

Chapter 8 Aesthetic, Cultural, Religious and Spiritual Ecosystem Services Derived from the Marine Environment

Contributor: Alan Simcock (Lead Member)

1. Introduction

At least since the ancestors of the Australian aboriginal people crossed what are now the Timor and Arafura Seas to reach Australia about 40,000 years ago (Lourandos &

1997)-34.6. It is regarded as aspects

of ecosystem services that humans derive from the environment. It is not clear why the difference between all these aspects, but an umbrella term to encompass them. On this basis, the present-day implications of the interactions between the different headings of cultural products, cultural services.

between objects which have a utilitarian value (because of their use) and objects which have a cultural value (because they are sacred or prized for some other utilitarian reason). There is a significant overlap.

distinguished by a border of this colour, and under the Roman empire it became the mark of the emperors (Stieglitz 1994). This usage has produced a whole cultural structure revolving around the colour purple and spreading out into a range of metaphors and ideas for example, the concept of the "purple patch" elaborate passage in writing, first used by the Roman poet Horace (Hors).

Goods derived from marine ecosystems that are given a cultural value because of

Mother-of-pearl is produced mainly from the shells of pearl oysters but other molluscs such as abalone may also be used. In the 19th century it was much used as a material for buttons and for decorating small metal objects and furniture. In many of these uses it has been superseded by plastics. It developed an important industry in the islands around the Sulu Sea and the Celebes Sea, but substantial industries also existed in western Australia (now overtaken by the cultured pearl industry), the Cook Islands and elsewhere (Southgate 2007). It remains important in the Philippines which still produces several thousand tons a year (FAO 2012).

2.2 Tortoiseshell

For several centuries, material from the shells of sea turtles was used both as a decorative inlay on high quality wooden furniture and for the manufacture of small items such as combs, spectacle frames and so on. The lavish use of tortoiseshell was a particular feature of the work of André Charles Boulle, cabinetmaker to successive 18th century French kings. This established a pattern which was widely imitated (Penderel-Brodhurst 1910). The shells of hawksbill turtles (*Eretmochelys imbricata*) in particular, were used for this purpose. The demand for the shells of hawksbill turtles produced an enormous and enduring effect on hawksbill populations around the world. Within the last 100 years, millions of hawksbills were killed for the tortoiseshell markets of Asia, Europe and the United States (NMFS, 2013). The

Other corals of cultural interest, on the other hand, have been listed under CITES. The cultural use made of these genera and species is very different. The main use is inclusion in aquariums. Some experimental evidence exists that the ability to watch fish in aquariums has a soothing effect on humans (especially when suffering from dementia) (for example, Edwards et al., 2002). For similar reasons, many homes, offices, surgeries and hospitals have installed such aquariums. Suitable pieces of coral, either alive or dead, are seen as attractive parts of such aquarium scenes. The demand for coral for this purpose is substantial. International trade in coral skeletons for decorative purposes began in the 1950s. Until 1977, the source was largely the Philippines. In that year a national ban on export was introduced, and by 1993 the ban was fully effective. The main source then became Indonesia. Until the 1990s, the trade was mainly in dead corals for curios and aquarium decoration. Developments in the technology of handling live coral led to a big increase in trade in live coral. CITES lists 60 genera of hard corals in Appendix I, and their export is permitted only if the specimens have been legally acquired and export will not be detrimental to the survival of the species or its role in the ecosystem. For coral rock,

on-going debate the European Union has conducted a consultation exercise in 2008
2010 (EC 2008).

The GMAD data suggested that some 3.5 million fish a year, from nearly 1,500
different species, were being traded worldwide. The main sources of fish (in order of
size of exports) were the Philippines, Indonesia, the Solomon Islands, Sri Lanka,
Australia, Fiji, the Maldives and Palau. These countries accounted for 98 per cent of
the recorded trade, with the Philippines and Indonesia together accounting for
nearly 70 per cent. The main destinations of the fish were the United States, the
United Kingdom, the Netherlands, France and Germany, which accounted for
nearly 70 per cent of the recorded trade. The United States accounted for nearly 70 per cent
of the recorded trade. These figures probably do not include exports to other countries. It was estimated
that the value of the trade in 2003 was 100 million to 300 million dollars (Wabnitz et
al., 2003).

From the social perspective, the number of people depending on the trade is
relatively small. A workshop organized by the Secretariat of the Pacific Community
in 2008 showed that some 1,472 people were dependent on the trade in fish and shellfish
products in the Pacific region.

hawksbill turtle, other species of marine turtle were also affected by the status of turtle soup as a prestige dish. In Europe, soup made from green turtles (*Chelonia mydas*) became a prestige dish when the turtles were brought back by European trading ships passing through the tropics. It was served lavishly at formal dinners – in the mid-19th century, a report of a routine large dinner refers to “four hundred tureens of turtle, each containing five pints” that is, 1,136 litres in total (Thackeray 1869). Large amounts were also commercialized.

Similar cultural pressures exist in relation to other aspects of marine ecosystems. Traditional medicine in eastern Asia, for example, uses dried seahorses for a range of illnesses. Most dried seahorses (caught when ~~they~~ about 1216 cm in size) are exported to China. The value in 2008 was ~~300~~-dollars

junks as a means to stimulate public awareness and provide employment (UNESCO, 2014)

Another cultural tradition linked to the sea is that of the lenj boats in the Islamic Republic of Iran. Lenj vessels are traditionally handbuilt and are used by inhabitants of the northern coast of the Persian Gulf for sea journeys, trading, fishing and pearl diving. The traditional knowledge surrounding lenjes includes oral literature, performing arts and festivals, in addition to the sailing and navigation techniques, terminology and weather forecasting that are closely associated with sailing, and the skills of wooden boatbuilding itself. This tradition is also under threat, and the Islamic Republic of Iran has proposed a wide range of measures to safeguard it (UNESCO, 2014).

Along the north-east Pacific coast, seagoing canoes were one of the three major forms of monumental

Miura, on the approaches to Tokyo Bay, Japan, developed as a military port and a harbour providing shelter to passing ships. Drawing on dances from other cities demonstrated to them by visiting sailors, the people of Miura began the tradition of Chakkirako to celebrate the New Year and bring fortune and a bountiful catch of fish in the months to come. By the mid-eighteenth century, the ceremony had taken its current form as a showcase for the talent of local girls. The dancers perform face-to-face in two lines or in a circle, holding fans before their faces in some pieces and clapping thin bamboo sticks together in others, whose sound gives its name to the ceremony. Now included in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity, the ceremony is intended to demonstrate cultural continuity (UNESCO, 2014).

A specific cultural practice that acknowledges the importance of sea trade is the "Marriage of the Sea" (Sposalizio del Mare) in Venice, Italy. This takes the form of a boat procession from the centre of city to the open water, where the civic head (originally the Doge, now the Sindaco) throws a wedding ring to the sea. In 1777, Venice had successfully established its independence from the Emperor and Patriarch in Constantinople (Istanbul), from the Pope in Rome and from the Holy Roman Emperor, by using its leverage to reconcile the two latter powers, and had become the great entrepôt between the eastern and western Mediterranean. Pope Alexander III acknowledged this by giving the Doge a ring. Henceforth, annually on Ascension Day, the Doge would "wed" the sea to demonstrate Venice's control of the Adriatic (Myers et al., 1971). Abolished when Napoleon dissolved the Venetian Republic, the ritual has been revived since 1965 as a tourist attraction.

the exploitation of reefs, lagoons, and the sea. These taboos often had social political purposes, but among their effects was a reduction in pressures on local ecosystems. Decisions about when and where harvesting might take place were made by men who had encyclopaedic knowledge of the local marine biota (McNeill, 1994)

This clearly sets out the external ("etic") view of the system of taboos and beliefs i.e., the view that can be taken by an outside, dispassionate observer. It does not allow for the internal ("emic") view as seen by someone who is born, brought up and educated within that system. It is important to understand this distinction and allow for the way in which the insider will have a different frame of reference from the outsider.

Good examples of the way in which such an insider's religious or spiritual reactions can underpin a whole system of community feeling can be found among the First Nations of the Pacific seaboard of Canada. A member of the Hwaaht First Nation, a tribe within the Nuuchahnulth Tribal Group in this area, describes their traditional approach to whaling as follows:

"Whaling within Nuuchahnulth society was the foundation of our economic structure. It provided valuable products to sell, trade and barter. In essence it was our national bank. Whaling [however, also] strengthened, maintained and preserved our cultural practices, unwritten tribal laws, ceremonies, principles and teachings. All of these elements were practiced throughout the preparations, the hunt and the following celebrations. Whaling strengthened and preserved our spirituality and is clearly illustrated through the discipline that the Nuuchahnulth hereditary whaling chiefs exemplified in their months of bathing, praying and fasting in preparation for the hunt. The whale strengthened our relationships with other nations and communities. People came from great distances and often resulted in intertribal alliances, relationships and marriages. The whale strengthened the relationships between families because everyone was involved in the processing of the whale, the celebrations, the feasting, and the carving of the artifacts that can

3.3 Cultural practices tied to a specific sea area

Not all interactions between communities with traditions based on their long standing uses of the ocean result in such clashes between opposing points of view. In Brazil, for example, the concept has been introduced of the Marine Extractive Reserve (Reserva Extrativista Marinha). These are defined areas of coast and coastal sea which aim to allow the longstanding inhabitants to continue to benefit from the resources of the reserve applying their traditional knowledge and practices, while protecting the area against non-traditional, new exploitation, and protecting the environment (Chamy 2002). Six such reserves have been created, and a further 12 are in the process of designation and organization (IBAMA 2014).

In Australia, before colonization, the coastal clans of indigenous peoples regarded their territories as including both land and sea. The ocean, saltwater country, was not additional to a clan estate on land; it was inseparable from it. As on land, saltwater country contained evidence of the Dreamtime events by which all geographic features, animals, plants and people were created. It contained sacred sites, often related to these creation events, and it contained tracks, or Songlines (page(s) 2((

At a global level, specific marine sites were inscribed by UNESCO in the World Heritage List and thus brought under certain commitments and controls to safeguard them. So far 42 marine or coastal sites

and methods of marine exploitation, such as fish traps estimated to exist worldwide. Material here is often better preserved than on land because of the different environmental conditions. In addition, shipwrecks can throw important light on ancient trade patterns

seascape/landscapes to undermine efforts to regenerate the seaside part of the town. The court decided that the ministry was justified in its approval, but the case underlines the importance of the aesthetic ecosystem service that the sea can provide (Redca 2008).

As described in Chapter 27 (Tourism and recreation), over the past 200 years there has been a growing cultural practice worldwide of taking recreation in coastal areas and at sea. Some evidence is emerging of positive links between human health and the enjoyment of the coastal and marine environment (Depledge et al., 2009; Yles et al., 2014; Sandifer et al., 2015).

4. Cultural influences

Art reflects the society in which it is produced, and is influenced by that society's interests. The relationship between a society and the ocean is therefore likely to be reflected in its art. Much visual art therefore reflects the sense of place that is predominant in the society that generates it. The sense of place in societies that are much concerned with the sea reflects the aesthetic ecosystem services provided by the sea, hence the visual arts are also likely to reflect the same service. Examples of the way in which this occurs are not difficult to find. The Dutch painting school of the 17th century developed the seascape ships battling the elements at sea just at the period when the Dutch merchant ships and Dutch naval vessels were the dominant forces on the local ocean. The French impressionists of the second half of the 19th century took to painting coastal and beach scenes on the Normandy coast just at the period when the railways had enabled the Parisian élite their most likely patrons – to escape to the newly developed seaside resorts on the coast of the English Channel. Similarly, Hokusai's *The Great Wave at Kanagawa* is focused on a distant view of Mount Fuji rather than on the ocean, not surprising given that it was painted at a time when shipping in Japan was predominantly coastal. Today, the advances in cameras capable of operating under water, and the availability of easily managed breathing gear and protective clothing, result in the most stunning pictures of submarine life.

This reflection of the aspects of the aesthetic ecosystem services from the ocean that preoccupy the society contemporaneously with the work of the artist can also be found in literature and music. Camões' great epic *The Lusiad* appears just at the time when Portugal was leading the world in navigation and exploration. In the same period, Chinese literature saw the emergence of both fictional and non-fictional works based on the seven voyages of Admiral Zheng He in the east Asian seas and the Indian Ocean. It is with the emergence in the 19th century of widespread trading voyages by American and British ships that authors like Conrad, Kipling and Melville bring nautical novels into favour. Likewise, the impressionist seascapes in visual art are paralleled by impressionist music such as Debussy's *La mer*.

5. The ultimate ecosystem service for humans

Burial at sea has long been practiced as a matter of necessity during long voyages. It was specifically provided for in 1662 in the English Book of Common Prayer (BCP 1662). Both the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972³ and its Protocol⁴ (see chapter 24), which regulate the dumping of waste and other matter at sea, are careful to leave open the possibility of the burial of human remains at sea. Western European States regularly authorize a small number of such disposals every year (EOLP, 2014). The United States authorities have issued a general permit for burial at sea of human remains, including cremated and non-cremated remains, under certain conditions (USAECFR, 2015). In Japan, increasing prices for burial plots and concerns about the expanding use of land for cemeteries have led to a growing pattern of cremation followed by the scattering of the cremated remains, often at sea. The practice started in 1991, when the law on the disposal of corpses was relaxed, and has become more popular following such funeral arrangements for a number of prominent people (Kawano, 2004).

6. Conclusions and identification of knowledge and capacity building gaps

This chapter set out to review the ways in which ecosystem services from the sea interrelate with human aesthetic, cultural, religious and spiritual desires and needs. Five main conclusions emerge:

- (a) Several goods produced by the ocean have been taken up as elite goods that is, goods that can be used for conspicuous consumption or to demonstrate status in some other way. When that happens, a high risk exists that the pressures generated to acquire such elite goods, whether for display or consumption, will disrupt marine ecosystems, especially when the demand comes from relatively well-off consumers and the supply is provided by relatively poor producers. The development of the market in shark's fin is a good example of this, although signs exist that that particular situation has stopped getting worse.
- (b) Some producers could be helped by a better understanding of the techniques and precautions needed to avoid ruining the production. As well as better knowledge, they may also need improved skills, equipment and/or machinery to implement that better understanding. The production of cultured pearls in the Cook Islands is a good example.
- (c) Some elite goods pass through a number of hands between original producer and the ultimate consumer. There appears to be a gap in capacity building to safeguard producers and ensure more equitable

³ United Nations, Treaty Series, vol. 1046, No. 15749.

⁴ 36 International Legal Materials (1997).

profit-sharing in the supply chain. The case of small producers of cultured pearls is an example

- (d) Very different perceptions of marine ecosystem services and how humans relate to them can exist between different groups in society even when such groups are co-located. Understanding on all sides of the reasons for those differences is a prerequisite for effective management of the ecosystem services
- (e) Aspects of the marine environment that are valued as cultural assets humanity need constant consideration they cannot just be left to fend for themselves. Where technology or social change has overtaken human skills that are still seen as valuable to preserve, conditions need to be created in which people want to learn those skills and are able to deploy them. Where an area of coast or sea is seen as a cultural asset of humanity, the knowledge is needed of how it can be maintained in the condition which gives it that value.

References

- Acta Sanctae Sedis (1891). In: Compendium Opportune Redacta et Illustrata Studio et Cura Victorii Piazzesi Congregatio de Propaganda Fide, Rome.
- AIATSIS (2006). Australian Institute of Aboriginal and Torres Straits Islanders Studies. Sea Countries of the South: Indigenous Interests and Connections within the Southwest Marine Region of Australia <http://www.environment.gov.au/indigenous/publications/pubs/seacountry-report.pdf> (accessed 3 June 2014).
- Alex L.M. (2010) Iowa's Archaeological Past University of Iowa Press Iowa City (ISBN 07745680-1).
- Al-Shamlan S.M. (2000) Pearling in the Arabian Gulf: A Kuwaiti Memoir. English Edition, trans. P. Clark London Centre for Arab Studies
- Aruz, J., Benzel, K., and Evans, J. (2008) Beyond Babylon: Art, Trade and Diplomacy in the Second Millennium. New York (ISBN 978588392954).
- Bartley, D. (2014). Fisheries and Aquaculture topics. Ornamental fish. Topics Fact Sheets. Text by Devin Bartley. In: FAO Fisheries and Aquaculture Department [online]. Rome. Updated 27 May 2005. (accessed 17 August 2014).
- BCP Book of Common Prayer (1662). The Book of Common Prayer, and Administration of the Sacraments, and other Rites and Ceremonies of the Church According to the Use of the Church of England (Forms of Prayer to be used at Sea) Oxford.

- BGS British Geological Survey (2014). World Mineral Production 2002-2012. Keyworth, Nottingham (ISBN 978185272767-6).
- Bondad-Adreantao M.G., McGladdery, S.E., and Berthe, F. (2007). Pearl Oyster Health Management- A Manual Food and Agriculture Organization of the United Nations, Fisheries Technical Paper No, 508.
- Carter, R.(2005) The History and Prehistory of Pearling in the Persian Gulf. Journal of the Economic and Social History of the Orient. 48, No. 2.
- Chamy P.(2002) Reservas Extrativistas Marinhas: Um Estudo sobre Posse Tradicional e Sustentabilidade. First National Meeting of the Associação Nacional de Pós-Graduação e Pesquisa em Ambiente e Sociedade http://www.anppas.org.br/encontro_anual/encontro1/gt/conhecimento_local/Paula%20Chamy.pdf

http://www.fao.org/fishery/culturedspecies/Hippocampus_comes/en
(accessed 15 June 2015)

FT(2012) Financial Times, London 7 March 2012 Doulton, M. How to regulate
harvest of precious pink bounty?

Gezon, L.(1999) Of Shrimps and Spirit Possession: Toward a Political Ecology of
Resource Management in Northern Madagascar. *American Anthropologist*,

Myers, M. L. and Soorsch (1971), Grand Occasions, The Metropolitan Museum of Art Bulletin, New Series, Vol. 29, No. 5.

NMFS- USA National Marine Fisheries Service (2013). Hawksbill Sea Turtle (*Eretmochelys Imbricata*) Year Review: Summary and Evaluation. http://www.nmfs.noaa.gov/pr/pdfs/species/hawksbillseaturtle2013_5yearreview.pdf (accessed 15 June 2015).

NOAA- USA National Oceanic and Atmospheric Administration (2015) ~~Draft~~ Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales http://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/cetaceans/gray_whales/makah_deis_feb_2015.pdf (accessed 20 April 2015).

Nudelman, F., Gotliv, B.A., and Addali, (2006) Mollusk Shell Formation: Mapping the Distribution of Organic Matrix Components Underlying a Single Aragonitic Tablet in Nacre *Journal of Structural Biology* Volume 153, Issue 2.

OBG (Oxford Business Group) (2013) The Report Ras al Khaimah (page 135). (ISBN 978-1907065835), Oxford Business Group, Oxford, United Kingdom.

Pendere Brodhurst, J. (1910). Boullé, André Charles *Encyclopedia Britannica*. Cambridge University Press.

Pliny – Gaius Plinius Secundus (Pliny the Elder) *Naturalis Historia* Book IX, chapter 54 (pearls), and Book XII, chapter 11 (coral).

PI-4(e)-1(l)

Ploeg A. (2004) *The Oyster of the Pacific* (No. 1) 224 pp. ~~US\$39.75~~ / ~~MOA 28-0 Td [(5.d-6i [(,)6(t)-002 Tc~~

Stieglitz R. (1994) The Minoan Origin of Tyrian Purple. *The Biblical Archaeologist*
Vol. 57, No. 1.

Thackeray W.M. (1869) *A Dinner in the City: Sketches and Travels in London*.
Smith & Elder, London.

Tsounis G., Rossi, G., Grigg, R., Santangelo, G., Bramanti, L., and McGee (2010)
The Exploitation and Conservation of Precious Corals. *Oceanography and
Marine Biology: An Annual Review*. Ed. R. N. Gibson, R. J. A. Atkinson, and J.
D. M. Gordon.

UNESCO United Nations Educational, Scientific and Cultural Organization (2014).

environment and impacts on the visitor. Ocean & Coastal Management 53-63.