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## Whales and the Marine Environment in Africa

Issues surrounding whales, whaling, International Whaling Commission and the sustainable management of the marine environment have been subject to a huge range of speculation, rhetoric and inaccuracies in recent years.

This briefing provides concrete facts and data to demonstrate the importance of whales in the oceans of Africa and the real management responses that are necessary to ensure healthy productive seas for generations to come.

### “Why are whales important to African people?”

Healthy whale populations have tremendous potential to bring economic and livelihood benefits to coastal communities through whale watching tourism. More than 10 million people now enjoy watching whales each year.

- **Whale Watching in 2001 was already a US \$1 billion industry.** More than 492 communities in 87 nations and territories offer whale watching excursions and tours.
- **Whale watching is growing at a faster rate than general world tourism.** The number of people whale watching has increased by 12.1 percent each year since 1991. Direct expenditures on tickets for tours have increased from US \$77 million in 1991 to more than US \$300 million, an average annual increase of 21.4 percent.
- **Total worldwide whale watching tourism expenditures --** the amount whale watchers spent on the tours, as well as travel, food, hotels and souvenirs – was estimated at US \$317.9 million in 1991, **reached US \$1.049 billion in 1998.**
- **Whale watching has significant educational, environmental, scientific and other socio-economic benefits.** Local guides trained as naturalists impart scientific and local knowledge to whale watchers. The scientific programs of several research organizations have flourished through collaborations with local whale-watch operations. Data collection on board whale-watching platforms has been instrumental in establishing marine protected areas and sanctuaries that benefit people, whales and the environment.
- **Whale watching offers communities a sense of identity and cultural pride.** In many places, whale watching provides valuable, sometimes crucial, income to local people through the creation of new jobs and businesses. It also helps foster appreciation of the marine environment through hands-on education and research.<sup>1</sup>

### “Why are whales important for the African marine environment?”

The great whales have a significant role in the global marine ecosystems and declines in whale populations can reasonably be expected to impact many other marine species.

Experimental studies have clearly suggest that gray whale *Eschrichtius robustus* feeding can affect the structure of benthic invertebrate communities.<sup>2</sup>

Such impacts are not limited to their food sources, but include the ecological subtleties of the parasites and other small animals that live on these species, and the benthic fauna that feed on their carcasses. These

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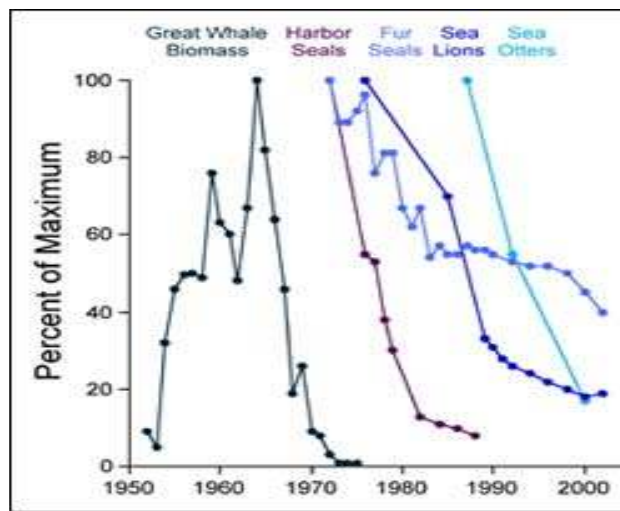
<sup>1</sup> Hoyt, E. 2001. *Whale Watching 2001: Worldwide tourism numbers, expenditures, and expanding socioeconomic benefits*. International Fund for Animal Welfare, Yarmouth Port, MA, USA, pp. i-vi; 1-158.

<sup>2</sup> Bowen, W.D. 1997. Role of marine mammals in aquatic ecosystems. Publication: *Marine Ecology Progress Series* 158:267-274, 1997.

animals are an important part of the biodiversity of marine ecosystems and are dependent on the existence of the great whale species.

Changes in the abundance of many species following large-scale harvesting of whales in the Southern Ocean and perhaps also in the Bering Sea further suggest top-down effects of marine mammals. Nevertheless, the top-down effects of marine mammal predation in the open ocean remain poorly understood.

In some cases, the loss of whales from an ecosystem can lead to entire ecosystem collapse. In October 2003, a paper published in the U.S Proceedings of the National Academy of Sciences, and again in 2006 in the journal *Marine Mammal Conservation*<sup>3</sup>, hypothesized that overfishing of whales in the North Pacific Ocean triggered one of the longest and most complex ecological chain reactions ever described. It began open oceans over 50 years ago and led to decimation of Alaska's kelp forest ecosystems today.



Sequential collapse of marine mammals in the North Pacific and southern Bering Sea.

Lead author Alan Springer (University of Alaska, Fairbanks) and his co-authors propose that the decimation of great whale (baleen and sperm) populations by unsustainable whaling activities removed a major source of food for killer whales. This may have forced some killer whales to "fish down the food web," preying on other marine mammals which in turn has had devastating impacts on marine ecosystems. The killer whales first turned to harbour seals (populations collapsed early 70's - early 80's) then fur seals (mid 70's - mid 80's), sea lions (late 70's - 90's), then as the seals became comparatively rare, some killer whales expanded their diet to include sea otters (90's - today),

By the late 1990's the number of sea otters had declined to such an extent that it allowed an explosion of sea urchins - the sea otters natural prey. The exploding population of sea urchins then decimated the kelp forests that formed the very basis of the entire ecosystem due to the sea urchins' over grazing.

This study shows that the relationship of whales to their environment is extremely complex, and that the removal of whales will not simply result in more prey species – but is likely to have much more profound destabilising effects on the entire food chain, potentially bringing about entire ecosystem collapse.

It is therefore clear that whales are critical components of the delicately balanced marine ecosystem, and an essential component of African seas.

## "Are Whales Really Eating Our Fish?"

<sup>3</sup> "Springer, A.M., Estes, J.A., van Vliet, G.B., Williams, T.M., Doak, D.F., Danner, E.M., Forney, K.A., Pfister, B. 2003. *Sequential megafaunal collapse in the North Pacific Ocean: An ongoing legacy of industrial whaling?* Proceedings of the National Academy of Sciences. U.S.A. Vol. 100, no. 21. 12223-12228"

We are all aware there is a crisis in our seas – important fish stocks across the globe are in decline, several to the point where their very survival is threatened.

However the devastation in the oceans is not caused by whales, but to the unsustainable fishing practices of another mammal – the human.

The global fishing fleet is currently 2.5 times larger than what the oceans can sustainably support - meaning that humans are taking far more fish out of the ocean than can be replaced. 77% of the world's fisheries are already fully exploited or over fished, and as many as 90% of all the ocean's large fish have been fished out.<sup>4</sup>

Poor fisheries management is the largest threat to ocean life and habitats, not to mention the livelihoods and food security of over a billion people.

Fisheries in the West African Marine Ecoregion (WAMER), which includes Mauritania, Senegal, Gambia, Cape Verde, Guinea Bissau and Guinea, generate some US\$400 million annually, making them the single most important source of foreign exchange in the region and a critical source of revenue for economic and social development. Nearly 8 million people live along the West African coast and in Senegal alone, a country of 12 million, the jobs of over 600,000 men and women depend directly on fishing and fisheries related industries. In Senegal, artisanal fishers land 80% of the country's yearly 400,000 tonne catch. In Mauritania, foreign industrial fishing fleets catch about 80% of the fish while the smaller scale, artisanal sector catches around 20%.<sup>5</sup>

Domestic industrial and artisanal fishing fleets, many foreign powers - in particular the EU, Japan, and China - have negotiated fisheries agreements to allow their boats access to waters of WAMER countries.

**Now, rather than tackle the real cause of the problem – overfishing – a number of countries with a vested interest in whaling are claiming that the world's fish stocks are in decline because of the amount of fish consumed by whales, and demanding that whales be culled in order to save the seas.**

This argument is not only factually and scientifically incorrect, but could lead to far reaching, negative consequences of the world's oceans, as can be seen from the example above.

Whales do eat some fish species that are commercially fished, however many whales survive entirely on plankton or fish species with no commercial value. Furthermore, several whale actually eat species that are predators of commercially fished species, thus there is good reason to believe that reducing the number of predators such as whales may actually reduce catches of commercially valuable species.<sup>6</sup>

Almost all whale populations were drastically depleted during the last century and many species are still at just a fraction of their original numbers. Therefore, if reduced whale populations resulted in higher fish catches, fish stocks would now be likely to be far larger than they are believed to have been 100 years ago. In fact – as noted above - the opposite is true - almost all commercial fish stocks are much smaller now than they were a century ago.<sup>7</sup>

Strengthening fisheries management is the solution to the problems of degraded marine ecosystems and declining commercial fish stocks within them.

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<sup>4</sup> [http://www.panda.org/about\\_wwf/where\\_we\\_work/africa/solutions\\_by\\_region/wamer/area/fisheries/index.cfm](http://www.panda.org/about_wwf/where_we_work/africa/solutions_by_region/wamer/area/fisheries/index.cfm)

<sup>5</sup> Chavance P., Bâ M., Gascuel D., Vakily J. M. & Pauly D. (éd.), 2004 – Pêcheries maritimes, écosystèmes & sociétés en Afrique de l'Ouest : un demi siècle de changement. Bruxelles, Office des publications officielles des Communautés européennes, XXXII-532-XIV p., 6 pl. h.-t. coul., (coll. des rapports de recherche halieutique A.C.P.-U.E., n° 15 Vol. 1).

<sup>6</sup> UNEP: Marine Mammal Action Plan Protocol for assessing proposals for culling marine mammals, 1999

<sup>7</sup> Myers, R.A., and Worm, B.(2003) "Rapid worldwide depletion of predatory fish communities". Nature Vol 423 Pgs 280-283

In strengthening fisheries management and implementation, Ecosystem-Based Management (EBM) has been identified as a management approach that is likely to succeed where many other initiatives have failed.<sup>8</sup>

EBM is a holistic, participatory and integrated approach based on the properties of the relevant ecosystem rather than on the exploitation of a single species, and focussed on the maintenance of the natural structure and functioning of the entire ecosystem. EBM makes use of important tools such as catch and gear controls and time or area fishing restrictions, and integrates them within a framework that is designed to understand the limits of marine ecosystem and conserve their long term function as well as their productive potential.

Although Japan and other whaling nations have referred to the need for "ecosystem-based management" in the context of whales and whaling, in truth ecosystem 'engineering' approaches, such as the culling of predators purportedly to increase fish stocks, is not scientifically supported and is entirely contrary to the rationale of Ecosystem-Based Management.<sup>9</sup>

Rather than further damaging the delicate balance in the oceans by culling whales, the real and only solution to the problem of declining fish stocks is to rebuild overexploited stocks and ecosystems through relieving fishing pressure, improving gear selectivity and fishing exploitation patterns, protecting habitat and making a wise and generous use of protected areas and no-take zones.

## Conclusion

Whales are an essential, stabilising part of marine ecosystems, and healthy whale populations generate substantial economic and livelihood benefits for coastal communities.

The argument put forward by pro-whaling countries that whales need to be killed to increase fish stocks is factually and scientifically incorrect, and this approach could have far reaching negative effects on all parts of the marine ecosystem. Human overfishing is the overwhelming factor in the decline of global fish stocks, which is threatening the livelihoods of millions of Africans.

**As such, it is in the interest of African nations to employ sound precautionary ecosystem-based management of the marine environment, which includes the appropriate conservation of whales, recognising their critical role in the marine ecosystem, and their potential for bringing economic and livelihood benefits to coastal communities.**

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<sup>8</sup> Ward, T., Tarte, D., Hegerl, E., and Short, K. (2002) "Policy Proposals and Operational Guidance for Ecosystem-Based Management of Marine Capture Fisheries". WWF International.

<sup>9</sup> Currie, E.J, 2007 Ecosystem-Based Management in Multilateral Environmental Agreements: Progress towards Adopting the Ecosystem Approach in the International Management of Living Marine Resources