

# Biodiversity Impact Mitigation and Offsets Strategy – East Arm Wharf Expansion Works – Darwin Marine Supply Base

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## INTRODUCTION

East Arm Wharf is the major national and international port servicing the city of Darwin, the Northern Territory and Australia from the north. EAW is the northern most international wharf facility in Australia.

The Wharf and surrounding infrastructure is designated the 'East Arm Port Development Zone' (Zone DV in the *East Arm Control Plan 1998*, Northern Territory *Planning Act 2008*). The purpose of zone DV is to provide for development of major strategic industries including gas based, road, rail or ports industries, and to provide land for major industrial development that is of strategic importance to the future economic development of the Northern Territory.

The Northern Territory Government (Territory) proposes to expand facilities at the East Arm Wharf (EAW) to address increased demands on the wharf for export of bulk minerals, storage and increased requirements of the offshore industry.

The proposed expansion of East Arm Wharf broadly comprises three separate developments:

1. Developing a Marine Supply Base (MSB) adjacent to EAW, primarily to service the existing and developing oil and gas industries in the Timor Sea, Browse Basin and adjacent areas. This component of the works includes construction of a rock load out facility, critical to the timely supply of rock products in connection with the Ichthys LNG Project;
2. Constructing a barge ramp and hardstand area, to service both Defence and private sector needs, including berthing for barges and facilities for loading and unloading; and
3. Extending the EAW quay, and construction of moorings to accommodate tug boats, customs boats and other smaller vessels.

The Marine Supply Base aspect of the EAW expansion proposal has a critical timing relationship with the Ichthys LNG project as one of the components of its first stage is a rock load out facility.

The Marine Supply Base is considered to be the aspect of the EAW expansion proposal likely to have the greatest environmental impact and for this reason this BIMOS focuses predominantly on that aspect of the proposal. In comparison to the Marine Supply Base works, the other aspects of the EAW expansion proposal are considered likely to have minimal additional residual environmental impact. As such the offsets set out in this BIMOS cover the residual impacts of the EAW expansion project notwithstanding they are discussed in the context of the Marine Supply Base.

The EAW expansion works are the subject of *Environmental Protection and Biodiversity Conservation Act (Cth) (EPBC Act) Approval 2010/5304*, a conditional approval given on 5 March 2012.

This BIMOS is prepared in response to Conditions 32 – 35 of EPBC Act Approval 2010/5304. Those conditions require the Territory, as the person taking the action, to develop a Biodiversity Impact Mitigation and Offset Strategy to address the consequential and residual impacts on EPBC Act listed:

1. dolphins;
2. migratory birds;
3. dugongs; and
4. marine turtles

from the expansion of EAW and increased vessel usage of the area and the associated impacts to these listed species.

This BIMOS includes a timeline for the development, submission and implementation of the Migratory Birds Management Plan, Coastal Offset Plan and the Port Environmental Protection Plan. These plans are discrete elements of the offset package and will be submitted separately to the Minister for approval.

## **OBJECTIVE**

The objective of the Territory throughout the EAW expansion project, will be to:

1. avoid impacts on biodiversity to the greatest extent reasonably practicable;
2. mitigate impacts where it is not possible to avoid them; and
3. provide for an appropriate offsets package proportional to the extent to which impacts cannot be mitigated or avoided;

such that there is no net environmental detriment associated with the EAW expansion project.

## **BACKGROUND**

### ***Project Background***

The EAW expansion project will be undertaken entirely within the East Arm Port Development Zone and is considered by the Territory to epitomise the type of development for which the East Arm Port Development Zone has been set aside.

The EAW expansion project represents a major investment by the Territory in its strategic road, rail and port related infrastructure. In particular, the Marine Supply Base provides a hub between the Territory's major road and rail interstate connections, and between the Territory, the rest of Australia, Asia and other international destinations.

The Marine Supply Base is to be of international standard in terms of its construction and operation, and is to be capable of supporting the Offshore Industry in the region surrounding Darwin, in locations ranging from Browse Basin, Indonesia, Timor-Leste and Papua New Guinea.

The Marine Supply Base will be operated by ShoreASCO Pty Ltd, a wholly owned subsidiary of ASCO Holdings Ltd, a pre-eminent operator of a worldwide network of Marine Supply Bases.

The timely completion of the Marine Supply Base is the critical path activity for the supply of rock products for the Ichthys LNG Project. The Marine Supply Base will be required to be substantially completed by 30 September 2013.

Since components two and three of the EAW Works have no confirmed commencement dates, and in comparison to the Marine Supply Base project are considered likely to have minimal additional residual environmental impact, this BIMOS focuses predominantly on the Marine Supply Base.

## *Environmental Assessment Background*

Environmental assessment for the proposed EAW expansion Works were undertaken in accordance with the requirements of the Northern Territory *Environmental Assessment Act 1982* (EA Act).

The proposal was declared a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as it was considered likely to have impacts on the following Matters of National Environmental Significance:

1. Listed threatened species and communities (EPBC Act sections 18 and 18A);  
and
2. Listed migratory species (EPBC Act sections 20 and 20A).

The proposal has been assessed under the Bilateral Agreement for Environmental Impact Assessment between the NT and Australian Governments (Bilateral Agreement), to satisfy requirements of both the EA Act and the EPBC Act.

Pursuant to the Bilateral Agreement, the Territory required an Environmental Impact Statement (EIS) under the EA Act. The draft EIS was lodged on 18 June 2011 and was made available for public comment for a period of six weeks.

After considering submissions made in response to the EIS and supplementary information provided, the Northern Territory Minister for Natural Resources, Environment, the Arts and Sports issued Assessment Report 67 on 23 December 2011.

The Commonwealth Minister for Sustainability, Environment, Water, Population and Communities issued EPBC Act Approval 2010/5304 on 5 March 2012 with conditions inter alia that require a BIMOS be submitted to address consequential and residential impacts to EPBC Act listed species.

## **RESIDUAL IMPACT ON SPECIES OF NATIONAL ENVIRONMENTAL SIGNIFICANCE**

### **GENERAL**

Land based aspects of the EAW expansion project will predominantly occur on land progressively reclaimed by the Territory since the late 1990s. There is to be little (if any) clearing of native vegetation or other land based environmental impacts other than those connected with the on-shore disposal of dredge spoil into constructed ponds that already contain spoil from the Darwin Waterfront Redevelopment project and the East Arm Wharf development itself.

The principle activities that are likely to impact upon the identified NES matters are:

1. dredging and attendant dredge spoil management;
2. piling (to a lesser extent); and
3. increased shipping activity within Darwin Harbour with traffic being generated by various users of the harbour including users of the Marine Supply Base, some of which will relate to discrete projects for which separate environmental controls and offsets are likely to apply.

These activities may lead to some degree of unavoidable residual impact, although to a large extent this unavoidable impact will be temporary in nature.

The major effects of shipping traffic will be set out in the Port Environmental Protection Plan required under condition 45 of EPBC Act Approval 2010/5304 and discussed below.

## Dredging and Dredge Spoil Placement

As part of the EAW expansion project, approximately 825,000m<sup>3</sup> of material is to be dredged. Approximately 80% of that material will be dredged in connection with the Marine Supply Base from an area of approximately 15.1 Hectares located as illustrated in figure 1 (and subject to a request for a variation to the dredge footprint dated 15 June 2011). Marine Supply Base dredging activity is planned to occur over a maximum of 146 days.

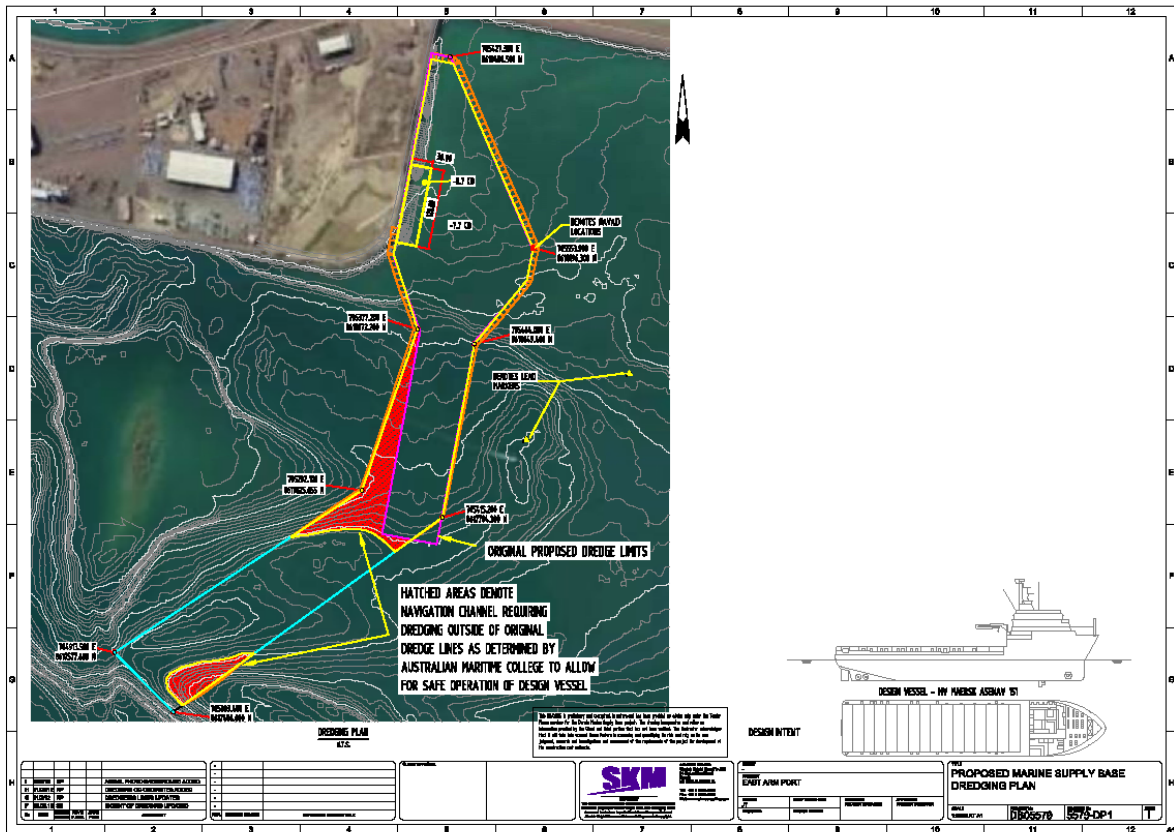


Figure 1 – Dredge Footprint for the Marine Supply Base

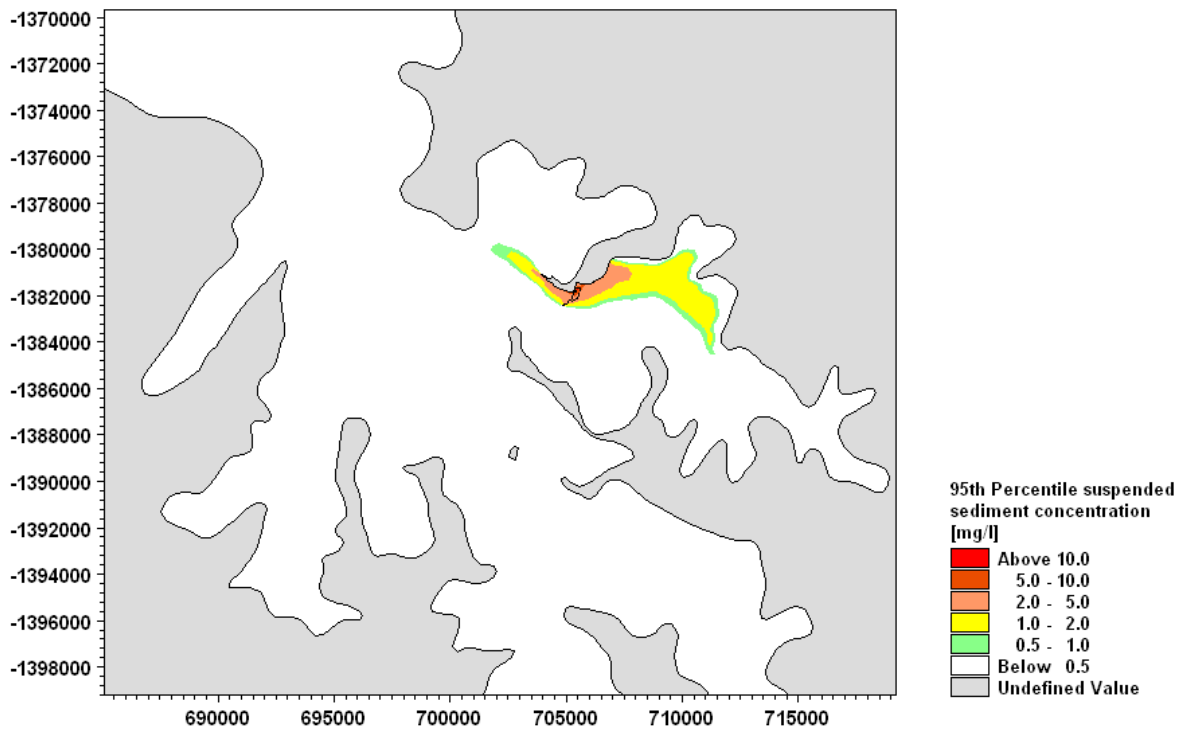


Figure 2 - Modelled Dredge Plume

Dredge spoil will be pumped by Cutter Suction Dredge (CSD) through a floating pipeline to the South Western corner of pond K shown in Figure 3. Material suitable for stockpiling will be stacked to maximise storage capacity in pond K.

Dredge spoil will settle in pond K, dewatering through ponds D and E. From pond E the majority of decant water will be pumped back into the dredge footprint area for recycling through the CSD and the pond system. Decant water will also be discharged via control structures into Darwin Harbour from the western most point of the pond system. The quality of water flowing back into Darwin Harbour will be regulated under the terms of a waste discharge licence under the Northern Territory *Water Act*.

Full details of the dredging activity, including environmental impact mitigation measures are set out in Macmahon Contractors Pty Ltd Environmental Management Plan currently subject to review by the Technical Advisory Group prior to submission to the SEWPaC Minister for approval.





Figure 3 – Pond System and Decant Water Flow

### *Residual Impacts of Dredging and Dredge Spoil Placement Activity*

During dredging activity there will be increased marine noise levels arising from the operation of the CSD (for the Marine Supply Base aspect of the project) and support vessels and equipment. Marine noise during operation of the Marine Supply Base will be generated by vessel movements, most of which are currently occurring within Darwin Harbour, and in particular within the area of Darwin Harbour contained within the East Arm Port Development Zone (the area in which the Marine Supply Base will be located).

There will be little (if any) additional marine noise arising out of aspects two and three of the EAW expansion project. Those aspects will generally represent a relocation of existing traffic.

In addition, during dredging activity there will be elevated levels of suspended solids at the periphery of the dredge footprint and in the modelled dredge plume area. In relation to the Marine Supply Base aspect of the EAW project, the elevation of suspended solid levels will be substantially mitigated by pumping dredge waters through the pond system, including the recycling of a large proportion of decant waters through the CSD and pond system. There will inevitably be a degree of temporary elevation that cannot be avoided.



There will be an unavoidable disturbance of approximately 15.1 hectares of marine environment in the dredge footprint, the majority of which consists of sand and reef substrates with less than 5% epibenthos.

Dredge spoil placement, and mechanical redistribution of spoil and fill materials will cause elevated noise levels temporarily across the pond system and will lead to a substantial change in the characteristics of pond K. Pond E may also undergo a lasting change of characteristic as the settling of sediments temporarily increases its levels of suspended solids and permanently reduces its depth.

Pond D will be managed with particular emphasis on maintaining artificial high tide roosting habitat for migratory birds. Pond D is discussed in greater detail in the Onshore environment section.

### ***Piling***

The Marine Supply Base will comprise land backed pavements behind a sheet piled quay line to provide berths for supply vessels for offshore industry.

Piles are to be driven from the land side, through the previously reclaimed area, and once set, the berth pocket removed by the CSD.

No Marine based piling is required for the wharf face construction.

Piling for the Marine Supply Base is proposed to be undertaken during daylight hours over a period of approximately six months. The land based piling activity is largely concurrent with the dredge activities, and its temporary construction related effects will be concurrent with those of the dredging activity.

The impact of temporary marine noise and vibration levels on listed marine fauna will be mitigated by the establishment of a 500m exclusion zone. Observation by a suitably trained and dedicated crew member will commence not less than 30 minutes prior to commencement with pile driving only able to proceed if no relevant marine fauna have been sighted within the zone in the 30 minutes.

Full details of the piling activity, including environmental impact mitigation measures in relation to the Marine Supply Base are set out in Macmahon Contractors Pty Ltd's Environmental Management Plan and Dredge and Dredge Spoil Placement Management Plan (DDSPMP) submitted for the Minister's approval pursuant to condition 16 of EPBC Act Approval 2010/5304 on 18 July 2012.

### ***Residual Impacts of Piling Activity***

The project will create underwater noise in various forms and intensity above current ambient levels in Darwin Harbour. The sources of noise relevant to the construction phase of the project are limited to dredging and pile driving and marine noise arising from a single vessel delivery of piles to East Arm Wharf and a small dredge tender vessel.

There will be temporarily increased marine noise levels and vibration associated with the on-shore driving of piles since piles will not be driven through the marine environment noise attenuation is expected through the buffering effects of the reclaimed land.

The inevitable development of harbour facilities serviced by heavy vessel traffic will also elevate local background noise levels permanently.

## **OFFSETS STRATEGY**

### ***Marine Environment***

The total area of the dredge footprint for the Marine Supply Base is 15.1Ha as illustrated in figure 1. The dredge footprint for aspects two and three of the EAW expansion project are currently uncertain, but will be environmentally insignificant in comparison to the Marine Supply Base. Darwin Harbour has an area of approximately 1,000km<sup>2</sup>, and itself represents a small part of an otherwise largely undeveloped coastline of some 10, 953km in length including 5437km of Mainland coastline and 5516km of island coastline (Australian Government, Geoscience Australia).

In the context of the length of undeveloped coastline available in the NT, the residual impact from the loss of habitat within the area of the EAW expansion project area is negligible. There is considered to be some residual impact in connection with elevated noise and vibration levels from current levels and increased shipping activity, and in relation to those temporarily elevated noise and vibration levels during dredging and piling activities. There will also be temporarily elevated levels of suspended solids during dredging activity.

In connection with the residual impacts of the project the Territory commits to:

#### **1. Darwin Harbour Indigenous Marine Rangers Program**

##### ***Background***

The Northern Territory Government, through the Department of Natural Resources, Environment, The Arts and Sport (NRETAS), conducts several monitoring and research programs to monitor the health of aquatic ecosystems and the marine biodiversity of Darwin Harbour.

In 2009, 2010 and 2011, NRETAS produced a suite of Darwin Harbour Region Report Cards, providing snapshots of aquatic ecosystem health and marine biodiversity across the Harbour and its catchment. The Report Cards summarise water quality data collected from more than 60 monitoring sites

across Darwin Harbour, as well as programs monitoring dolphin, dugong and fish and seagrass health across the Harbour.

In June 2010, the Northern Territory Government endorsed the Darwin Harbour Advisory Committee's proposal to develop an Integrated Monitoring and Research Program (IMRP) for Darwin Harbour. The Integrated Monitoring and Research Program is a stakeholder funded Program that fosters shared responsibility for the delivery of a long-term approach to investigation, detection and prediction of system-wide impacts in the Darwin Harbour region. Monitoring of Darwin Harbour undertaken by NRETAS contributes towards the Integrated Monitoring and Research Program.

The Darwin Harbour Integrated Monitoring and Research Program supports monitoring and research in Darwin Harbour by Indigenous marine rangers. Some members of the program, including NRETAS and INPEX, already engage Indigenous marine rangers in their monitoring and research programs and are hoping to expand this in future years.

It is proposed that the Integrated Monitoring and Research Program be supplemented and augmented by the establishment and implementation of the Darwin Harbour Indigenous Marine Rangers Program in accordance with the requirements of Condition 33 of EPBC Act Approval 2010/5304.

The Darwin Harbour Indigenous Marine Rangers will contribute to offsetting the residual impacts of the EAW expansion project on *Environment Protection and Biodiversity Conservation Act* listed dolphins, dugongs, turtles and migratory birds by providing for two full time equivalent Indigenous rangers to be engaged, trained and supervised by NRETAS from Ministerial endorsement of this BIMOS until completion of marine works associated with the EAW expansion works.

These rangers will be engaged to perform the roles described below as part of the broader objectives of the IMRP described above.

Once trained the Darwin Harbour Indigenous Marine Rangers will, in accordance with condition 33 of EPBC Approval Decision 2010/5304:

- a. Address threats to listed threatened species and listed migratory species in Darwin Harbour and surrounds by:
  - i. Actively participating in monitoring and research in Darwin Harbour, undertaken by NRETAS, that aims to determine the ecosystem health of the Harbour and the impacts upon that health, including impacts associated with dredging for the EAW expansion project on Environment Protection and Biodiversity Conservation Act listed marine species; and
  - ii. Actively participating in field and laboratory work associated with water quality, sediment health, dolphin, dugong, fish and seagrass monitoring programs;

- iii. Integrating the Darwin Harbour Indigenous Marine Rangers substantial on-water presence with the Marine Wild Watch Program to supplement its activities, which include operating a hotline for strandings and sightings, on-ground operational responses including recovery of injured or deceased marine fauna (including rehabilitation and post-mortems), and public education;
    - iv. participating in and assisting with the ongoing summer surveys of migratory bird species required under Condition 36(c) of the EPBC Act Approval 2010/5304, including by identifying and reporting on migratory bird roosting habitats within Darwin Harbour and surrounds, identified whilst on patrol or at any time whilst engaged in activities on the Harbour;
- b. Provide harbour surveillance patrols and reporting for vessel speed and vessel interactions with listed threatened species and listed migratory species by:
  - i. undertaking surveillance whilst on patrol or at any time whilst engaged in activities on the Harbour, gathering records of observed or reported vessel interactions with listed threatened species and listed migratory species and reporting to Marine Wild Watch, NRETAS, the Darwin Port Corporation, Marine Safety Branch of the Department of Lands and Planning, and the Northern Territory Water Police as appropriate;
  - ii. Reporting commercial vessels operating at excessive speed or outside defined shipping channels to relevant authorities;
  - iii. Monitoring recreational vessels and reporting on incidents of excessive speed to help inform a coordinated education program on the use and enjoyment of Darwin Harbour.
- c. Monitor and handle stranded, injured or dead large marine fauna species by:
  - i. Integrating the Darwin Harbour Indigenous Marine Rangers substantial on-water presence with the Marine Wild Watch Program to supplement its capacity to respond to reported strandings and sightings and its capacity for recovery of injured or deceased marine fauna;
  - ii. Participating in investigations with biologists to determine the cause of any fatalities to large marine fauna;
- d. Increase community awareness about marine debris by:
  - i. participating in public and promotional activities and distribution of literature at points of potential accumulation of debris including public boat ramps;

- ii. participating in and distributing literature or making presentations at community events including annual Darwin Harbour Clean-up Days;
  - iii. working closely with other Indigenous rangers in the area, with Larrakia Nation and the Darwin Port Corporation, and with community groups to build capacity of rangers (including but not limited to the Darwin Harbour Indigenous Marine Rangers) in the region and to engage the community and stakeholders more broadly in monitoring and research in Darwin Harbour;
- e. Assist with the implementation of the education campaign required under condition 45 d. of EPBC Approval Decision 2010/5304 by:
  - i. Assisting with the collection and analysis of data in relation to Darwin Harbour and surrounds to determine the ecosystem health of the Harbour and to identify:the threats to that health (including impacts associated with the EAW expansion project as well as any ongoing threats associated with increased shipping activities), on *Environment Protection and Biodiversity Conservation Act* listed marine species;
  - ii. Assisting with identification and analysis of mitigation or management measures that could be implemented by Darwin Port Corporation, other port service providers or vessel operators to mitigate the threats or risks to *Environment Protection and Biodiversity Conservation Act* listed marine species arising out of shipping or port activities; and
  - iii. Participating in presentations and educational opportunities offered by NRETAS and other stakeholder groups to port personnel, and potentially a wider audience of users of Darwin Harbour (including commercial operators and recreational users), to foster a culture of awareness of environmental values, including the presence of EPBC Act listed species in the project area, and the wider Darwin Harbour.

Darwin Harbour Indigenous Marine Rangers will (subject to weather conditions) allocate approximately 80% of available time to on-water field activities including various surveillance and monitoring programs. This is likely to include:

- Field time associated with water quality monitoring – up to 3 days per month (36 days per year)
- Field time associated with beach water quality monitoring – 1.5 days per week between May and October (39 days per year)
- Field time associated with sediment health monitoring – up to 5 days per year

- Field time associated with seagrass monitoring - up to 10 days per year
- Field time associated with dolphin monitoring - up to 30 days per year
- Field time associated with fish monitoring - up to 10 days per year
- Field time associated with the Marine Wildwatch program – up to 10 days per year
- Field time associated with the Darwin Harbour Clean-Up – 1 day per year
- Field time associated with migratory bird surveys – up to 10 days per year
- Field time associated with unscheduled on-water response activities – up to 20 days per year
- Field time associated with unscheduled monitoring or surveillance activities – up to 10 days per year

The field schedule for the Darwin Harbour Indigenous Marine Rangers is designed to be flexible and will be subject to change, according to the priorities identified through the IMRP and the occurrence of unscheduled events (such as, for example, a need to respond to injured or deceased marine fauna). It is anticipated that Darwin Harbour Indigenous Marine Rangers will spend up to 80% of their time in the field (181 of 230 working days (~80%)).

In addition to their substantial on-water activities, marine rangers will be required to participate in background laboratory analysis related to monitoring programs, fostering an understanding and appreciation of monitoring techniques, and opening opportunities for broadened skill-sets.

It is not proposed that the rangers will have any regulatory powers. However, rangers will have a significant on-water and Darwin Harbour field presence and will be required as part of regular on-water and patrol activity to monitor and observe activities and issues of concern in the Harbour and report to Marine Wild Watch, NRETAS, the Darwin Port Corporation, Marine Safety Branch of the Department of Lands and Planning, and the Northern Territory Water Police.

In addition, the Darwin Harbour Indigenous Marine Rangers will report to the Integrated Monitoring and Research Program Management Committee and also to other ranger groups, such as the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) Saltwater Peoples Network and Working on Country (SEWPaC) Workshops.

### **Training**

Darwin Harbour Indigenous Marine Rangers will, in the course of their engagement by NRETAS, be provided with opportunities to pursue and obtain training and qualifications in the following areas:

- Coxswains certificates;
- Work Health and Safety;
- First Aid;

- Water monitoring techniques (equipment preparation, use and servicing; field techniques; field protocols for recording data, chain-of-custody requirements, introduction to laboratory chemical analyses and procedures);
- Seagrass and dolphin monitoring techniques;
- Laboratory techniques and sample preparation;
- Computer software skills (eg EXCEL and WORD);
- Data entry, management and analysis; and
- NRETAS Indigenous Employment and Career Development Program.

Participation in training courses and field experience is intended to equip participants for an ongoing participation in broader ranger related activities.

### **Duration**

In accordance with condition 33 of EPBC Approval Decision 2010/5304, the Darwin Harbour Indigenous Marine Ranger program will continue throughout the period of marine works for the EAW expansion project.

### **Implementation and Reporting**

The Darwin Harbour Indigenous Marine Rangers Program will be established and implemented as follows:

- Two Indigenous marine rangers recruited by NRETAS – Commence action upon Ministerial approval of BIMOS.
- Indigenous marine rangers trained for and participate in water quality, sediment health and marine biodiversity monitoring - From engagement through to completion of marine works.
- Indigenous marine rangers trained for and participate in harbour surveillance and reporting – From engagement through to completion of marine works.
- Indigenous marine rangers trained for and participate in migratory bird monitoring - From engagement through to completion of marine works.
- Darwin Harbour Region Report Cards, describing the outcomes of Darwin Harbour monitoring, endorsed and distributed by NRETAS to stakeholders – December 2012 and annually thereafter until completion of marine works.
- Indigenous marine rangers participate in Darwin Harbour Clean-up Day – July 2013 and annually thereafter until completion of marine works.
- Report provided by NRETAS describing the activities of Indigenous marine rangers during each year of the Program – October 2013 and annually thereafter until completion of marine works.



- 2. Coastal Offset Plan** - A Coastal Offset Plan (COP) is to be submitted to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities for approval, and to be implemented by the Territory once approved.

In particular the COP will identify not less than 50 hectares of verified habitat for dolphins to be protected in perpetuity. There are a number of options for protection or reservation of areas of crown land for conservation purposes, and these will be considered in greater detail in the COP.

In setting aside the identified dolphin habitat for conservation, the Territory will take into account the requirement under condition 11(c) of Approval Decision 2008/4208 made in relation to the Ichthys LNG Project.

The Territory considers it appropriate to explore options for annexing the area to be set aside by the Territory to the area to be set aside in connection with the Ichthys LNG Project.

The Northern Territory's Department of the Chief Minister will undertake discussions with the proponent of the Ichthys LNG Project to explore and establish avenues for preservation of an integrated dolphin habitat meeting the requirements of condition 11(c) of Approval Decision 2008/4208 (Ichthys LNG) and EPBC Act Approval 2010/5304 (East Arm Wharf Expansion proposal).

The COP will be submitted for approval by the Commonwealth Minister not more than two years from commencement of works in relation to the Marine Supply Base project and in any case prior to commencement of any further works in relation to the proposed EAW expansion works.

The COP will be implemented in accordance with the terms approved by the Minister, and in any event not more than 5 years from commencement of works on the EAW expansion project.

### *Onshore environment*

There will be temporary disturbance across the dredge spoil pond system in terms of noise and vibration during dredging operations, and a permanent change to the characteristics of pond K which will be filled to capacity as a result of the placement of dredge spoil material.

Several migratory bird species utilise the dredge spoil ponds for roosting habitat. Some changes to characteristics of the existing ponds will occur as a result of utilising the dredge spoil ponds. Most of the bird observations during the bird surveys

were at pond D which affords high tide roosting habitat for migratory birds at certain times of the year. As such, the Territory commits to:

1. **Migratory Birds Management Plan** - Preparing a Migratory Birds Management Plan (MBMP) to be submitted to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities for approval, and to be implemented by the Territory once approved.

The MBMP will:

- a) provide for not less than two annual surveys each year compliant with the current *Significant Impact Guidelines for 36 Migratory Shorebird Species* policy statement of the Commonwealth Department of Sustainability, Environment, Populations and Communities (SEWPaC) in the pond system until 5 years after completion of the placement of dredge spoil from the project into pond D.
- b) consider the capture, banding and marking of migratory shorebirds that currently use pond D, to track their response to the expansion works and to monitor the effectiveness of the management of pond D.
- c) Include adaptive management measures for the management of pond D taking into account the surveys conducted under (b).
- d) provide for the maintenance of pond D as a suitable high-tide roosting habitat for migratory birds including:
  - i. Restricting public access and access by animals (especially dogs);
  - ii. management and control of feral animals and other invasive species;

The Territory, as owner of the land constituting pond D as identified in Annexure 1, will not permit use of pond D in any manner or for any purpose inconsistent with maintenance of the pond as a high tide roosting habitat for migratory birds.

Darwin Port Corporation currently controls public access to the whole of the operational port area, which includes the existing pond D. The general public are not permitted access the operational port. The area is fenced to exclude unauthorised entry and the Port Environmental Protection Plan (PEPP) ensures this fencing is to be maintained, and as such ensures measures continue to be in place that will restrict public access and prevent access by feral animals. The Darwin Port Corporation, through the PEPP, has undertaken not to utilise pond D in a way inconsistent with the Territory's obligation

to maintain the pond as a suitable high-tide roosting habitat for migratory birds.

For the purpose of protecting pond D in perpetuity, the pond will be the subject of an application to be re-zoned Conservation (CN) once the outcome of the transparent and scientifically rigorous studies by Charles Darwin University outlined below have confirmed the importance of pond D as a roosting habitat for migratory birds. This approach is consistent with the EPBC Act environmental offsets policy principles and will afford pond D protection consistent with that of the 46,500 hectares of mangroves and fringing hinterland surrounding Darwin Harbour.

As part of the MBMP the Territory will, in partnership with Charles Darwin University (CDU), develop a coordinated plan to identify and monitor migratory shorebird high-tide roosts around Darwin Harbour.

This program is expected to be undertaken over a period of three years engaging a CDU PhD student on scholarship drawing on support from the Darwin Harbour Indigenous Marine Ranger Program to facilitate high-tide roost identification and migratory bird surveying. It may involve netting and tagging of birds to track movements within the harbour.

The MBMP will be submitted to the Minister within 12 months of commencing dredging and the placement of dredge spoil, and in any case prior to commencement of any further works in relation to the proposed EAW expansion works.

2. **Port Environmental Protection Plan (PEPP)** – implementing a Port Environmental Protection Plan including:
  - a) Measures to manage the risk of vessel strike to marine fauna including prescribed maximum commercial vessel speed limits; enforcement of speed limits; monitoring and reporting of vessel strike and adaptive management measures;
  - b) Measures to increase the response capacity of Darwin Harbour to respond to accidental fuel, oil or chemical spills to address the increased likelihood of a spill as a result of the increased vessel usage of the wharf;
  - c) Measures that minimise the risk of introduced marine pest species over the life of the project, including ballast water management and vessel inspections for non-domestic vessels; and
  - d) An educational campaign for port personnel including the provision of information that fosters a culture of awareness of the environmental values, including EPBC Act listed species that may occur within the project area, and the related responsibilities of the port personnel.

The Territory has, in conjunction with the Darwin Port Corporation, prepared a PEPP which will be submitted to the Minister for approval no later than 6 months from the commencement of the action.

Once approved by the Minister the PEPP will be incorporated into and implemented together with the Darwin Port Corporation's Environmental Management System.

## **TIMELINES FOR SUBMISSION AND IMPLEMENTATION OF PLANS**

### Proposed Timeline

Plan	Submit	Implement
Migratory Bird Management Plan	November 2012	December 2012 – February 2019
Coastal Offsets Plan	By April 2014	By April 2017, and then ongoing.
Port Environment Protection Plan	By end of October 2012	Ongoing from the date of Ministerial approval.

## REFERENCE

Chatto, Ray; 2003; The Distribution and Status of Shorebirds Around The Coast and Coastal Wetlands of the Northern Territory – Parks and Wildlife Commission of the Northern Territory Technical Report 73:2003.

Ecological Management Services; March 2011; East Arm Wharf Expansion Project – Terrestrial Flora and Fauna Assessment

INPEX; 2010; Ichthys Gas Field Development Project Draft Environmental Impact Statement

INPEX; 2011; Ichthys Gas Field Development Supplement to the Draft Environmental Impact Statement

Northern Territory Government; 2011(a); East Arm Wharf Expansion Project Draft Environmental Impact Statement; Department of Lands and Planning

Northern Territory Government; 2011(b); East Arm Wharf Expansion Project Supplement to the Draft Environmental Impact Statement; Department of Lands and Planning

Northern Territory Government; 2011(c); Environmental Assessment Report 67 East Arm Wharf Expansion Project; Department of Natural Resources, Environment the Arts and Sport.

Northern Territory Government; 2011(d); Response to Further Information request – East Arm Wharf Expansion [Migratory Birds]

<http://www.ga.gov.au/education/geoscience-basics/dimensions/coastline-lengths.html>

Geo Oceans report on East Arm Wharf Marine Habitat (once finalised)