

## Mangrove and marine restoration in Darwin Harbour



### *High level summary*

This 2.5-hour boat cruise will showcase Darwin Harbour, its cultural importance and Indigenous use, while focusing on key research and monitoring programs, including local and international mangrove restoration programs. The cruise will be hosted by multi-award winning marine-based ecotourism company – Sea Darwin, skippered by Jim Smith. Learn about the history and ecology of Darwin Harbour and interact with local experts while you enjoy afternoon tea on board. A mangrove restoration site will be visited, where the success of different rehabilitation techniques has been monitored for almost 10 years. Clearing of 1.6 ha of dense mangroves was required at this site for construction of a major gas pipeline corridor leading to the INPEX LNG plant in 2013. The restoration site demonstrates significant progress towards reforestation while highlighting some of the challenges involved in mangrove restoration in a highly dynamic, macro-tidal harbour. Also featured is the NT Government’s monitoring program, reporting annual water quality, harbour health and status, while measuring sedimentation rates in response to sea level rise. The cruise will include the harbour’s largest artificial reef project site as well as featuring other regional and international mangrove restoration efforts located in the NT and SE Asia. Dr Kristin Metcalfe, Ms Julia Fortune, Dr Benjamin Brown, and Prof Lindsay Hutley will be on board as speakers. We plan to have an indigenous representative from Larrakia Nation to describe the harbour’s cultural significance and many indigenous uses.

### *Detailed description*

The boat tour departs at 2:00 pm on Tuesday September 26 from Stokes Hill Wharf, a short walk from the Darwin Convention Centre (the conference venue). We board one of Sea Darwin’s state of the art

tour vessels and depart Stokes Hill Wharf around 2:15 pm. Sea Darwin has been recognised multiple times for excellence in Northern Territory tourism. Our skipper, Jim Smith is qualified, highly experienced and has detailed knowledge about Darwin Harbour and the surrounding marine environments. The boat tour will include the Northern Territory Government's Artificial Reef project site– the single largest investment to date under its \$50 million RecFishing Futures Program- where we will learn more about this interesting marine restoration project.

Participants will be provided with an introduction to the marine and intertidal ecology of Darwin harbour and visit a key mangrove restoration site to learn about on-going mangrove rehabilitation work from ecologist Dr Kristin Metcalfe, Principal Environmental Scientist at EcoScience NT. A rising high tide will allow the boat to draw close to view key features of the restoration site without participants getting muddy. Dr Benjamin Brown postdoctoral researcher at CDU-RIEL and the Australian Institute of Marine Science will also share his knowledge and experience gained during numerous major mangrove restoration projects in Southeast Asia.



Gas export pipeline mangrove restoration site, planting nursery -grown *Rhizophora* seedlings in 2014 (left) and monitoring seedling survival and growth in 2015 (right) Photo: K Metcalfe

Professor Lindsay Hutley from Charles Darwin University will outline vital research on sedimentation rates in harbour mangroves in response to sea level rise and other current threats to mangroves. Rapid development of the harbour foreshore- including two major gas plants, an expanding port precinct, commercial marinas and canal estate housing developments are placing increasing pressure on natural habitats in Darwin Harbour. The NT Government has responded by establishing multi-disciplinary water quality and harbour health monitoring programs, which will be described by Julia Fortune.

The friendly and knowledgeable crew from Sea Darwin will cover interesting aspects of European history and the natural environment of Darwin Harbour while cruising through this biodiverse and extensive, mangrove-lined estuary. Perhaps bring your binoculars as there will be opportunities for bird watching and potential wildlife viewing. Participants will enjoy afternoon tea on board the comfort of the cruise boat. The vessel returns to Stokes Hill Wharf around 5 pm.