltation of the dock the village currently does not have a harbour of its own. The Arnemuiden fleet is presently based in Vlissingen, which is 10 km from Arnemuiden. Vlissingen has its own fishing fleet in the same harbour. Some of the fishing families who live in Vlissingen are originally from Arnemuiden. The families moved from Arnemuiden to Vlissingen after a schism in the church community.

The fact that the Arnemuiden fleet is based in Vlissingen is a big disadvantage for keeping traditions in fishing alive in the village. People cannot see the boats and the catch they land. Traditions are mainly carried on via story telling. There are however a few exceptions to this. At the traditional ship wharf, Meerman, one can see how old wooden ships are restored. Restoration of boats utilize old traditions, techniques and tools.



Wharf Meerman (bron: Werf Meerman)

Another example of community engagement with fishing traditions is the mini fleet of Sloops or Galleys in the canal near the village. Young people build small fishing boats, a mini version of the large trawlers in Vlissingen harbour. They then can go out fishing on a nearby lake and practice the occupation of their fathers, helping keep fishing knowledge and traditions alive in Arnemuiden.



Mini trawlers build by young people of Arnemuiden Courtesy of Middelburg Municipality

At present the fishing fleet of Arnemuiden consists of modern trawlers that are over 40 meters long. They are equipped with innovative technology, including fish detection equipment, sonar, and echo sounders. Until recently many Dutch trawlers were equipped with pulse nets;

a very modern fishing technique, that has now been banned by European Union rules.



A traditional beam trawler: ARM-4, total length 45 meters (bron: Zeelandnet.nl)

This ban resulted in many Dutch fishers having to invest huge sums of money in new equipment (approx. € 400.000 per vessel). New equipment costs have been significant enough to cause some fishers to sell their ship and end their fishing careers. Regrettably, it would appear that more and more scientific publications provide evidence that pulse fishing is very environmentally friendly.

In the province of Zeeland there is only one educational institute left where young people can learn the craft of fishing. This section of the educational institute is currently under threat of closure due to the declining numbers of new pupils.

The reduction in the numbers of young fishers coming to the sector, combined with potential closure of the remaining fishing educational institution in Zeeland, increases the difficulty of passing on the traditions and old ways of fishing to the next generation.

Knowledge Holders of Arnemuiden: Reflective Essay by Jack Dooms

One of the few fishermen who still knows of the traditions and old ways of fishing is Cas Caljouw. Cas was born and bred in Arnemuiden, he is an orthodox reformed protestant (as are many people in the fishing community of Arnemuiden). Due to his religious views fishing on Sunday is forbidden.

Cas, myself (Jack Dooms) and many others in the region founded a fishermen's monument in Arnemuiden to honour all fishermen who lost their lives at sea. Since this time we have become friends. It is true that even today in the modern times fishermen get killed and are lost at sea. The most recent example of this was in 2011, when a fishing boat capsized near the Belgium coast and three young fishermen from Arnemuiden drowned and were lost at sea. One of the reasons that Cas and I have become friends is that in giving the fishing community of Arnemuiden a monument, we also gave them a place to mourn these losses at sea. Due to the work that Cas and I conducted together our friendship became one founded on trust. This allowed us to talk about the importance of passing on traditions, utilizing modern techniques of databases and writing, so the fishers history may be preserved.

Talking with Cas about the old ways of fishing goes back to the times of fishing boats powered by sail and wind that made dangerous journeys out to the North Sea. These small sailing ships historically fished in English waters, which was a perilous trip

on open sea for those small ships.



Arnemuiden monument for fishers lost at sea (Photo: Middelburg Municipality)

For the purpose of this report, I interviewed Cas on the topic 'Traditional Ecological Knowledge'. Cas is a very experienced fisherman, who learned his craft from his father who in turn learned from his father, of the ways before the introduction of modern technology.

Cas's father sailed a "hoogaars". Powered by sails these vessels were used to go out fishing on the sea. This type of boat did not have a keel but swords (a steering device on the side of the boat) alongside the boat. That design made it possible to sail the boat in shallow waters.



Traditional hoogaars used till 1930 for North Sea fishing (bron: Historische Vereniging Arnemuiden)

With these boats the fishers sailed to British waters, often with a crew of no more than 4 to 5 men, with no cabin or deck below. It is a long-held tradition that the fishers of Arnemuiden go out to sea for 4 to 5 days, only returning when they had caught enough fish.

When they went out fishing they had two vital pieces of equipment which were a plummet and fishing nets. The plummet is a rope with a piece of lead at the end. This lead weight is fashioned with a cavity or hollow. The plummet allowed fishers to safely navigate shallow waters before reaching the open sea.

The hollow in the plummet allows fishers to collect sand from the bottom of the sea. By the colour and structure of the sand, in combination with the depth, fishermen could work out if they could safely pass the sandbanks. This equipment was very important as they did not have nautical charts. In later times fishers knotted little coloured flags to the lines, with each colour represented a certain depth of the sea.

When Cas and Hannes go out fishing they go out in a modern boat, with engine and radio. But they still use some old techniques and knowledge to make sure they catch fish.

The first thing they do is determine where to go fishing. By the structure of the sand at the bottom of the sea they know that outside the Vlissingen coast, 1 to 2 km from shore, they can catch a good variety of fish: Plaice, Dab and Sea Bass. Plaice and Dab live on the sandy bottom whereas Sea Bass like rocks and shipwrecks.



Old plummet gear (Photo: Fries Scheepvaart museum)

Knowing where to fish was mainly based on orally passed knowledge. Every Arnemuiden fisherman knew that in the summer period July until October Shrimps and Sea Bass could be caught and from November until January, the winter period, Dab and Plaice could be fished. Plaice are fish that live in coastal waters. A traditional hoogaars did not have to sail very far to catch Plaice.

Also, the location of fishing grounds were transmitted via oral traditions. Besides time of year, the tide is of course, an important factor when fishing. Near the coast Dab could be better fished at low tide, this was because the nets could not reach very deep. The moon is also important, fishermen knew that fishing at new and full moons increase the chance of a good catch.

One of the threats to fishing, Cas told me, are political developments that result in legal limitations to the geographic areas that he can fish. Cas explained that good fishing grounds have become no-go areas to him, due to these legal limitations. Examples of these are Brexit, wind turbines at sea and Natura 2000 areas.

Cas told me that a large part of the North Sea is now a no-go area for his ships.

A Traditional Fishing Trip on The River Westerschelde with Cas & Hannes Caljouw; Jack Dooms reflects on the trip.

In order to better understand the depth and detail of the local fisheries knowledge, a fishing trip was organised with professional fishermen Cas and Hannes Caljouw. In this way, it was easier for the fishermen to explain and show different aspects of their knowledge in practice; for example how to navigate and choose a place to fish.

We sailed out at 04:30 am on a hazy Saturday morning in August 2020. We set out early to navigate to a nice place at the river “Westerschelde”, before too many sport and recreational fishers sailed out. As we set out we stayed near the coast. Cas told me that his grandfather did that to keep in touch with the shore to determine his position. Today it is safer to sail like that because the river Westerschelde is one of the busiest rivers in Europe. This is because a large volume of container ships go to Vlissingen harbour, Gent (Belgium) and most of all Antwerpen (Belgium).



Boat used for educational fishing trips (Photo: Cas Caljouw)

Antwerpen is, after Rotterdam in Holland the biggest port in the South- west of Europe. Container giants with a depth of 16 meters sail to this harbour. More than 15,000 ships a year cross the river Westerschelde on their way to or from Antwerpen. The biggest container vessel that passed the Westerschelde was the *Algericas* that sailed here in June 2020. It had a length of 400 meters and carried 24,000 containers. Today a political debate is taking course: how deep must Holland keep the river? Deepening the river for these ships has all kinds of negative environmental effects, the deeper the river, the bigger the environmental effects.

As we sailed along the coast, Cas pointed out several locations where my eyes could not see anything but water. Cas's knowledge told him which fishing grounds we passed, and what species could be found there.

Eventually we anchored at a quiet place 800 meters from the Boulevards at Vlissingen. In 1965 a Greek ship sank at this location, with the wreck being an ideal hiding place, and spawning area for fish.

August is the season to catch Dab, Garfish, Sea Bass and Sole. From these the Sole is the most desired by fishing tourists.

We stayed out fishing until 3 pm. Cas told stories of the sea, Hannes keeping an eye on navigation and traffic, with us all catching some fish. I set them back into the water but Cas wanting to have a fresh meal kept his. We had a very pleasant day, Cas catching some fish and me hearing many stories!

The Current Status of The Fishery of Zeeland.

Zeeland Fishing Feet:

The whole fleet of Zeeland consists of 35 vessels, based in: Arnemuiden, Vlissingen, Breskens, Bruinisse, Yerseke, Kortgene and Tholen.

Ships from Yerseke are specialized in catching mussels (Yerseke). The usual length of a fishing trip for boats from Arnemuiden and Vlissingen is five days out in the North Sea. These boats are beam trawlers. At the fish auction in Vlissingen in 2020 the total value of fish sold was 16,000,000 Euro and mainly came from Vlissingen and Arnemuiden fishers.

In Yerseke the centre of Zeeland's Mussels sector in 2019 33,000,000 kilo of Mussels were sold. Most of them (approximately 75%) were exported to Belgium, France and Germany.

The biggest fish auction in Zeeland is the Flushing Fish Auction ¹. This fish auction has two locations: Vlissingen and Breskens. Thirteen ships bring ashore every week a big diversity of fish in Vlissingen. These are:

Sole - family Soleidae
Plaice - Pleuronectes platessa
Turbot - Scotphthalmus maximus
Cuttlefish - family Sepiidae
Cod - family Gadidae
Dab - Limanda limanda
Sea Bass - family Serranidae
Whiting - Merlangius merlangus
Gurnard - family Triglidae

In Breskens, ships mainly land Shrimp. The village was confronted with sad news recently: the fish auction in Breskens will close in July 2021. The turnover of Shrimp is decreasing every year due to them being sold at other auctions. This means the auction is no longer economically viable. This will be a big loss for the fishing community in Breskens.

Pulse fishing:

Pulse fishing was seen as a life line for Dutch fishers: it reduced fuel costs by 50%. Where a beam trawler uses 35,000 litres of fuel every year a pulse trawler uses 19,000 litres. At a time where fuel prices were rising sharply, this was a major economic factor. Another positive element in fishing with pulse nets is that the electric pulse can be adapted to the size of the fish. This results in less bycatch, which has a positive effect on fish stocks. In making the pulse adaptive only adult or fully grown fish can be caught. Also, the ocean floor is much less churned over, which is very good for bottom dwelling species.

Pulse fishing, after a big political dispute between the EU and the Dutch government, has been banned as of 01-07-2021. The investment (change from beam trawl to pulse trawl) and now transitioning back to beam trawling cost approximately € 500,000 per ship. Many fishers were forced out of business by this. One of them was Cas Caljouw^{2,3,4,5}.

Education:

For decades the Zeeland fishing industry had an education institute of its own:

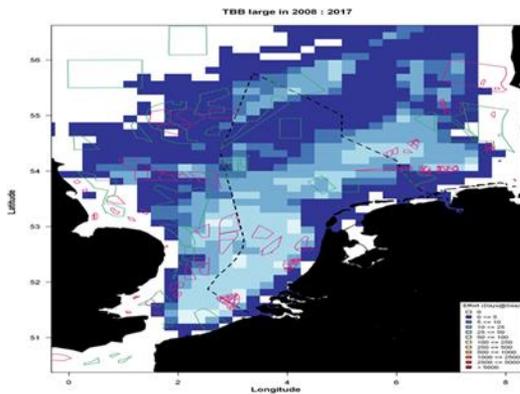
“De visserijschool” (Fishery School) based in Vlissingen. Due to ongoing mechanization and the bad economic perspective of the sector, less young people are willing to have a life at sea, a hard life: sailing out Sunday night and return Thursday evening. Currently this school is closed, along with a technical institute that has also closed down classes for the fishing sector. Today there is no opportunity for young people to train and gain skills for this fishing life in Zeeland. This highlights how bad the economic perspective currently is.

Fishers, policy and politicians:

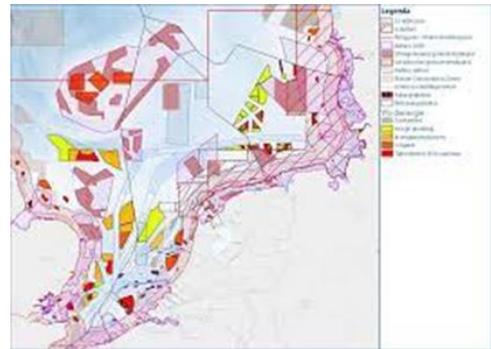
By the nature of their profession being Commander in Chief of their ship and the top of the hierarchy on board, fishers want to decide things themselves. Thus, fishers and politicians have a tense relationship. Fishing communities feel their voice is not heard in parliament and is not reflected in policymaking. They feel environmentalists and green politicians, only listen to lobby and action groups. Cas Caljouw is one of the fishers who believe that as a sector they must be active and lobby for their own interests. He is one of the founders of the lobby group “Eendracht Maakt Kracht” (Power Through Unity).

Dutch Fishers Fishing Areas:

- The Dutch fishing fleet sails the northern part of the North Sea. The map below is before Brexit. The darker blue areas shown higher fish catch for the Dutch fleet.
- The North Sea is getting more crowded every year. The coloured areas on the plan below are non-fishing zones for the Dutch fleet.



Darker blue areas shown higher fish catch (Bron: Min.LNV)



Coloured parts are non-fishing areas e.g. windmills, oil platforms, Natura 2000 areas (Bron: Min.LNV)

Conclusion

Dutch fishers face many challenges with exclusion from historic fishing grounds being a major one. Brexit will exclude fishers from areas they have fished historically. The implementation of wind turbine parks will further impact on fishing grounds.

The major challenges facing the transition of knowledge to the next fishing generation are a lack of formal educational opportunities in the Zeeland region, and the current challenging economic situation caused by the ban on pulse fishing techniques. These both reduce the appeal of the fishing industry to prospective young fishers.

References

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N:B: The ICES report is the most relevant one. The Dutch government has brought a court case at the European Court in Luxembourg against the EU Committee, stating the EU Committee did not take this report into consideration in their decision to ban pulse fishing.

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