

Information Sheet on Ramsar Wetlands

As approved by Rec.C.4.7 of the Conference of the Contracting Parties, Montreux, Switzerland - July 1990

NOTE: Please read the accompanying guidelines before attempting to complete this form. An example of a completed data sheet is also included.

Completed sheets should be returned to: T.A. Jones, Ramsar Database, IWRB, Slimbridge, Gloucester GL2 7BX, England

1. Country: United States of America 2. Date: 1992 3. Ref: office use only 4US011

4. Name and address of compiler:

USFWS

5. Name of wetland: Delaware Bay Estuary Wetlands system

6. Date of Ramsar designation:

7. Geographical coordinates: 38°47'N to 39°35'N 74°52'W to 76°36'W

8. General location: (e.g. administrative region and nearest large town)

The Delaware Bay begins about 15 miles SW of Philadelphia P.A.

9. Area: (in hectares)

58,235 ha

10. Wetland type: (see attached classification, also approved by Montreux Rec.C.4.7)

A, B, F, G, H, M, Q

11. Altitude: (average and/or maximum & minimum)

-30 meters to +7 meters

12. Overview: (general summary, in two or three sentences, of the wetland's principal characteristics) Delaware Bay Wetland Complex
a large complex of estuarine ~~and~~ wetlands around a shallow wide bay that extends N-NW up the valley of the Delaware river for ~200 Km. It is one of the main resting areas for waterbirds

13. Physical features: (e.g. geology; geomorphology; origins - natural or artificial; hydrology; soil type; water quality;

water depth; water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate) The Delaware Bay is situated near the border of the Appalachian Piedmont and the Atlantic Coastal Plain physiographic provinces. The rocks of the Piedmont province are hard crystalline and old while the coastal plain consists of largely unconsolidated clays and sands that form a series of aquifers. The Piedmont province forms the west edge of the Bay above Wilmington, DE, but turns west ~~to~~ south that point, resulting in the Atlantic Coastal Plain forming the west shore, south of Wilmington and all of the Eastern shore. Soils are usually Aquults, Histols and Entisols. Salinity varies from 0 near Wilmington DE to >30 ppt at the mouth of the Bay between Cape Henlopen and Cape May

14. Ecological features: (main habitats and vegetation types)

The Delaware Bay marks the
The Delaware Bay has a wide and varied association of wetlands. In the high salinity zone (Polyhaline), typical tidemarch plant saltmarsh hay (Spartina patens), saltmarsh cordgrass (Spartina alterniflora), salt grass (Distichlis spicata) and saltwort (Salicornia). Medium salinity (mesohaline) plants found include saltmarsh cordgrass (Spartina alterniflora), big cordgrass (Cynosuroides), water hemp (Acrida) and arrow arum (Peltandra). Low salinity areas (oligohaline) plants such as arrowhead (Sagittaria), cattail (Typha), and yellow pond lily (Najas) are found. In the higher portions of the marshes and along upland margins, plants such as sea myrtle (Baccharis), marsh elder (Iva) and witchgrass (Panicum) are dominant

15. Land tenure /ownership of:

(a) site *Mixed multiple ownership w/a large proportion in Federal or State control*

(b) surrounding area *Mixed multiple owners*

16. Conservation measures taken: (national category and legal status of protected areas - including any boundary changes which have been made; management practices; whether an officially approved management plan exists and whether it has been implemented)

Much of the designated area is in national or state wildlife refuges or game management areas. In addition about 4000 ha are included in private conservation holdings that are part of the designation.

17. Conservation measures proposed but not yet implemented: (e.g. management plan in preparation; officially proposed as a protected area etc.)

Additional wetland areas on the Cape May Peninsula are to be added, totaling some 2400 ha. Cape May County is restoring 350ac of wetland which is to be added to the nomination.

18. Current land use: principal human activities in:

(a) site *Commercial & sport fishing
Sport hunting*

(b) surroundings/catchment *Urban, industrial development occurs at the head of the Bay, Agriculture is found in most other areas*

19. Disturbances/threats, including changes in land use and major development projects:

(factors which may have a negative impact on the ecological character of the wetland)

(a) at the site *shoreline development is occurring in some areas.*

Old salt hay sites need to be rejuvenated to allow for daily tidal inundation. In the past a periodic dissolved oxygen deficiency resulted in a "pollution block" which fish could not penetrate occurred at certain times of the year.

(b) in the surroundings/catchment *Agricultural, industrial & urban pollution is producing changes in the marshes. Greater control of Toxic chemical discharges into water is needed*

20. Hydrological and physical values: (groundwater recharge, flood control, sediment trapping, shoreline stabilisation etc.)

The Delaware Bay wetlands are important for the maintenance of water quality and reducing flood and storm damages.

21. Social and cultural values: (e.g. fisheries production, forestry, religious importance, archaeological site etc.)

The Delaware Bay is extremely important to commercial and sport fisheries as a spawning ground for fish. The Bay has supported a blue crab (*Callinectes sapidus*) commercial fishery for over 100 years.

Hunting of migratory waterfowl has been a sporting pursuit in the bay for many years.

22. Noteworthy fauna: (e.g. unique, rare, endangered, abundant or biogeographically important species; include count data etc.)

The Delaware Bay hosts the largest population of horseshoe crabs in the world. 90% of the populations of 5 shorebirds arrive at the time of horseshoe crab spawning. The birds are on their spring migration from South America feed heavily on the horseshoe crab eggs before continuing to the Canadian Arctic to nest. The main species are semipalmated sandpiper (*Calidris pusilla*), ruddy turnstone (*Arenaria interpres*), red knot (*Calidris canutus*) and sandpiper (*Calidris alba*). Fifteen species of waterfowl overwinter in the Bay estuary (~500,000 individuals). Black ducks, gadwall, mallards and other species nest in the bay. In addition populations of federal and state endangered & threatened species are found, including: bald eagle, peregrine falcon, piping plover, pied billed grebe, short eared owl, Delmarva fox squirrel and shortnose sturgeon.

23. Noteworthy flora: (e.g. unique, rare, endangered, or biogeographically important species/communities etc.)

The tidal wetlands of the Delaware Bay include several rare or endangered species including Parker's pipewort (*Eriocaulon parkeri*), swamp luggar-ticks (*Bidens bidensoides*), southern cattail (*Typha domingensis*).

24. Current scientific research and facilities: (e.g. details of current projects; existence of field station etc.)

University of Delaware is studying nutrient cycling, primary production, marsh geological processes and invertebrate and fish populations at the Lewes marine research station. Studies and monitoring of waterfowl and muskrat populations are continuously conducted by US Fish & Wildlife Service and the state wildlife agencies of Delaware and New Jersey.

25. Current conservation education: (e.g. visitors centre, hides, information booklet, facilities for school visits etc.)

26. Current recreation and tourism: (state if wetland used for recreation/tourism; indicate type & frequency/intensity)

An estimated \$37 million dollars was spent by hunters in 1989. Other non-hunting and fishing recreation visitors spent an estimated 11 million dollars annually during the 1980's. Fishing activities are extensive in the Delaware Bay.

27. Management authority: (name and address of body responsible for managing the wetland)

28. Jurisdiction: (territorial e.g. state/region and functional e.g. Dept of Agriculture/Dept of Environment etc.)

Delaware Department of Natural Resources
& Environmental Control
Division of Environmental Control
89 Kings Highway
Dover, DE 19903

New Jersey Department of
Environmental Protection

29. Bibliographical references: (scientific/technical only)

Finer, R. W., Jr. 1985. Wetlands of New Jersey. U. S. Fish and Wildlife Service, National Wetlands Inventory, Newton Corner, MA. 117 pp.

Finer, R. W., Jr. 1985. Wetlands of Delaware. U. S. Fish and Wildlife Service, National Wetlands Inventory, Newton Corner, MA and Delaware Dept. of Natural Resources and Environmental Control, Wetlands Section, Dover, DE. 77 pp.

30. Reasons for inclusion: (state which Ramsar criteria - as adopted by Rec.C.4.15 of the Montreux Conference - are applicable)

31. Map of site (please enclose the most detailed and up-to-date map available - preferably at least 1:25,000 or 1:50,000)