

Fisheries extended skeleton

	Cautious world	Future unlimited	Satisfied Citizen	Challenging world
Environmental/ Nature protection rules and regulations	<p>Bureaucratic EU. Top-down approach No national differences.</p> <p>The Wadden Sea is one of the five areas with the status of European Park. Strictly harmonized criteria for nature and environment protection are valid. The protection of birds and seals has high priority.</p>	<p>EU sets framework Regional implementation Bottom-up Technical solutions</p> <p>Regulations regarding consumer safety (hygiene standards, processing) and water quality have been standardized in the EU. This is not the case for the implementation of nature protection. However, because of the common rules related to production and marketing and the fact that only a few international companies dictate the scene, there is now, in fact, a level playing field.</p>	<p>Strong trilateral cooperation Weaker nature protection</p> <p>There is a strong regional cooperation in the WS region. The WS and large parts of the adjacent mainland are world natural and cultural heritage site. Nature protection is based upon common sustainability targets, which are more detailed than the still general requirements from the EU Directives.</p>	<p>No international policy Regional rules More differences between nations than today</p> <p>National rules and regulations between the Wadden Sea states are quite different. In the Dutch WS regulations have been adapted to policies for stimulating local and regional development and all types of fishing are allowed. In the German WS the policies focus on the stimulation of tourism, and fishing is limited to mussel and shrimps in restricted areas. In Denmark there are hardly restrictions to fisheries. For small scale fishing a license is not needed.</p>
Economic situation	<p>Few big companies No more fishing in the Wadden Sea?</p> <p>Two (Dutch) companies own the shrimp and blue mussel business. Cockle fishing has disappeared because it was unprofitable (high hygiene requirements, low quota and decreasing demand). All processing is done in the region (two locations) so as to enhance the European park label status. The latter was, however, even more the result of EU programs for the stimulation of regional employment.</p>	<p>Few big players Social problems More new ships</p> <p>Both shellfish and shrimp fishing have been able to survive as a result of scale enlargement, new fishing techniques, new culture methods and additional products. The development of new techniques for fishing and culture was possible through long-term licences and innovation support by the EU. The shrimp fleet has been modernized and considerably reduced in size.</p>	<p>Growing market Processing in the region Stable situation</p> <p>As a result of a sustained good market situation, caused by high demand for fresh products in NW Europe and high demand for cheap frozen and canned products in other parts of Europe, fisheries has done well. The fleet has been modernized and processing is done in the region. Because of a strong identity awareness, which is reflected in the social dimension of the sustainability aims, WS fisheries have remained (and has in</p>	<p>More competition Black market Small scale</p> <p>Several small-scale firms try their luck in mussel and shrimp fishing. Export markets have, due to the bad economic situation, collapsed. There is still a market for high quality shrimp and mussel products, but this market is small. Also several new initiatives are being tried out, such as the breeding of oysters and octopus. A completely different direction has been taken by former fishermen now growing bladder wrack and</p>

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	The increase in efficiency and the opportunity of the European Park, which has a high global status, have been able to counteract the threats from global competition and high nature protection demands.	As a result of high hygiene requirements and global markets only two processing companies have remained, one is dealing with shrimp, one with mussels (incl. oyster). There are several fisheries POs with high flexibility for market demands.	some cases become more) small to medium scale, from which small ports and the WS adjacent mainland municipalities have profited. Fishermen also profit from an increasing direct selling of their catches. The issuing of long-term licenses with conditions for regional employment has been positive for the economic and social stability of the fisheries sector.	other kelp species, which are used in medicine. The main market is the local and regional market for fresh products. In many cases the fishermen or their relatives sell the products themselves. Especially the city harbour markets in the Wadden Sea harbours are important for direct selling.
Food awareness/ Products	High demand for cheap (frozen) food Small market for niche products Both shrimp and blue mussel are marketed as high quality (clean) products with a European Park label, both fresh and frozen. This is the only way of surviving in a global market with cheap bulk products coming from Asia and South America.	High quality fresh market Much variety and diversity World-wide import Economically only fresh products are interesting because of global competition. The spectrum of supply has broadened: blue mussel, cockle, oyster, For shrimp fisheries the catch of (flat)fish for local fresh market has become more important. There is a growing market for health products and chitosan has become a valuable additional source of income.	Growing market for high quality traditional products The leading consumer trend is away from a high-meat diet, reflecting growing awareness of risks and appreciation of health. Fresh, traditional marine products fit into this picture and people are prepared to pay a fair price.	More fresh products High diversity of products and prices (cheap-expensive) Generally people take what they can get at a decent price. Still, there is a large group with a high awareness of health and these consumers prefer to buy fresh sea products, of which there is a very diverse offer, directly at the market. Low cost products are offered from the black market. Here the risk of unchecked (hygiene) products exists.
Conflicts with other uses	Strong nature protection regulations and high demands to quality (hygiene) + global competition may make Wadden Sea fishing unprofitable There is a strict zoning in the	More Spatial conflicts Dialogue between users Regional solutions Coalitions between sectors There is a strong coalition between	Pragmatic solutions to spatial conflicts, probably more zonation No technical solutions The image of Wadden Sea	Unreliable government Higher shipping risks As a result of a long period of low

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	European Park Wadden Sea, which includes the whole 12-mile zone and parts of the adjacent mainland. Quota reserved for birds are strict. This has become even more important because reduced inputs of nutrients have caused a decrease in primary and secondary production. On the other hand Mussel seed fishing is highly efficient. There are several culture areas with long-term licenses.	nature protection organisations and fisheries POs in order to safeguard natural ecosystem against threats of shipping, pollution and new construction activities in the WS. Fishing in the WS is done within a flexible system of quota and area allocation based upon a good monitoring system, paid by sector and managed by the coalition. Several technical innovations have increased the efficiency of cockle and mussel seed fishing and thus reduced ecological pressure. In addition there is increasing use of the shallow offshore zone for shellfish breeding.	Fisheries is high, mainly because of the regional importance. Conflicts with nature protection are low because fisheries comply with commonly agreed sustainability criteria. This means that fishing in the WS is done on a small to medium scale basis within well-defined areas.	economic growth, several restrictions to human use of the Wadden Sea have been reduced. Sand and shell extraction is allowed as well as drilling and gas and oil extraction. Several fishing grounds have got lost. Also risks of accidents with shipping have increased due to the lower level of enforcement (less international cooperation, less pilots, less surveillance etc.). Moreover, there will be more sub-standard ships.
Climate change	<p>Relevant impacts: increase in temperature, increase in storminess, changes in precipitation, sea level rise.</p> <p>It is assumed that the above impacts will not make much difference between the four worlds: generally it will make life harder for coastal fisheries. This is most obvious for increases in storminess which will have an impact on the availability of seed mussels, spatfall and fishing activities. A further increasing temperature may have negative effects on spatfall. On the other hand, new species may become commercially interesting. Temperature increase bears the risk of more toxic algal blooms. A strong increase in sea level may mean the end of cockle fishing. Shrimp fishing seems to be the least vulnerable sector.</p>			