Information Sheet on EAA Flyway Network Sites (SIS) – 2017 version

Available for download from http://www.eaaflyway.net/about/the-flyway/flyway-site-network/

Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing, China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13

Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network. When there is a new nomination or an SIS update, the following sections with an asterisk (*), from Questions 1-14 and Question 30, must be filled or updated at least so that it can justify the international importance of the habitat for migratory waterbirds.

2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.

3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Flyway Partnership Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

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1. Name and contact details of the compiler of this form*:

Full name: Greg Miller, Janice Worland (ex EPA)

Institution/agency: Environmental Protection Agency

Address: PO Box 15155, CITY EAST, QLD, 4002

Telephone:

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Full name: Paul O'Neill

Institution/agency: Queensland Parks and Wildlife Service - Central Region

EAAF SITE CODE FOR OFFICE USE ONLY:

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Address: PO Box 3130, Rockhampton Shopping Fair,
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Fax numbers:

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2. Date this sheet was completed*:

07/2005

3. Country*:

Australia

4. Name of the Flyway Network site*:

Accepted English transcription of the Site's name.

Shoalwater Bay

5. Map of site*:

The most up-to-date available and suitable map of the wetland should be appended to the SIS (only in digital format and shape file). The map must clearly show the boundary of the site. Please refer to the "Digitising Site Boundaries in Google Earth" file linked here.

6. Geographical coordinates (latitude/longitude, in decimal degrees)*:

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

The proposed site entails a sporadic distribution of wetland habitat along the coast, islands and bay areas.

Centre: (-22.430277, 150.558888)

Northern extremety: (-22.133333, 149.683333)

Southern extremety: (-23.05, 151.433333)

7. Elevation*: (in metres: average and/or maximum & minimum)

Less than 20 m ASL with the Island Head Creek Section between -5 and 5 m ASL. Inland terrestrial lakes and swamps: 40 - 100 m (ASL). Marine, estuarine and intertidal wetlands and riverine floodplains: 0 - 20 m (ASL).

8. Area*:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

The total area of the site is 22,310 ha.

9. General overview of the site*:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

The area includes components of three wetland complexes listed in the Directory of Important Wetlands in Australia including the Shoalwater Bay, and Island Head Creek – Port Clinton Area wetlands. Additionally, parts of the Dismal Swamp wetlands, listed in the Directory of Important Wetlands in Australia, are included in the Ramsar site. The site also features a small section of the Great Barrier Reef Marine Park and coastline.

The site is a good example of a shallow marine and estuarine complex and is particularly significant because of the extent and richness of wildlife and marine and estuarine habitats, which includes almost half the mangrove species found in Australia. These features are due to the extreme tidal range, the sheltered environment of these habitats, the relatively undisturbed nature of the area and the overlap of bioregions resulting in the assimilation of semi-arid and coastal/sub-tropical species and habitats.

The Shoalwater Bay Ramsar Site is regionally important to marine mammals (*Dugong dugon*), and sea turtles of conservation value, and includes areas that receive protection as arrears within the Great Barrier Reef Marine Park (Zones include Marine National Park, Conservation Park, General Park and Habitat Protection), EPA estate of Conservation Park, Dugong Protection Area (Type A) and includes Directory of Important Wetlands in Australia listed wetlands.

The site is also a part of, and entirely within, the greater Shoalwater Bay Military Training Area, which is Commonwealth land and unauthorised entry is prohibited by the Department of Defence. The site is the largest coastal wilderness area between Nadgee (southern New South Wales) and the Cape Melville/Starke Holding area on Cape York Peninsula (National Wilderness Inventory 1993, cited by Melzer *et al.* 1994) and provides an important feeding and roosting area for a diverse range of significant numbers of migratory and endemic birds.

10. Justification of Flyway Site Network criteria*:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,

- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a "staging site" supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The "staging site" criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

The remote location and large area of this site make regular counting difficult, but also contribute to continued habitat health. Therefore, whilst the published counts are over 10 years old and no repeat counts are available, it is assumed that the site does regularly support similar numbers of the species listed below.

The Shoalwater Bay site meets the network criteria in that it regularly[#] supports > 1% of the individuals in the population of six species of migratory shorebird. (Refer to table below)

Popular English Name	Scientific Name	* Min. Popul. Estimate	1% Criteria	Counts	Count Date(s) #	Reference
Far Eastern Curlew	*Numenius madagascariensis*	38 000	380	430 802 2844	1-1-93 12-10-95 1995	Lane, 1987 Driscoll 1995 Driscoll 1996
Great Knot	*Calidris tenuirostris*	380 000	3 800	4 200	1-1-93	Lane, 1987
Grey-tailed Tattler	*Heteroscelis (Tringa) brevipes*	40 000	400	500 3014	12-12-95 1995	QWSG database Driscoll 1996
Whimbrel	*Numenius phaeopus variegatus*	55 000	550	570 7089	1-1-93 1995	Lane, 1987 Driscoll 1996
Terek Sandpiper	*Xenus cinereus*	50 000	500	3410	1995	Driscoll 1996
Bar-tailed Godwit	*Limosa lapponica*	325 000	3 250	5077	1995	Driscoll 1996

* Minimum Population Estimates from Wetlands International (2002).

The majority of sites in the East Asian – Australasian Flyway do not have sufficient count data to meet the Ramsar guidelines for defining the term "regularly supports". Allowance has been made for sites in remote areas where only limited count information is available, and it is accepted that single counts can help establish the relative importance of the site for a species (Ramsar Convention 2000; Bamford *et al* 2006). Thus for the East Asian – Australasian flyway, Shoalwater Bay is considered to have met the 1% criterion on the basis of a limited number of counts.

11. Wetland Types*:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

The site is a marine/coastal wetland and includes the following wetland habitat types:
A, B, C, D, E, F, G, H, I, J and K.

12. Jurisdiction*:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Ministry of Agriculture/Dept. of Environment, etc.

Shoalwater Bay Defence Practice Area: Department of Defence (Army - Commonwealth) and Department of Administrative Services (Commonwealth)

State Marine Park,World Heritage Area, Dugong Protection Area and Ramsar Site*:* Great Barrier Reef Marine Park Authority (Commonwealth), Department of Environment and Heritage (Commonwealth), Queensland Environmental Protection Agency (State).
The Livingstone Shire is the site's Local Government.

13. Management authority*:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

Environmental Protection Agency, PO Box 15155, CITY EAST, QLD, 4002

14. Bibliographical references*:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

Australian Department of Environment and Heritage. (1999) *Information Sheet on Ramsar Wetlands – Shoalwater and Corio Bays Area* [online] Available: http://www.deh.gov.au/cgi-bin/wetlands/search.pl?smode=RAMSAR [09/02/04].

Australian Government (1994a). Commonwealth commission of inquiry, Shoalwater Bay, Capricornia Coast, Queensland - Final report, Australian Government Publishing Service, Canberra.

Australian Government (1994b). Commonwealth commission of inquiry, Shoalwater Bay, Capricornia Coast, Queensland - Summary. Australian Government Publishing Service, Canberra.

Australian Heritage Commission (1993). Submission to the Commonwealth Commission of Inquiry, Shoalwater Bay, Capricornia Coast, Queensland. AHC, Canberra.

Australian Nature Conservation Agency (1996) A Directory of Important Wetlands in Australia 2nd ed. Australia Nature Conservation Agency, Canberra.

Bamford, M., Watkins, D., Bancroft, W., Tischler, G. And Wahl, J. (In Press). Migratory Shorebirds of the East Asian – Australasian Flyway: Population Estimates and Internationally Important Sites. Wetlands International Global Series, and International Wader Studies. Wetlands International – Oceania. Canberra, Australia.

Byron, G.T. and Hall, M. (1995). Mangrove alliances of the Shoalwater Bay Area. Queensland Department of Environment and Heritage. In prep.

Childs, L. and Healy, R. (1995). Wildlife Preservation Society of Queensland, Capricorn Branch. Personal communication.

Coles, R., Mellors, J., Bibby, J. & Squire, B. (1987). Seagrass beds and juvenile prawn nursery grounds between Bowen and Water Park Point. Queensland Department of Primary Industries, Information Series No. Q187021.

Commonwealth Government. (1994). Interim Report, Commonwealth Commission of Inquiry, Shoalwater Bay, Capricornia Coast, Queensland, Report No. 2, March 1994. Australian Government Publishing Service, Canberra.

Driscoll, P.V. (1996). The Distribution of Waders along the Queensland Coastline, Report to the Queensland Dept of Environment and Heritage. Qld Ornithological Society and Qld Wader Study Group, 90pp.

Lane, B. (1987). Shorebirds in Australia. Nelson Publishing, Melbourne. 187pp.

Limpus, C. (2004) Turtle monitoring in Shoalwater Bay area. Personal Communication.

Melzer, R.I., Barry, S.J. and Kershaw, N.H. (1994). Flora survey - Shoalwater Bay Military Training Area. Research report No. 8. Commonwealth Commission of Inquiry, Shoalwater Bay, Capricornia Coast, Queensland. Research reports No. 5, volume B. AGPS.

Melzer, R.I., Barry, S.J., and Kershaw, N.H. (eds). (1993). Flora Survey: Shoalwater Bay Military Training Area. Final Report to the Commonwealth Commission of Inquiry, for Department of Environment and Heritage, Rockhampton.

Queensland Department of Mines. (1975a). Port Clinton, Queensland 1:250 000 Geological Series Map, Sheet SF/ 56-9. Bureau of Mineral Resources, Geology and Geophysics, Canberra.

Queensland Department of Mines. (1975b). Rockhampton, Queensland 1:250 000 Geological Series Map, Sheet SF/56-13. Bureau of Mineral Resources, Geology and Geophysics, Canberra.

Ramsar Convention Bureau. (2000). Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance of the Convention on Wetlands. Ramsar Convention Bureau, Gland. www.ramsar.org/key_guide_list_e.htm

Trnski, T., Bray, D., Leis, J., McGrouther, M. & Rader, S. (1994). Survey of Fishes of the Shoalwater Bay Training Area, Queensland. Research Report No. 6. In Commonwealth Commission of Inquiry, Shoalwater Bay, Capricorn Coast, Queensland. Research Report No. 5, Volume B. Australian Government Publishing Service, Canberra.

Watkins, D. (1993). A national plan for shorebird conservation in Australia. RAOU Report No. 90, Australasian Wader Studies Group, Royal Australasian Ornithologists Union and World Wide Fund for Nature.

Wetlands International (2002). Waterbird Population Estimates – Third Edition. Wetlands International Global Series No.12, Wageningen, The Netherlands. ISBN 90 5882 012 2

15. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Shoalwater Region:

The area contains a diversity of marine and coastal wetland types with examples of 14 of the 29 types of wetland found in Queensland. Of particular value are the eastern embayments of Port Clinton, the Port Clinton Lowlands.

Landform: The Shoalwater Bay section is formed in a large shallow marine embayment and includes associated coastal islands. Landforms include tidal flat, intertidal flat, supratidal flat, bar, beach, tidal creek, estuary, drainage depression, stream channel and swamp; uplands are flats, beach ridges and hills with high relief.

General geology: The area contains a wide diversity of landscape types, including riverine plains, swamps, old beach ridges, sand and mud intertidal flats, dunes, estuarine inlets, sand beaches flanked by coastal cliffs, undulating lowland terrain with sands earths and textured contrast soils, hills with skeletal soils and mountains. Shoalwater Bay contains five broad landforms widely represented and relatively undisturbed which include extensive lowland areas of open forest and woodland, a belt of old dune often over 300m high in the west and a coastal area comprising large parabolic dunes. Parabolic dunes appear to be of the Holocene and not Pleistocene age. These dunes are more developed than those of other areas and probably contain a better record of Holocene events. Pleistocene beach ridge landforms of Clinton Lowland are only one of three beach ridges recorded in Queensland and represents a site between the tropical and sub-tropical sites. Less than half the area's surface is solid rock. Sedimentary formations are the most common (25%) with granite formations (13%), colluvium (16%), riverine and coastal alluvium (15 and 9%), weathered deposits (8%), two volcanic formations (7%), aeolian sands (6%) and metamorphic rock (less than 2%) making up the landscape.
Soils: a wide range of soils occurs on the site. The dune areas are siliceous sands (quartzipsamments), whilst the soils of the intertidal areas and the mangroves are largely undescribed.

Climate: The climate is subtropical with short temperate winters and long humid summers (mean maximum temperature in January is 32 C, mean minimum in July is 10.50 C). Rainfall is variable within the area with the south-east having the highest rainfall (1800 mm). Fifty percent of rain falls between December and March. Streams and creeks on the eastern side derive their base flow from groundwater, predominantly in dune systems, and flow permanently. Seasonal and annual variation in rainfall have the most profound influence on the hydrology of the area and for the water supply of the catchment supplying the Capricorn Coast (Livingstone Shire). The catchments for the estuarine areas are wholly within the boundary of the Shoalwater Bay Training Area. The area represents one of a few large estuarine systems that retains a relatively undisturbed catchment.

<u>Island Head Creek Section:</u>
Landform/General geology: The section includes a group of shallow embayments and estuaries with sandy beaches, rocky headlands, extensive tidal flats, mangroves and adjacent freshwater swamps. Coastal dunes with Quaternary Aeolian sands; Quaternary/Tertiary alluvial and marine deposits in coastal swamps and sand flats; recent and Quaternary estuarine and marine

deposits in sand/mud flats and mangrove swamps; adjoined by Peninsula Range Volcanics (Permian/Cretaceous) and Shoalwater formation (Lower-Middle Devonian)(Queensland Department of Mines 1975 a, b).

Soils: predominantly sands and uniform saline clays (muds).

Climate: Rainfall exhibits high seasonal variability; >50% falls between December and March.

16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

17. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The area represents one of a few large estuarine systems that retains a relatively undisturbed catchment. Estuarine tidal waters flood the intertidal flats and channels which during wet season events are diluted to brackish levels in some areas by freshwater flooding and stream flow from the catchment.

The Shoalwater Bay catchment is that of Ross, Rocky, Mooly, Rasberry and Louisa creeks and a number of unnamed streams which drain north and east out of the Coast Range; and unnamed streams draining southwest out of the Peninsula and Colcarra ranges.

The Island Head Creek Section includes permanent, shallow, saline bays and estuaries; permanent and semi permanent, shallow freshwater swamps and dune lakes on the Clinton Lowland. Tidal range in Port Clinton can be >5m and water tends to be turbid, especially during periods of high tidal range (Trnski et al. 1994). The major source of freshwater input to Port Clinton is Sandy (Cowan) Creed, which arises to the south and is fed by groundwater from the Manifold Hills sandmass.

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

The following wetland habitats occur in or adjacent to the site:

(i) Fringing coral reefs;

(ii) Shallow open water systems including seagrass beds;

(iii) Rocky marine shores, beaches and sandbars

(iv) Intertidal sand/mudflats;
(v) Mangrove forests and melaleuca woodland;
(vi) Supratidal flat;
(vii) Freshwater swamps, streams and lagoons.

Substantial populations of shorebirds occur in the area. The wetlands are in an overlap zone between several bioregions, and many species are at or near the limits of distribution in the area. Species of the semi arid Brigalow Belt occur in association with species of coastal, tropical and subtropical affinities (Commonwealth Government 1994a).

The Ramsar site's terrestrial and five major estuarine and marine environments represent the largest area in central east Queensland containing representative coastal, subcoastal, aquatic landscapes and ecosystems which are relatively undisturbed habitat areas for significant floral and faunal assemblages, including populations of rare and threatened species. The area represents a climatic overlap zone with an unusual mix of tropical, sub-tropical and temperate species. The area also represents the largest wilderness area within the Central Mackay Coast biogeographic area and on the central Queensland coast. Such places are rare on the eastern coastline of Australia (AHC, 1993; Aust. Govt., 1994a).

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

In the Shoalwater Bay region of the site, rich aquatic beds of seagrass extend to depths of 20 m because of the clarity of the water (Melzer *et al*. 1994). Ten species of seagrass have been recorded in the bay and seven species recorded around Townshend and Leicester islands. The seagrass species present are *Halodule uninervis*, *Halophila ovalis*, *H. spinulosa*, *H. ovata*, *H. decipiens*, *Zostera capricorni*, *Halodule pinifolia* and *Cymodocea serrulata* (Coles *et al*. 1987). Forty-three percent (18 of 39 species) of all mangrove species recorded in Australia are noted as occurring in the area (Melzer *et al*. 1993, Byron and Hall 1995) including golden mangrove fern *Acrostichum speciosum*, *Acanthus ilicifolius*, *Lumnitzera racemosa*, *Excoecaria agallocha*, *Xylocarpus granatum*, *Aegiceras corniculatum*, *Osbornia octodonta*, *Aegialitis annulata*, *Bruguiera exaristata*, *B. gymnorhiza*, *Ceriops australis*, *C. tagal*, *Rhizophora apiculata*, *R. stylosa Scyphiphora hydrophyllacea*, *Sonneratia alba* and *Avicennia marina*.

The Island Head Creek Section provides habitat for the greatest diversity of the 18 species of mangroves occurring in the area. The vanilla lily *Sowerbaea subtilis* (Nv), swamp orchid *Phaius*

tancarvilliae (Nv, Se), bog clubmoss *Lycopodiella serpentina* and comb fern *Schizaea malaccana* and likely to occur in the Clinton Lowland wetlands.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

The site contains a high diversity of marine and estuarine fish species. Trnski *et al*. (1994) noted 428 species within the area. The site also provides potential habitat for the threatened honey blue-eye *Pseudomugil mellis* (Nv, Sv) and oxleyan pygmy-perch *Nannoperca oxleyana* (Nv)(Trnski et al. 1994). 71 species of marine fish reach their distributional limits in the Shoalwater Bay area (Trnski et al. 1994) and 13 commercial fisheries species have strong mangrove habitat association

The site provides an important habitat for both local and migratory birds. One-third of Australia's bird species have been seen in the area. Sixteen species of holarctic breeding, migratory waders have been recorded in the area with numbers for six species exceeding one percent of their population in the Asian - Australian flyway. The area is internationally identified as important to the eastern curlew *Numenius madagascariensis* (Sr), whimbrel *N. phaeopus* and great knot *Calidris tenuirostris* (Watkins 1993). Significant numbers of the threatened beach thick-knee *Esacus neglectus* (Sv) occur in the area. A total of twenty six bird species listed under the JAMBA, and twenty seven species under the CAMBA occur in the area.

Four species of marine turtles occur in the area: loggerhead *Caretta caretta* (Ne, Se), green *Chelonia mydas* (Nv, Sv), hawksbill *Eretmochelys imbricata* (Nv, Sv) and flatback *Chelonia depressa* (Sv). The area supports the largest feeding population of green turtles on the east coast of Australia.

The site contains the most extensive area of *Dugong dugon* (Sv) habitat in the Mackay-Capricorn section of the Great Barrier Reef (Australian Government 1994). The estuarine crocodile *Crocodylus porosus* (Sv) is reported to occur in the area in low numbers. Additionally, the dense mangrove swamps provide potential habitat for the water mouse (false water-rat) *Xeromys myoides* (Nv,Sr).

The area is a significant overlap zone for tropical, subtropical and temperate species in all fauna groups and several species of birds and frogs are at or near their distributional limits in this area. The region is distinct in that it contains the only catchment along the east coast of Australia where non-native fish are absent from the estuarine and freshwater wetlands.

21. Social, economic and cultural values:

a) Describe if the site has any general social, economic and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The area has significant Aboriginal cultural heritage values and includes part of the traditional lands of the Darumbal Aboriginal people who have not had access to the area since dispossession. The dunefields contain archaeological sites consisting of shell middens and scatters of stone tools, possible stone arrangements and dinner camp sites. Some sites are extensive and contain sub-surface in-situ deposits. Further research is required to identify and describe sites. Early European maritime explorers Cook, Flinders and Jukes made landfalls in Shoalwater Bay. The area contributes significantly to the production of important regional commercial fisheries and provides opportunity for recreation and wilderness appreciation. The area contains the catchment of the fresh water supply of the Capricorn Coast. The low level of disturbance and natural richness and diversity of the site makes it particularly important as a benchmark for scientific research. Part of the site was acquired by the Department of Defence in 1965 for military training purposes and access to these areas by non military personnel is restricted. There are three Native Title Claims over the site as detailed in the Appendix.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? (Double-click the checkbox to check and choose “Checked” under “Default Value” from “Check Box Form Field Options” window)

If yes, tick the box ❑ and describe this importance under one or more of the following categories:

I. Sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland: ☐
II. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland: ☐
III. Sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples: ☐
IV. Sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland: ☐

22. Land tenure/ownership:

a) Within the Flyway Network site:

The area is multiple tenure and includes the military training grounds and State Marine Park in the Shoalwater Bay region, Freehold and leasehold, crown land and coastal

waters of marine park general use; and military training reserve in the Island Head Creek section.

b) In the surrounding area:

Multiple tenure including military training area, national park, state forest, leasehold, freehold, vacant crown land, Conservation Park, sand mining leases and marine park.

23. Current land (including water) use:

a) Within the Flyway Network site:

The Shoalwater Bay area has been gazetted as a Defence Practice Area under the Defence Act 1903. The Commission of Inquiry acknowledged that Defence use should be the primary use of the Area but recommended 'that conservation use of the area as a whole - land and sea - be elevated in importance and explicitly recognised as being a concurrent and equally significant use with Defence use of the area' (Aust. Govt., 1994a). Defence activities within the nominated area are localised and are appropriately managed under the areas integrated management plan. There has been an increase in the use of the Freshwater Sector by Aboriginal people as they renew their cultural and spiritual links to the land. Deliberate burning, as a fire control measure, occurring in the past during Aboriginal and pastoralist occupation has had some impact on the area. Commercial and recreation fishing/crabbing is an important activity and minor tourism and other recreation activities also occur. Oyster banks in the area are licensed by the Department of Primary Industries and Fishing. Parts of the site are also contained within the boundaries of two granted exploration permits for petroleum, one granted mineral exploration permit and two granted mineral development licences. There is also an application for an exploration permit for coal of which the boundaries will include part of the site. Details of these sites are found in the Appendix.

b) In the surroundings/catchment:

Military training, commercial and recreational fishing, agriculture and extensive grazing. Around Shoalwater Bay commercial and recreational fishing, agricultural and pastoral activities, and recreation activities are limited. Possible Changes in Land and Marine Use: Future growth in marine based tourism and increased recreational activities, particularly in the area of ecotourism. Aboriginal interest in the Shoalwater Bay area is increasing as the dispossessed people rediscover their cultural ties with the area.

24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) Within the Flyway Network site:

Current: Military training activities has caused some minor, localised damage. Illegal fish netting may be having significant adverse effects upon Dugong populations. There is pressure on fish/crab stocks from the rate of commercial and recreational fishermen. The south-eastern area of the site is also impacted by run off from agriculture and damage to nesting grounds by grazing stock. Otherwise there is little disturbance to the area.

Potential: Other than increasing pressure from recreational fishermen in the Island Head Creek section no factors are perceived as potential damaging to the area as it is subject to strict controls. Prohibition of trawling in much of the area and the current low level use for tourism and recreation limit the threat to the values of the area.

b) In the surrounding area:

25. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The site is part of a more extensive site encompassed by the Shoalwater Bay Military Training Area. It is subject to the following Commonwealth legislation: Environment Protection (Impact of Proposals) Act 1974; Great Barrier Reef Marine Park Act; Defence Act 1903; Endangered Species Protection Act 1993; National Parks and Wildlife Conservation Act 1975; Whale Protection Act 1980; and Australian Heritage Commission Act 1975. Principal state legislation that will effect the area is as follows: Nature Conservation Act 1992; Marine Parks Act 1982, 1988: Queensland Marine Act 1958-1985; Fisheries Act 1976-1984, 1994; and Water Resources Act 1989. The Shoalwater Bay Inquiry (Australian Government 1994) made thirty five recommendations regarding the future use of the area, requiring in essence: `that by reason of the outstanding National Estate and World Heritage values, in particular its biodiversity and wilderness values and the ecological integrity of the whole area, including land and sea, the Area be conserved as an Area of national, state and regional significance. Future management of permissible uses and activities in the Area should be undertaken in such a way as to ensure that these values are not degraded', and `that conservation use of the area as a whole - land and sea - be elevated in importance and explicitly recognised as being a concurrent and equally significant use with Defence use of the area'. The Inquiry also led to the preparation of the Shoalwater Bay Strategic Plan 1996, which incorporates land management plans for the area developed by the Queensland EPA and the Great Barrier Reef Marine Park Authority.

The entire area is within the Mackay-Capricorn Marine Park and managed within the provisions of its zoning plan. Conservation management of the marine areas is the responsibility of the Great Barrier Reef Marine Park Authority, the Environmental Protection Agency and the Department of Primary Industries and Fisheries. Parts of the Shoalwater Bay and Island Head Creeks sections of the site, together with a portion of the Dismal Swamp wetland, form part of the Shoalwater Bay Ramsar Site. The area was a joint nomination by the Department of Environment and Heritage, the Australian Nature Conservation Agency, Great Barrier Reef Marine Park Authority (GBRMPA) and the Dept of Defence. Much of the marine environment is managed under complimentary zoning plans of the Commonwealth Great Barrier Reef Marine Park and of the Queensland Mackay/Capricorn Marine Park. Feral animal and pest plant controls are effectively being implemented. The site is also listed in the Directory of Important Wetlands in Australia.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia ☐; Ib ☐; II ☐; III ☐; IV ☐; V ☐; VI ☐; N/A ☐

c) Does an officially approved management plan exist; and is it being implemented?:

If yes, is it being implemented?: If no, is one being planned?

d) Describe any other current management practices:

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Future growth potential in marine based ecotourism may require a planning exercise in accordance with the National Ecotourism Strategy. Management strategies are being developed with fisheries to counter adverse impacts.

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

It is believed the low level of disturbance, high wilderness value and diverse plant communities and integrity of the many ecosystems make the area an ideal benchmark for scientific research. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) established at least 20 permanent reference sites in the area during 1972-73. These were broadly

characterised and measurements of fuel accumulation and the occurrence of fire recorded for a number of years.

Directed by Col Limpus of the QLD EPA, ongoing monitoring of turtle population dynamics has occurred in western Shoalwater Bay since 1986. Species include the green, loggerhead, hawksbill and flatback turtles. The project is based on a tag-recapture method of research, with records including capture site, turtle measurements, sex, maturity and breeding status of each captured turtle documented. These records allow detailed descriptions of herd composition and changes, growth rates, breeding rates and geographical range to be monitored and assessed (Limpus, C. pers. comm.).

28. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Local conservation groups regularly provide information on the area to various local, national and international interest groups. Dugong and turtle issues have been a focus for marine education in the region. Central Queensland University and other educational and research institutions use the area for research and educational purposes (Childs and Healy, pers. comm., 1995).

29. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Very limited recreation and tourist activity due to minimal vehicle access and development, the remoteness of site and restricted public access to the area due to military training.

30. Threats*:

Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas	☐	☐	☐
commercial and industrial areas	☐	☐	☐
tourism and recreation areas	☐	☐	☐
Agriculture and aquaculture			
annual and perennial non-timber crops	☐	☐	☐

wood and pulp plantations	☐	☐	☐
livestock farming and ranching	☐	☐	☐
marine and freshwater aquaculture	☐	☐	☐
Energy production and mining			
oil and gas drilling	☐	☐	☐
mining and quarrying	☐	☐	☐
renewable energy	☐	☐	☐
Transportation and service corridors			
roads and railroads	☐	☐	☐
utility and service lines	☐	☐	☐
shipping lanes	☐	☐	☐
flight paths	☐	☐	☐
Biological resource use			
hunting and collecting terrestrial animals	☐	☐	☐
gathering terrestrial plants	☐	☐	☐
logging and wood harvesting	☐	☐	☐
fishing and harvesting aquatic resources	☐	☐	☐
Human intrusions and disturbance			
recreational activities	☐	☐	☐
war, civil unrest and military exercises	☐	☐	☐
work and other activities	☐	☐	☐
Natural system modifications			
fire and fire suppression	☐	☐	☐
dams and water management/use	☐	☐	☐
other ecosystem modifications	☐	☐	☐
Invasive and other problematic species and genes			
invasive non-native/alien species	☐	☐	☐
problematic native species	☐	☐	☐
introduced genetic material	☐	☐	☐
Pollution			

household sewage and urban waste water	☐	☐	☐
industrial and military effluents	☐	☐	☐
agricultural and forestry effluents	☐	☐	☐
garbage and solid waste	☐	☐	☐
air-borne pollutants	☐	☐	☐
excess energy	☐	☐	☐
Geological events			
volcanoes	☐	☐	☐
earthquakes/tsunamis	☐	☐	☐
avalanches/landslides	☐	☐	☐
Climate change and severe weather			
habitat shifting and alteration	☐	☐	☐
droughts	☐	☐	☐
temperature extremes	☐	☐	☐
storms and flooding	☐	☐	☐

Please write here any additional threats and comments/queries you have on the threats.

Annex 1: Criteria for the inclusion of sites in the Flyway Site Network

(From the Partnership Text)

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criteria:

a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:

   Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

   Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

   Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:

   i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.

   ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.

c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case by case basis.

Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

Marine/Coastal Wetlands

A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.

B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.

C -- **Coral reefs**.

D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.

E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.

F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.

G -- **Intertidal mud, sand or salt flats**.

H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.

I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.

J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.

K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.

Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

Inland Wetlands

L -- **Permanent inland deltas**.

M -- **Permanent rivers/streams/creeks**; includes waterfalls.

N -- **Seasonal/intermittent/irregular rivers/streams/creeks**.

O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.

P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.

Q -- **Permanent saline/brackish/alkaline lakes**.

R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats**.

Sp -- **Permanent saline/brackish/alkaline marshes/pools**.

Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools**.

Tp -- **Permanent freshwater marshes/pools**; ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.

Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils**; includes sloughs, potholes, seasonally flooded meadows, sedge marshes.

U -- **Non-forested peatlands**; includes shrub or open bogs, swamps, fens.

Va -- **Alpine wetlands**; includes alpine meadows, temporary waters from snowmelt.

Vt -- **Tundra wetlands**; includes tundra pools, temporary waters from snowmelt.

W -- **Shrub-dominated wetlands**; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.

Xf -- **Freshwater, tree-dominated wetlands**; includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.

Xp -- **Forested peatlands**; peatswamp forests.

Y -- **Freshwater springs; oases**.

Zg -- **Geothermal wetlands**

Zk(b) – **Karst and other subterranean hydrological systems**, inland

Note: "**floodplain**" is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

Human-made wetlands

1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**

2 -- **Ponds**; includes farm ponds, stock ponds, small tanks; (generally below 8 ha).

3 -- **Irrigated land**; includes irrigation channels and rice fields.

4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).

5 -- **Salt exploitation sites**; salt pans, salines, etc.

6 -- **Water storage areas**; reservoirs/barrages/dams/impoundments (generally over 8 ha).

7 -- **Excavations**; gravel/brick/clay pits; borrow pits, mining pools.

8 -- **Wastewater treatment areas**; sewage farms, settling ponds, oxidation basins, etc.

9 -- **Canals and drainage channels, ditches.**

Zk(c) -- **Karst and other subterranean hydrological systems**, human-made

Annex 3: IUCN Protected Areas Categories System

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognised by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

Ia Strict Nature Reserve
Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Ib Wilderness Area
Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park
Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature
Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area
Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape
A protected area where the interaction of people and nature over time has produced an area of distinct charcter with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.