

SEA TURTLE RESTORATION PROJECT

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Kimberley Science and Conservation Strategy
Department of Environment and Conservation
Locked Bag 104
Bentley Delivery Centre WA 6983

RE: Kimberley Conservation Strategy - Public Submission – Marine Turtles

Dear Environment Minister Donna Faragher and
Department of Environment and Conservation Director General Keiran McNamara,

Sea Turtle Restoration Project appreciates the opportunity to provide a public submission focused on marine turtles for consideration in the development of the Western Australia Department of Environment and Conservation Kimberley Conservation Strategy. We understand that this is the first stage of consultation, and is an opportunity for interested parties to have a say in its development. We appreciate and support that the strategy will include both the terrestrial and marine ecosystems of the Kimberly region.

Because the Kimberly region, Western Australia, and the whole of Australia support globally significant breeding, feeding and migrating populations of rare and endangered sea turtles; our organization believes that sea turtle protection and recovery should be given high priority in the Kimberley Conservation Strategy (KCS). Our comments will therefore focus on recommendations for developing and incorporating a sea turtle protection and recovery plan into the KCS. We will also take the opportunity to make more general comments.

Sea Turtle Restoration Project (www.seaturtles.org) is an international non-profit environmental organization that fights to protect endangered sea turtles in ways that make cultural and economic sense to the communities that share the beaches and waters with these gentle creatures. With offices in California, Texas, Papua New Guinea, and Costa Rica, STRP has been leading the international fight to protect sea turtle populations worldwide. STRP views the sea turtles' dilemma not only as a single-species environmental tragedy that needs immediate attention, but also as a vehicle for shifting the paradigm of how the human species views its relationship with the natural world and the oceans. The Sea Turtle Restoration Project, founded in 1989, is a project of Turtle Island Restoration Network, a nonprofit environmental organization incorporated in California.

International Significance of Marine Turtles in Kimberly and Western Australia

The marine waters and coastlines of the Kimberly and Western Australia provide internationally significant nesting, foraging and migrating habitat for distinct populations of rare and endangered sea turtles. As cited in the DEC's February 2009 report, *A synthesis of scientific knowledge to support conservation management in the Kimberley region of Western Australia*, six species of marine turtle occur in the Kimberly and all are listed as specially protected species under W.A. and Commonwealth

legislation. The six species are green (*Chelonia mydas*), loggerhead (*Caretta caretta*), flatback (*Natator depressus*) and hawksbill (*Eretmochelys imbricata*) leatherback (*Dermochelys coriacea*) and olive ridley (*Lepidochelys olivacea*).

These species are in decline around the world due mainly to human causes that will be described in the section on threats to sea turtles below. In the Kimberly regions, the six species of sea turtles are considered to be “rare or likely to become extinct” by Western Australia’s Wildlife Conservation Act. However, there is no current recovery plan in place for protecting sea turtles in W. A. from extinction. Marine turtle nesting on the mainland beaches is not well protected in the conservation reserve system.

These same species are also listed as “threatened” by the Australian Government’s Department of Environment, Waters, Heritage and the Arts. A recovery plan for Australian marine turtles was adopted in 2003.

Internationally, the World Conservation Union lists the hawksbill and leatherback as critically endangered and the green, loggerhead and olive ridley as endangered. Sadly the Australian flatback has not yet been assigned a status due to lack of scientific information and is listed as “data deficient.” For this reason alone, the Australian flatback sea turtle should be given high priority for protection and research in the KCS and no further disturbance of its nesting or foraging habitat allowed until more science is available.

Australia’s commitment to protect sea turtles is also contained in two international conventions to which Australia is a signatory: The Convention on the Conservation of Migratory Wild Animals (CMS) and the Convention on International Trade in Endangered Species of Flora and Fauna (CITES), which prohibits trade in marine turtles.

All six species of sea turtles that occur in the Kimberly routinely cross regional, state and international boundaries during their life cycle. In some cases, such as the Australian flatback, greens and loggerheads, the Kimberly and Western Australia is home to the some of the largest and last remaining nesting rookeries in the world. Several of the populations of these sea turtles are genetically distinct, meaning that if a given population is depleted or destroyed by development or other activities, the loss is likely to be permanent. As a result, any industrial development or other activity in the Kimberly that may be harmful to sea turtles will have an effect on the international sea turtle population, human communities and ecosystems of other regions and countries. Every sea turtle that is harmed or killed is important to the survival to a species that has been disappearing around the world.

Therefore, consultation with other regional, state and international partners on sea turtle protection will be essential to the development of a comprehensive KCS. See recommendations section for more details on how to accomplish this initiative.

Kimberly’s sea turtles

Following is a snapshot of each the six species of sea turtles that occur in the Kimberly. A full description of the species is beyond the scope of these comments, but should be developed by the DEC and partners for the KCS. A full analysis of the current literature related to sea turtle life cycles, abundance and habits for each of the species needs to be conducted for the KCS. In addition, new research and science to fill the many gaps in data regarding each of the sea turtles sea turtles in the Kimberly must be developed, implemented, completed and published as part of the KCS before any new projects are evaluated or approved in sea turtle habitat.

Ultimately, any sea turtle protection plan in the KCS needs to be coordinated and be completed in consultation with and review by the Australian Commonwealth Government as part of its marine planning process for the waters offshore from the Kimberly. The North-West Bioregional plan will create marine reserves and establish management measure in Commonwealth waters that should be connected and coordinated with nearshore Kimberly waters.

The sea turtle protection component of the KCS should also be developed in direct consultation with and reviewed by experts in the international sea turtle community.

Australian Flatback

While the least is known about the Australian flatback of all the species, sea turtle biologists have conducted research over the past 20 years that has provided important insights into its life cycle. The Australian flatback turtle is the only marine turtle that nests only in Australian territory. It is one of only two marine turtles not having a global distribution – the other being the Kemp's ridley in the Gulf of Mexico. The flatback is unique among sea turtles in “form and function, in life cycle and in life history,” according to sea turtle biologists in Volume IV of the SWOT report (The State of the World's Sea Turtles) (attached). Flatbacks dive deeper and longer than other sea turtles. Their eggs and hatchlings are as big as those of the mighty leatherback. Unlike most sea turtles, flatbacks like to nest in the sun instead of under darkness. And unlike other species that disappear deep into the ocean for years, flatbacks spend most of their life, if not all of it, in relatively nearshore waters. This makes protection of nearshore waters in the Kimberly extremely important to the flatback.

The flatback routinely nests on Kimberly beaches and islands including the Lacepede Islands. Flatbacks that nest in the neighboring Pilbara region have been tracked to the Kimberly after nesting. The flatback is also known to forage and swim north into the waters of Indonesia and Papua New Guinea, though nesting has never been recorded.

Australian flatbacks also nest and forage in the Northern Territory and Queensland. However, the populations are genetically distinct and do not interbreed, according to the latest literature. (See the SWOT article).

Researcher Colin Limpus from Queensland's Mon Repos sea turtle research station estimated that one third of all flatback nesting in Australia occurs in W.A. Two genetic stocks are thought to nest in W.A. The “Western Australian” stock nests from South Muiron Island (off North-west Cape) to the western Kimberley coast, and is characterized by a mid-summer nesting peak. Another researcher, Peter Dutton from the United States reported in 2002 that “genetic analysis has identified that there is a low level of genetic variability in the species and there is limited gene flow between the rookeries.” The significance of this for the KCS is that flatback populations reduced in the Kimberly by human activity will not be repopulated by sea turtles from other regions. Losses would likely be permanent.

In 2007, Limpus published “A Biological Review of Marine Turtles” that covers the Australian flatback and the other six species, which can be found on the Queensland Environmental Protection Agency's website at http://www.epa.qld.gov.au/nature_conservation/wildlife/caring_for_wildlife/ this will be an invaluable resource for development of the sea turtle component of the KCS.

In addition, more research on the Australian flatback sea turtle will be needed in order to develop a comprehensive sea turtle protection plan in the KCS.

Green sea turtle

Adult green turtles have a carapace varying in color from black to gray to greenish or brown, often with bold streaks or spots, and a yellowish white plastron. Each sea turtle has distinctive individual facial markings, similar to fingerprints. They have an average weight of 300 lbs and grow to a length of three feet. Green sea turtles are the most widespread species of sea turtle, residing near 139 countries in the tropics and subtropics.

Green turtles are the most common species seen in Western Australia. Between thousands to tens of thousands of females nesting along their chosen beaches between October and February each year (DEC website). The main nesting areas for green turtles in the Kimberley are at the Lacepede Islands, with smaller regionally important nesting stocks visiting Browse Island and Scott and Ashmore Reefs areas (DEC website).

The green turtle rookery on the Lacepede Islands is one of the largest remaining green turtle populations in the world. Tens of thousands of green sea turtles have been tagged in Western Australia over the past two decades.

But while these sea turtles appear to be abundant, they are in decline and threatened with extinction. The green sea turtles survived a commercial fishery along the northwest coast that existed until the 1970s that killed at least 60,000 animals. The nuclear bombing of the Montebello Islands destroyed about 5,000 animals, according to W. A. government estimates.

Today, in Western Australia, populations are decreasing by about 6 percent per year, according to a paper presented by the DEC at the International Symposium on Sea Turtle Conservation and Biology in Brisbane in February 2009. That same presenter also stated that 20 years worth of green sea turtle tagging data had not yet been analyzed or released into the public domain. The information should be released and considered in the development of a sea turtle protection plan in the KCS.

Loggerhead Turtle

The loggerhead sea turtle has a large head and strong jaws that allow it to crush and consume its favorite foods: crabs, fish, mollusks, jellyfish, sea urchins, sponges and shrimp. The loggerhead has long flippers and special glands that help it to drink salt water. While the loggerhead is a relatively slow swimmer, it can show amazing bursts of speed when it feels threatened. The natural threats to this sea turtle are sharks and orcas.

Loggerheads live in coastal bays, estuaries, lagoons, and open oceans in warm and temperate waters. Loggerheads occur worldwide, in areas such as North and South America, Europe, Australia, Africa and Asia.

The Western Australian loggerhead population is the third largest in the world and is one of only four stocks in the Indian Ocean, according to Limpus (December 2008). Most of the nesting occurs south of the Kimberly along the Ningaloo Coast and at Dirk Hartog Island, which remains unprotected habitat. Limpus estimated the number of breeding female loggerheads in Western Australia to be in the range of several thousand females.

The Ningaloo Turtle Program recorded 1,746 loggerhead sea turtles nesting in the region in 2007/2008, a decline from previous years. Ningaloo Turtle Program says on its website that that based on information

collected from the east coast, the loggerhead turtle has lost 50-80% of its annual nesting population in the last decade. Further loss of only hundreds of large loggerhead turtles annually may threaten the survival of the species across Australia.

Loggerheads travel through the waters of the Kimberly when dispersing after nesting on their way to foraging habitat in the far north.

Hawksbill Turtle

Hawksbill sea turtles have a slender body and head, and a narrow beak that resembles that of a hawk and is designed for foraging in coral. Its shell, thought to be the most beautiful of the sea turtles, is reddish or dark brown. Its beauty has been its downfall, as the species has been decimated by hunters after the shell to make jewelry and fashion trinkets, even today. Hawksbill turtles are found throughout the tropical waters of the Atlantic, Pacific, and Indian Oceans. They grow to just over three feet in length and can weigh up to 150 lbs.

Within the Indian Ocean–Western Pacific Ocean region, Australia supports the largest remaining stocks of breeding hawksbills, according to the Queensland EPA’s biological review of the hawksbill. Within Australia, there is one distinct population in the northern Great Barrier Reef, Torres Strait and Arnhem Land and another that nests on the northwestern shelf of Western Australia. In WA, nesting occurs mainly on the Dampier Archipelago, but other rookeries are known to include the Montebello Islands, Lowendal Islands and the Ningaloo / North West Cape coast. According to the review, “Rosemary Island in the Dampier Archipelago may support up to 1000 nesting females annually, with other nesting sites perhaps collectively supporting another 1000 nesting females annually. This is regarded as the largest remaining hawksbill population in the Indian Ocean and one of the largest remaining in the world.”

However, because there have been no long-term monitoring or tracking programs for the hawksbill in the region, it is not known whether these turtles are in decline or stable or otherwise. But given the international destruction of this species, its protection should be given high priority in any case and certainly in the Kimberly – one of the last refuges in the world for this incredibly beautiful turtle.

Leatherback Turtle

The leatherback is the largest of all sea turtles, growing to over six feet in length and weighing over 2,000 lbs. Leatherbacks routinely swim great distances across ocean basins and can dive to depths greater than 3,000 ft. They feed primarily on jellyfish and other ocean drifters, eating as much as 1,000 lbs each day. The leatherback’s carapace is a single piece with five distinct ridges and a rubbery feel.

The Australian government recently increased protections for the Pacific leatherback by listing it as endangered, strengthening its previous status as “vulnerable.” The Pacific Leatherback sea turtle is occasionally sighted migrating through the Kimberly and Western Australian waters as far south as the Southwest corner of the state. On the east coast the leatherback has been tracked as far south as Tasmania. These leatherbacks, while probably low in number due to a 90 percent decline globally; can be found foraging in Australian waters throughout the year.

Few leatherbacks nest in Australia at least in modern times, according to records that are available. Those that do are found in southern Queensland and Arnhem Land. Whether they nested in Western Australia or the Kimberly specifically is not known.

Olive Ridley Turtle

One of the endangered sea turtle species, olive ridleys are thought to be the most abundant. However, they are still endangered because there remain only a few nesting sites worldwide where they congregate in large numbers. Olive ridleys live primarily in the northern hemisphere, principally in the eastern Pacific and Indian oceans. In the recent past, there were important populations in northern South America. They migrate thousands of miles in the course of a year, between nesting and feeding grounds. Adults travel and rest mostly in surface waters, but have been observed diving and feeding in waters 550 ft (about 200 m) deep.

The olive ridley turtle does not apparently nest in the Kimberly or Western Australia, though nesting occurs in parts of the Northern Territory. However there are reports that this species may nest in the north Kimberly near the border with the Northern Territory. Foraging olive ridleys have been spotted off the Kimberly and Exmouth coasts. More research is needed to determine the population and status of the olive ridley in the Kimberly and Western Australia.

Threats to Sea Turtles

Sea turtles are marine animals that have swum the oceans of the earth for 100 million years. While once abundant across the oceans, every species is now in danger of going extinct due primarily to human activity. The Pacific leatherback, for example, has declined by 90 percent or more due to harvest at nesting beaches and capture as by-catch in industrial fisheries. Loggerhead turtles in Australia have declined by 80 to 90 percent due to capture in prawn trawl nets, which only now has a chance of being reversed as a result of requirements for sea turtle excluder devices. The little-known Australian flatback sea turtle exists only in the waters of the Top End where large industrial facilities are taking unknown tolls on its population and survivability. Greens, hawksbills and olive ridleys also face similar threats in Australia and around the world as well as harvest for their eggs and shell, predation at nesting beaches, plastic pollution, and disease.

Large industrial developments such as LNG plants, iron ore ports and processing facilities along coastlines disrupt sea turtle life cycles. Dredging, lighting and underwater noise are also major threats to sea turtles. Residential and hotel developments create similar problems for the sea turtle.

The KCS should evaluate every potential threat to sea turtle in its sea turtle protection plan. Cumulative impacts on sea turtle populations and their recovery must be quantified and specific measure be required to prevent harm. The KCS should also require that any project, port, or landside development develop and implement a sea turtle protection and recovery plan.

For both the KCS and every project, each threat to sea turtles should be analyzed and studied for solutions; and where no information or solution is available, the default option should be “no development.” New science will certainly be needed to assess and address the threats that new human activities and projects will bring to the sea turtles of the Kimberly.

According to DEC estimates, more than 50 industrial facilities exist in Western Australia and more than 50 are planned – many of them in the northwest and the Kimberly. A full inventory of the proposed and approved projects, including the LNG plant at Price Point, is beyond the scope of these comments. But we are aware that the magnitude of the projects is immense.

Primarily for natural gas extraction, processing and shipping and for extractive industries and mining of various types, the projects as proposed will transform the coast of the Kimberly and the Northwest from a

relatively untouched wild land into a highly impacted commercial center. Considering the natural and cultural biodiversity of the Kimberly, moving forward with such a large expansion of industrial activity for a relatively short business life cycle of 20 to 50 years does not make environmental, cultural or economic sense. The sea turtles are one of the many species that will suffer irreversible damage if massive industrial expansion moves forward.

Threats from Industrial port projects: construction, operations and shipping.

The following threats to sea turtles need to be quantified, assessed as to harm, and solutions required – including the solution of “no project.”

Dredging of project site and navigation channels – during construction and maintenance

Lighting – during construction and on-going operations

Underwater and ambient noise – during construction and on-going operations

Gas flaring from natural gas processing plants

Air pollution – during construction and on-going operations

Water pollution – during construction and on-going operations

Loss of nesting habitat – during construction and on-going operations

Ship operations – ballast water management; discharge of sewage, graywater, oily water; discharge of solid wastes, plastics and all garbage; accidental spills of fuel oil, engine lubrication oil; disposal and spillage of solvents and other hazardous liquids and chemicals; residues of antifouling paint, sediment disturbance by propeller wash from large vessels, disposal of toxic wastes; air pollution from engines, generators and incinerators.

Ship strikes in sea turtle habitat – Speeds should be limited to 10 knots or less to prevent harm to sea turtles. Ships should be denied entry in waters where sea turtles are mating during nesting season.

Threats from Fishing Operations

Incidental catch of sea turtles in commercial fisheries must be prohibited and prevented, particularly from longlines, trawls, mesh netting, and aquaculture operations (pearling, mussel, fin fish and entanglements).

Incidental catch of sea turtles in recreational fisheries must be prohibited and prevented.

Recreational and Tourism

Boat strikes from recreational vessels

Disturbance from personal watercraft

Disturbance and harm from vehicles driving on nesting beaches

Disturbance and harm from people visiting nesting beaches

Disturbance and harm from swimming, diving, fishing and boating in sea turtle habitat

Coastal Development

Noise, lights, pollution and disturbance from industrial and commercial facilities along coastline

Noise, lights, pollution and disturbance from residential and tourist facilities along the coastline.

Climate Change

Sea turtles “imprint” on the sandy beach where they hatch and return to that site decades later to repeat their ancient nesting ritual. With melting polar ice caps and rising sea levels, these beaches are starting to disappear. The direct impacts of sea level rise include loss of beaches, ecologically productive wetlands and barrier islands.

The gender of a sea turtle is determined by the temperature at which the egg incubates. Increasing nest temperatures could result in all female sea turtles, which in and of itself, would cause the extinction of all the species.

Global warming will also increase water temperatures, changing ocean currents that are critical to migrating turtles, especially baby hatchlings that are mostly transported by the currents into the open ocean thousands of miles from their nesting sites. Warming ocean temperatures are also likely to negatively impact the food resources for sea turtles and virtually all marine species.

Predation by introduced terrestrial animals and domestic animals

Recommendations and Resources

Sea Turtle Restoration Project would like to offer the following recommendations for developing a sea turtle protection and recovery plan in the Kimberly Conservation Strategy:

1. Assess and describe the six species of sea turtles that occur in the Kimberly.
2. Assess and describe the threats to sea turtles from human activity in the Kimberly.
3. Identify the gaps in science needed to accomplish (1) and (2) and fund and complete it.
4. Consult with Australian sea turtle experts in the Kimberly, Western Australia and throughout Australia to develop the sea turtle protection and recovery plan for the KCS.
5. Consult with the Commonwealth government to develop the sea turtle protection and recovery plan; and particularly to prioritize the establishment of marine reserves to protect sea turtles as part of the North-West Bioregional Plan now getting underway.
6. Consult with the international sea turtle community and invite them to participate in the development of the sea turtle protection and recovery plan of the KCS.
7. Complete and release the Draft Western Australia Marine Turtle Recovery Plan, which has been underway for about 14 years.
8. Process and release the 20 + years of green turtle tagging and monitoring data from Western Australia that has never been made public.
9. Convene and fund a Western Australian or “Top End” Marine Turtle Advisory Group to develop the sea turtle protection and recovery plan of the KCS, which could also help coordinate and create collaborations between sea turtle researchers, conservation groups, communities, indigenous groups, business, industry and the public.
10. Convene and fund a meeting in September 2009 with partners to begin the process of a coordinated sea turtle protection and recovery plan.
11. Convene and fund the Western Australian Marine Turtle Project for the long-term, which has been under-resourced for decades.

Resources

While providing a complete review of the scientific literature on the subject of sea turtles is beyond the scope of these comments, we would like to draw your attention to a number of new publications that will certainly be of interest to the KCS process:

The State of the World’s Sea Turtles Report, Volume IV. Cover story on flatback sea turtles is attached.
<http://seaturtlestatus.org/>

Biological Review of Australian Marine Turtles, Queensland Environmental Protection Agency;
http://www.epa.qld.gov.au/nature_conservation/wildlife/caring_for_wildlife/

Australian Commonwealth Government Recovery Plan for Australian Marine Turtles
<http://www.environment.gov.au/coasts/publications/turtle-recovery/>

Australian Commonwealth Government Advice on Leatherback Sea Turtles
<http://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-listing-advice.pdf>

Papers, posters and abstracts from the 29th International Symposium on Sea Turtle Conservation and Biology; Australian Sea Turtle Mini-Symposium; Brisbane, Australia, February 2009
<http://www.turtlesbrisbane2009.org/>

General Comments

Defining the Objective of the KCS

The Department of Environment and Conservation (DEC) has stated the objective of the KCS as “aimed at protecting the region's natural and cultural heritage while allowing the region to fulfill its economic potential.” As a first step in the process, it would be helpful for the DEC to provide clear definitions of the terms used to describe the objective – and for the public to participate in the development of these definitions.

For example, what levels of protection are being contemplated? Perhaps there is a range of protection levels that should be spelled out in the KCS from leaving certain areas completely undisturbed to minimal protection for industrial sites.

From the perspective of an environmental organization, the words “aimed at” indicate ambivalence toward protection. That could be remedied in the KCS by removing those words “aimed at” and simply state that the objective is “protecting the regions’ natural and cultural heritage.”

Another critical definition that should be developed is for the clause “allowing the region to fulfill its economic potential.” The DEC may view “economic potential” vary differently than stakeholders and it would be helpful to understand the baseline terminology. Does it mean to maximize short-term extraction of resources for maximum profit? Is it defined by number of jobs, total revenues for the region, value of revenues from industry that stays in the region? Does it mean long-term economic sustainability for 100 or 200 years? Does it include the value of natural resources to human survival in the long –term? It will be difficult to develop the KCS without all parties participating in the definition of this objective.

More General Comments on the KCS

- 1) The KCS should be a long-term comprehensive conservation plan for the Kimberley that results in an integrated approach to conservation protection and management and sustainable economic development.
- 2) The plan must be backed by both:
 - adequate ongoing resourcing for development and implementation
 - statutory authority, including integration of current laws, plans and government agencies/departments
- 3) The plan should be developed based on whole of land/seascape principles using the best available new and historical scientific, traditional and local knowledge which will identify and protect the natural and cultural values of the region and clearly identify appropriate and inappropriate economic and other activity.
- 4) The plan should expand the current conservation estate (in consultation with traditional owners) including protection for rivers and the marine environment – currently zero 0% of the coastal Kimberley waters are protected.
- 5) The plan will need to inform, reform, create and amend current management for a range of activities such as tourism, aquaculture, mining, and fisheries and incorporate a classification of compatible and incompatible land and sea uses/activities. This will incorporate the development of a binding code of conduct for tourism that addresses environmental and cultural impacts and access to Indigenous lands and waters.

6) There should be a moratorium on approval of new major developments until such time as the comprehensive plan is completed and implemented.

Thank you so much for reviewing and considering these comments. Please include Sea Turtle Restoration Project in all future notices and actions related to the Kimberly Conservation Strategy. A reply to our comments would be appreciated.

Sincerely yours,

A handwritten signature in black ink that reads "Teri Shore". The signature is written in a cursive style with a long, sweeping underline.

Teri Shore
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