With dredging wrapped up until the start of the wet season and nearly half of scheduled works completed, the Ichthys Project would like to pass on some positive results from our marine monitoring program. As you know, the Project has gone to considerable effort to ensure its activities in and around Darwin Harbour are minimising disturbance to water quality and marine life.

Key facts

• The Ichthys Project has a comprehensive scientific program in place keeping a close watch on Darwin Harbour to ensure we monitor and record changes in the environment from dredging and construction activities. This program ensures we quickly identify any impacts

• With about 43 per cent of planned dredging completed as of June 2013, the results of the Project’s 13 monitoring programs indicate that impacts are either in line with or less than original predictions

• First season water quality monitoring shows dredging has resulted in plume dispersal less than predicted from modelling studies

• The Project has discovered a diversity of life, including 59 new taxonomic records for mangrove habitats in the harbour (12 crustaceans, 14 molluscs, 17 worms, 11 ants, 3 fish and 2 other invertebrates)

• Continuous monitoring of the harbour started after the approval of our Environmental Impact Statement with a baseline study commencing in May 2012. The program, in its current form, is scheduled to finish towards the end of 2014

• The Ichthys Project releases detailed, scientific information publicly. Monitoring results, including more than 50 reports, are available online at www.ichthysproject.com

Water quality

The Project has monitored water quality in the harbour since dredging began. Our equipment transmits information about turbidity (water clarity) in near real-time.

First season water quality monitoring shows dredging has resulted in plume dispersal less than predicted from modelling studies. Plumes, which are concentrations of sediment, dissipate quickly and any visible discolouration from the dredge itself is largely restricted to the East Arm area.

Our monitoring shows that most of the sediment released from dredging quickly settles back on the sea floor, close to the dredgers.

www.ichthysproject.com/environment/monitoring-programs
Dolphin, dugong and turtle monitoring

As you know, the Project monitors dugongs, turtles and dolphins as part of an initiative to create a better general understanding of the Darwin marine environment.

Channel Island reef supports juvenile turtles with tagging of one individual revealing it remained within 1km of its channel capture point. Dolphins have been seen exhibiting a range of unique behaviours such as sea sponge throwing and sliding through mud to catch fish. A few dugongs have been sighted in the harbour, but more have been sighted in the outer harbour and surrounds.

www.ichthysproject.com/environment/coastal-dolphin-monitoring
www.ichthysproject.com/environment/turtle-and-dugong-monitoring

Seagrass monitoring

Seagrass is most abundant in coastal places like Casuarina Beach and Lee Point. Seagrass shows a natural pattern of growth in the dry seasons and decline in the wet season that is attuned to changes in turbidity and light.

Heavy rainfall, tropical storms and cyclones passing through northern Australia in the wet season generate naturally high turbidity in the coastal zone. The high turbidity reduces the amount of light reaching the seabed that seagrasses require for survival. The dry season brings calmer conditions and lower turbidity, providing good conditions for seagrass to grow.

www.ichthysproject.com/environment/seagrass-monitoring

Mangrove monitoring

Mangroves are monitored at East Arm, Middle Arm and Talc Head using a comprehensive set of scientific measures for sedimentation and general health of both mangroves and the animals which live within them. Satellites help track mangrove health using a “greenness” index.

Measurements of sedimentation in mangrove communities show a natural annual flux of sediment deposition and erosion that keeps the harbour in balance. The mangrove communities remain in good health with no findings of significantly elevated or unexpected sedimentation.


Fish health

Just like regular anglers, scientists catch fish and crabs using rods, reels and pots. This work indicates that there were no significant changes in the research angling and potting catches, composition or frequency related to dredging.

There was also little recorded change in targeting behaviour or reported catches, besides those that can be attributed to natural variability associated with the seasons, such as catch rates for barramundi. Recreational fisherman questioned at boat ramps have told us that the only impact on them has been the need to avoid exclusion zones around dredgers to ensure everyone’s safety.

Examinations by fish health specialists have revealed that in general, fish within Darwin Harbour are healthy. Evidence suggests that the diversity of parasites and infections associated with fish from the harbour could be considered within the range that would be naturally expected. Observations made to date, including during dredging, indicate that fish health in the harbour is consistent with that expected within a typical tropical ecosystem.


Coral monitoring

Coral monitoring is occurring at a number of locations in the harbour, including South Shell Island, Channel Island, Weed Reef and Mandorah. Local corals are tough and used to large tides and naturally turbid environments.

Monitoring of first season dredging shows a slight increase in the amount of sediment settling on corals at South Shell Island, which is within 2km of the dredge activity; however, there are no recorded dredge impacts on coral health at this site or others, including the iconic communities at Channel Island.

www.ichthysproject.com/environment/coral-monitoring

Seafloor monitoring

Ongoing monitoring of plants and animals living on the harbour seafloor confirms that they are generally sparse, with scattered patches of ascidians, sponges, hydroids, anemones, bryozoans, macroalgae and filamentous algae.

The sediment of the seafloor provides a home to worms, shrimps, small crabs and sea spiders that make burrows in the mud.

www.ichthysproject.com/environment/intertidal-benthos-monitoring
www.ichthysproject.com/environment/subtidal-benthos-monitoring

Ichthys Project dredging is scheduled to recommence around the start of the wet season in 2013, but rigorous monitoring is ongoing to ensure that important species and habitats continue to be understood and protected in Darwin Harbour.

For regular updates, take a look at our bulletins, which are also available on the Ichthys Project website along with detailed, technical reports on all aspects of the Darwin marine monitoring programs. The website has more than 50 reports available with data, graphs, maps, detailed analysis and satellite imaging.