DEPARTMENT OF
NATURAL RESOURCES, ENVIRONMENT AND THE ARTS

SALTWATER SCIENCE

NEWS FROM THE MARINE BIODIVERSITY GROUP

EDITION 4
February 2008

IN THIS ISSUE

New NRM Marine Projects Funded

Marine threatened species and Marine Protected Areas will be the focus of marine research in NT for the Marine Biodiversity Group, over the next 3 years, with the announcement of 3 major projects funded under the NT NRM Board's 2007-2010 Regional Investment Strategy:

Threatened Species Program:

- *Conservation Assessment of Priority Non-Fish Marine Threatened Species in the NT*

Indigenous Land Management: Sea Country:

- *Identifying Potential Sites for Marine Protected Areas (MPAs) in the NT*
- *Djelk Sea Country & MPA Planning*

A range of non-listed (and listed) threatened marine fauna will be formally assessed through surveys, and detailed conservation and threat assessments, including: giant clams, mangrove snakes, turtles (Leatherback, Hawksbill), seabirds, shorebirds, coastal dolphins and humpback whales.

"This is the first attempt in the NT to undertake a detailed assessment of a range of priority marine groups" said Professor Karen Edyvane, the leader of the Marine Biodiversity Group. "This research will, not only, add to our knowledge base—but will also provide important information on threats, and directions for conservation."

Great and Red Knots at Buffalo Creek. These migratory shorebirds go into breeding plumage in March prior to migrating thousands of kilometres to breed in the northern hemisphere. Knots and other migratory shorebirds spend their non-breeding season around Australian and New Zealand shorelines - some of these individuals spend this time around Darwin. Photo Brian Thistleton.

For project updates, see our web site: *www.nt.gov.au/marine*.

MBG Welcomes New Staff

The Marine Biodiversity Group is delighted to welcome 2 new staff members to the team. Dr Barry Russell and Dr Chris Glasby from the Museum and Art Gallery of the NT (MAGNT).

Dr Russell was previous the Assistant Director of Research and Collections at MAGNT (see 'Staff Profile' in this newsletter).

Dr Chris Glasby has specialist expertise in polychaetes and will continue to be located at the MAGNT—but will have an increasing involvement in planning and implementing NT-wide surveys.

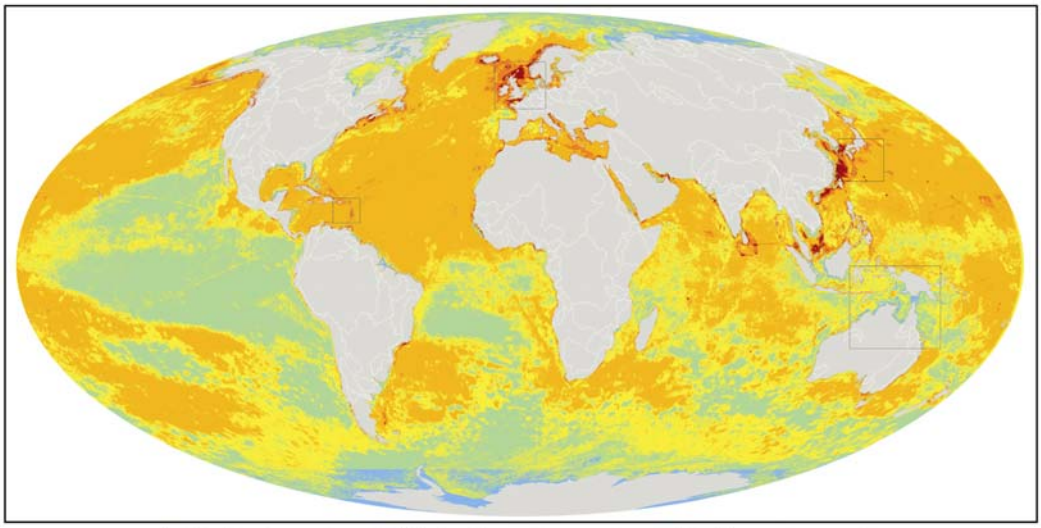
Chris will Eunice tubifex at Channel Island.

Global Study—NT Waters Pristine

A major study published in the international scientific journal, *'Science' (*15 Feb 2008, Vol. 318) has confirmed the global significance of the NT's waters—as the world's most pristine tropical waters.

The study led by Ben Halpern and colleagues at the US National Centre for Ecological Analysis and Synthesis (NCEAS), produced the first map detailing the state of the world's oceans—based on the cumulative impact of a range of human influences (climate change, pollution, fishing and shipping). It examined indicators of environmental health, including coral reefs, fisheries, kelp forests and water quality.

Climate change has had the greatest impact, through rising sea temperatures and ocean acidification. The effect of fishing is the next most important - particularly damage to coral reefs from trawling and stock depletions from overfishing.

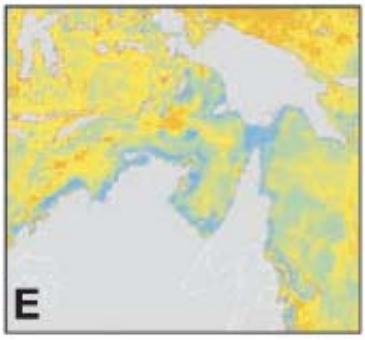


Of the 20 ocean ecosystems (and 17 global datasets) examined, the regions most affected included: the North Atlantic, South and East China seas, the Caribbean, the East Coast of North America, the Mediterranean, the Red Sea, the Gulf, the Bering Sea and several parts of the western Pacific.

The oceanic regions least impacted were the high latitude Arctic and Antarctic poles and northern Australia and Torres Strait.

The study also revealed that over a third (41%) of the worlds oceans is strongly impacted by human activities. Most of the highest cumulative impacts are experienced on continental shelves (and slopes), which are subject to both land and ocean-based effects.

Pristine coral reefs, seagrass beds, mangroves, rocky reefs and shelves and seamounts have few to no areas remaining in the world — with the study revealing that almost half of the world's coral reefs experience medium high to very high human impact.



Northern Australia's pristine coastal and marine waters.

A copy of the article. *"A Global Map of Human Impact on Marine Ecosystems"* can be downloaded from:

www.sciencemag.org.

HOW TO CONTACT US:

If you would like to be on our contact list please send your name, postal address, email and phone details to one of the addresses below. A brief comment on your interest in the marine environment would also be appreciated.

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Northern Territory Government
Natural Resource Management Board (NT)
Natural Heritage Trust

Rescued,Rehabilitated & Released

On 18 December 2007, the navy patrol boat HMAS Broome found a juvenile Hawksbill Turtle (~ 10 years old) entangled in a large mass of discarded ghost net about 75nm NE of the Wessel Islands in NE Arnhem Land.

The turtle was a “floater” ie. a turtle that cannot submerge underwater due to the build up of gases within their body or the ingestion of plastic bags.

Upon advice from Parks & Wildlife, “Dixie” (the name given by the navy) was brought to Darwin, for rehabilitation, where she was transported by Parks & Wildlife to the Animal Ark Veterinary Hospital (Palmerston), for some antibiotic treatment and her new life in a swimming pool. Unlike some “floaters”, Dixie took to captive life well, feeding on squid and fish.

After 2 months, Dixie was fighting fit and finally released at sea on the 17 February 2008 by HMAS Broome. But not before Dixie was tagged with 2 numbered metal tags in each of her front flippers - to capture vital information on her movements and growth—if she is ever entangled again.

Marine Debris Report Released

Results from the 2006 NT Marine Debris Surveys have been released in the *Northern Territory Marine Debris Monitoring Program 2006 Summary Report*.

Compared to 2005, there has been a reduction in the total amount of debris. However, over 21,000 items, weighing a total of around 2,800 kg, were collected from 32 km of beaches. The greatest accumulation of marine debris continues to occur along the coast and islands on the west to northwest side of the Gulf of Carpentaria.

Gill nets were the most frequently found fishing nets and were assoc-iated with the highest number of entanglements.

Ten entanglements were discovered this year, including four hawksbill turtles, a flatback turtle, two unknown turtles, a crocodile, crabs and fish.

For further information, see our web site: *www.nt.gov.au/marine*.

Staff Profile

Dr Barry Russell

Barry Russell is a Principal Scientist with the Marine Biodiversity Group.

Barry has over 30 years research experience on the systematics, ecology and behaviour of tropical demersal fishes of the Indo-West Pacific. He has worked extensively in the N. Australia - SE Asian region, and undertaken collaborative scientific projects with the United Nations Food and Agriculture Organisation (FAO), German Agency for Technical Co-operation (GTZ), the International Union for the Conservation

of Nature (IUCN), The Nature Conservancy (TNC), and CSIRO.

His current research interests in the NT include:

- Rapid biodiversity assessment
- Bioregional/ biodiversity studies of shelf/ slope fishes of the northern Australian region
- Deepwater fish biodiversity of tropical Indo-West Pacific basins
- Taxonomy and systematics of lizardfishes (Synodontidae) and threadfin breams (Nemipteridae) of the world
- History of early natural history in northern Australia.

More recently Barry has been involved in the ‘Northern Australian Marine Biodiversity Survey’ (NAMBS). He is currently involved in reviewing R&D marine priorities in the NT and marine surveys.

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