



# Cape Jourimain National Wildlife Area Management Plan 2018



#### Acknowledgements

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# About Environment and Climate Change Canada's Protected Areas and Management Plans

#### What are Environment and Climate Change Canada protected areas?

Environment and Climate Change Canada establishes marine and terrestrial National Wildlife Areas for the purposes of conservation, research and interpretation. National Wildlife Areas are established to protect migratory birds, species at risk, and other wildlife and their habitats. National Wildlife Areas are established under the authority of the *Canada Wildlife Act* and are, first and foremost, places for wildlife. Migratory Bird Sanctuaries are established under the authority of the *Migratory Birds Convention Act*, *1994* and provide a refuge for migratory birds in the marine and terrestrial environment.

# How has the federal government's investment from Budget 2018 helped manage and expand Environment and Climate Change Canada's National Wildlife Areas and Migratory Bird Sanctuaries?

The Nature Legacy represents a historic investment over five years of \$1.3B and will help ECCC expand its national wildlife areas and migratory bird sanctuaries to contribute to Canada's biodiversity targets and increase ECCC's capacity manage its protected areas.

ECCC will be conserving more areas, and have more resources to effectively manage and monitor the habitats and species who reside in its protected areas

## What is the size of the Environment and Climate Change Canada Protected Areas Network?

The current Protected Areas Network consists of 55 National Wildlife Areas and 92 Migratory Bird Sanctuaries, comprising more than 14 million hectares across Canada.

#### What is a management plan?

A management plan provides the framework in which management decisions are made. They are intended to be used by Environment and Climate Change Canada staff to guide decision making, notably with respect to permitting. Management is undertaken in order to maintain the ecological integrity of the protected area and to maintain the attributes for which the protected area was established. Environment and Climate Change Canada prepares a management plan for each protected area in consultation with First Nations, the public and other stakeholders.

A management plan specifies activities that are allowed and identifies other activities that may be undertaken under the authority of a permit. It may also describe the necessary improvements needed in the habitat, and specify where and when these improvements should be made. A management plan identifies Aboriginal rights and allowable practices specified under land claims agreements. Further, measures carried out for the conservation of wildlife must not be inconsistent with any law respecting wildlife in the province in which the protected area is situated.

#### What is protected area management?

Management includes monitoring wildlife, maintaining and improving wildlife habitat, periodic inspections, enforcement of regulations, as well as the maintenance of facilities and infrastructure. Research is also an important activity in protected areas; hence, Environment and Climate Change Canada staff carries out or coordinates research in some sites.

#### The series

All of the National Wildlife Areas are to have a management plan. All of these management plans will be initially reviewed 5 years after the approval of the first plan, and every 10 years thereafter.

#### To learn more

To learn more about Environment and Climate Change Canada's protected areas, please visit our website at <u>https://www.canada.ca/en/environment-climate-</u> change/services/national-wildlife-areas.html or contact the Canadian Wildlife Service in Ottawa.

## **Cape Jourimain National Wildlife Area**

Cape Jourimain National Wildlife Area (NWA) is a prominent coastal headland on the Cape Tormentine peninsula on the Northumberland Strait in southeast New Brunswick (46°09'N 63°49'W). This 621 ha protected area is situated immediately adjacent to the village of Bayfield (Figure 1). Following the transfer of 205 ha from the federal Department of Public Works in 1977 and the purchase of additional privately owned lands in 1979, this site was established as an NWA in 1980 (Figure 1).

Situated at the closest point between New Brunswick and Prince Edward Island, Cape Jourimain has long been recognized for its historic, economic, strategic and biological importance. This location was used by the region's First Nations – mostly from Mi'kmaq Nation who use throughout the entire Northumberland Strait coast, including the Cape Jourimain headland - and, following European settlement, became a winter sea connection between the two provinces in the 19th century. The first attempt to build a permanent link across the strait was initiated in the mid-1960s, when the construction of a road and railway bed, known locally as the "causeway," connected Trenholm and Jourimain islands with the mainland. This "causeway" is now part of the Trans-Canada Highway Route 16, which forms the New Brunswick approach to the Confederation Bridge and divides the NWA into two segments. Jourimain Island is the mainland terminus of the Confederation Bridge as well as the site of the Cape Jourimain Nature Centre's information, museum and restaurant complex.

Cape Jourimain is composed of a variety of habitat types: fresh and saltwater wetlands, areas of early field succession, and mixed and fir/spruce forest. Important features within the NWA include a stand of remnant coastal hardwood, known as Oak or Allen's Island, surrounded by a dense thicket of poison ivy (*Toxicodendron radicans*) and ground nut (*Apios americana*), and a small forest dominated by eastern white cedar (*Thuja occidentalis*).

The wetlands within Cape Jourimain NWA support some 2000 migrating waterfowl and 40 new broods annually, predominantly American black duck (*Anas rubripes*) and Canada goose (*Branta canadensis*). Twenty-six species of shorebirds and a great diversity of other water birds have been recorded on its marshes. Endangered species such as the peregrine falcon (*Falco peregrinus*) and piping plover (*Charadrius melodus*) and nesting raptors including the osprey (*Pandion haliaetus*), northern harrier (*Circus cyaneus*) and great horned owl (*Bubo virginianus*) frequent the area.

Migrating birds use the Cape Jourimain peninsula as a reference point or landfall location. Significant flights of American robin (*Turdus migratorius*), common redpoll (*Carduelis flammea*) and black-capped chickadee (*Poecile atricapillus*) can be seen passing through the NWA. Offshore seabird and seaduck movements through the Northumberland Strait are constricted at Cape Jourimain, and the NWA provides an ideal site for observing and studying these phenomena (MacKinnon *et al.* 1991; Hicklin and Bunker-Popma 2001; MacKinnon and Kennedy 2006).

#### **Co-management**

The Cape Jourimain Nature Centre Inc. operates within the Cape Jourimain NWA under licence. The not-for-profit Nature Centre maintains a building complex that supports an information centre, gift shop, museum and restaurant. Associated with the centre is a series of walking trails directing visitors to areas of interest within the NWA.

#### Cape Jourimain NWA is helping to Connect Canadians to Nature

This site has been selected as one of ten NWAs to be part of the Connecting Canadians to Nature initiative. This initiative will invest funding on selected sites over five years (2015-2020) and beyond to improve access infrastructure and to support the development of interpretive on-site programming delivered through collaborative partnerships. The purpose of the initiative is to provide Canadians with more opportunities to recreate and connect to nature on federal lands managed on their behalf, where these activities will not interfere with the conservation of wildlife and are consistent with the objectives of the site.

This NWA was selected to implement the initiative because of its existing appeal to visitors (estimated in 2015 to be approximately 90,000 visitors per year), its proximity to nearby urban areas and major routes (Trans-Canada Highway and Confederation Bridge), an existing network of trails, and its well-established interpretation center and on-going interpretive programs.

Cape Jourimain NWA was originally selected as a protected area to preserve a unique complex of diverse coastal wetlands for waterfowl (Barkhouse 1977). Conservation priorities have shifted over time, but the maintenance and management of habitats for wetland birds, migratory birds and species at risk continues to be a priority. The management approach for Cape Jourimain seeks to respond only to negative human activities as they may arise; while

prevention of impacts is the preferred approach of the not-for-profit Cape Jourimain Nature Centre Inc. which promotes sensitive public use and conservation education.

For greater certainty, nothing in this management plan shall be construed so as to abrogate or derogate from the protection provided for existing Aboriginal or treaty rights of the Aboriginal peoples of Canada by the recognition and affirmation of those rights in section 35 of the *Constitution Act, 1982*.

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### 1. DESCRIPTION OF THE PROTECTED AREA

Cape Jourimain National Wildlife Area (NWA) is located on the Cape Tormentine peninsula in southeastern New Brunswick (Figure 1). This prominent coastal headland lies at the narrowest point of the Northumberland Strait, which separates New Brunswick and Prince Edward Island. The NWA contains 621 ha divided into two segments by Trans-Canada Highway Route 16. Established in 1980, this NWA encompasses an extraordinary variety of ecosystems and provides refuge for some 170 species of native and migratory birds.

The NWA is composed of two upland islands: Jourimain Island, lying on the outer edge of the headland, and Trenholm Island, the inner island. The islands are connected to the mainland by an extensive system of brackish and coastal salt marshes, and a prominent dune ridge on the western boundary. A causeway linking the islands to the mainland was constructed in the mid-1960s. Later upgraded as Route 16 on the New Brunswick approach to the Confederation Bridge, this road has had a significant impact on the ecology of the NWA. The road's construction changed the tidal flow at the head of the marsh and created two large brackish lagoons that have proven beneficial to and expanded the number of bird species utilizing the area.

As recently as one hundred years ago, the lands comprising Cape Jourimain NWA consisted of dyked and drained salt marshes and upland farms, surrounded by open, windswept fields. The appearance of the area today is dramatically different, dominated by White Spruce (*Picea glauca*) forests and free-flowing salt marshes that veil the area's past as a settlement. It is this blend of human and natural history that makes Cape Jourimain unique not only for its biological diversity but also as a living lesson in historical ecology.

Cape Jourimain NWA represents an important staging and migration area for waterfowl and other wetland obligate birds. The NWA is also noted for the diversity of shorebird species that are found throughout its wetlands. While nearby sites such as the Mary's Point Section of the Shepody NWA may support roosting Semipalmated Sandpiper (*Calidris pusilla*) in the tens of thousands, Cape Jourimain NWA boasts lesser numbers of individual shorebird species but in a much greater diversity (MacKinnon and Hicks 1991).

Lands at Cape Jourimain are owned by the Government of Canada and administered by Environment and Climate Change Canada's Canadian Wildlife Service under the *Wildlife Area Regulations* of the *Canada Wildlife Act* (Table 1). The Cape Jourimain Nature Centre Inc. operates an interpretation centre under a Lease and Master Development Agreement with Environment and Climate Change Canada. Cape Jourimain is an International Union for Conservation of Nature Category IV Protected Area.

Protected area designation	National Wildlife Area	
Province or territory	New Brunswick	
Latitude and longitude	46°09'N 63°49'W	
Size (ha)	621 ha	
Protected area designation criteria	<ul> <li>Historic: Protecting an area with concentrations of birds.</li> <li>Current: Criteria 1(a), where "the area supports a population of a species or subspecies or a group of species that is concentrated, for any portion of the year".</li> <li>The area also satisfies criteria 2(b), where "the area has special value for maintaining the genetic and ecological diversity of a region because of the quality and uniqueness of its flora and fauna".</li> </ul>	
Protected area classification system	Reference: PA Manual Appendix 8 (Environment and Climate Change Canada 2005)	
International Union for Conservation of Nature (IUCN) classification	IV	
Order in Council number	P.C 1980-1480	
Directory of Federal Real Property (DFRP) number	22845	
Gazetted	June 5, 1980	
Additional designations	No additional designations	
Faunistic and floristic importance	Significant coastal wetlands (freshwater and saltwater marshes). High diversity of habitats for a small area. Important area for waterfowl and wetland birds.	
Invasive species	Glossy buckthorn ( <i>Rhamnus frangula</i> ), purple loosestrife ( <i>Lythrum salicaria</i> )	
Species at risk	The NWA supports six species at risk under the federal <i>Species at Risk Act.</i> Common nighthawk ( <i>Chordeiles minor</i> ), monarch ( <i>Danaus plexippus</i> ), peregrine falcon ( <i>Falco peregrinus anatum</i> ), piping plover ( <i>Charadrius melodus melodus</i> ), rusty blackbird ( <i>Euphagus carolinus</i> ) and shorteared owl ( <i>Asio flammeus</i> )	
Management agency	Canadian Wildlife Service	
Public access and use	Public access to the National Wildlife Area allowed on the designated trail system, beach and an observation tower. Over 80 000 people per year visit the Cape Jourimain Nature Centre.	

Table 1: Information on Cape Jourimain NWA



Figure 1: Cape Jourimain NWA, New Brunswick



Figure 2: A rich diversity of wetlands and woodlands make up the Cape Jourimain NWA, New Brunswick Photo: A. Macfarlane © Environment and Climate Change Canada

#### 1.1 REGIONAL CONTEXT

Cape Jourimain NWA is situated within the Atlantic Maritime Ecozone. One of 15 terrestrial ecozones in Canada, the Atlantic Maritime Ecozone includes all of New Brunswick, Prince Edward Island, Nova Scotia and Quebec's Gaspé Peninsula. Within this ecozone, the NWA is situated within the Maritime Lowlands Ecoregion (Figure 3). In New-Brunswick, this area consists of a flat to gentle rolling landscape that extends from Bathurst in the north to Sackville on the New Brunswick and Nova Scotia border. The underlying geology is predominantly late Carboniferous sedimentary rock (Zelazny 2007). Within this ecoregion, the NWA is located within the Pictou-Cumberland Lowlands Ecodistrict (Figure 3). Cape Jourimain headland is known to be part of the Acadian forest.

The Gulf of St. Lawrence is a low-energy system compared with the Atlantic Coast, and has a much smaller tidal range compared with the Bay of Fundy (Roland 1982). Tidal ranges are 2–4 m with mixed components of semidiurnal and diurnal influences. Tides in the western gulf are mainly diurnal with a period of 25 hours, and, on some days, tides can remain high for

12 hours (Davis and Browne 1996). The Gulf of St. Lawrence coast consists of a low elevation plain (Fensome and Williams 2001) and is influenced by the transport of sandy materials, with many barrier islands, dunes, lagoons and barachois ponds. Residential development attracted by the presence of sandy beaches, warm water and flat topography is the primary land use alteration affecting salt marsh habitat and other coastal habitats in the Gulf of St. Lawrence, and it is resulting in the infilling of salt marshes and alteration of adjacent habitat (Maillet 2000; Milewski *et al.* 2001). There has been little dyking and reclamation of salt marsh in the Gulf of St. Lawrence, although some old hand-dug dykes can still be seen. However, coastal marshes were hayed and grazed, and were also considered very important to early agricultural activities (Hatvany 2001). Marshes were ditched to drain ponds and created drier soils for livestock and equipment.

The Gulf of St. Lawrence has 11 878 ha of salt marsh (Hanson and Calkins 1996). The combination of relative low land elevations, intensive coastal zone development and erosive soils makes this area highly susceptible to damage due to sea level rise. Sediment and organic matter accretion rates in relation to apparent sea level rise remain largely unquantified (Chmura and Hung 2004).

In addition to Cape Jourimain NWA, Kouchibouguac National Park and the Bouctouche Dunes Irving Eco-Centre to the north also protect coastal habitat within this ecoregion.



Figure 3: Terrestrial Ecoregions and Ecodistricts of New Brunswick. Cape Jourimain NWA falls within Ecoregion No. 122 (Maritime Lowlands) and Ecodistrict No. 504 (Pictou-Cumberland Lowlands)

#### 1.2 HISTORICAL BACKGROUND

Cape Jourimain is located within the traditional Mi'kmaq territory of Sigenigteoag, and the headland is believed to have been a camping area. The point was used by Indigenous people (most likely Mi'kmaq) during their frequent trips across the strait between P.E.I. and the mainland (Goodwin 1892). Erosion along this section of beach is considerable, and it is very probable that the site reported by Goodwin (1892) has long since washed away with the evidence of specific activities that took place.

Land use patterns and remnant Acadian style dykes at Dobson's Cove suggest this site was likely settled in the first half of the 18th century. English and Irish settlement of the area commenced around 1800, with an expansion of the area protected by dykes. Most of the Cape Jourimain salt marshes were probably drained by the middle of the 19th century (Figure 4). These reclaimed lands were used predominantly for producing hay.

Following the construction of dykes, a road was built across the channel separating the village of Bayfield from Trenholm Island. Where this road makes contact with the eastern corner of the island lies an old, presumably Irish, cemetery (Goodwin 1933). The road continued northwest, along the eastern side of Trenholm Island for about one kilometre, and then turned abruptly northeast and crossed to Jourimain Island. This last section of trail was raised above the level of the salt marsh on wooden pilings, and was known as the "plank road." A number of families settled on these islands, and up to 90% of the woodlands were cleared for cultivation and firewood (Figure 5). For many years, a lobster canning plant operated on Jourimain Island, but it was later moved to Cape Tormentine (Bezanson 1995). The remains of a large boiler from this operation can still be seen on the beach west of the highway on Jourimain Island.

Until about 1896, Jourimain Island was the mainland terminus for an ice boat service that operated between New Brunswick and Cape Traverse, Prince Edward Island. That service provided a vital communications link between P.E.I. and the mainland during the winter months when the Northumberland Strait was covered in ice. Sleigh (1976) provides an interesting account of such a gruelling and, at times, dangerous crossing. The Allen hotel, a converted farmhouse, was operated by one of the Jourimain Island residents for those using the ice boat service. The winter boat service was abandoned following the construction of a ferry terminal at nearby Cape Tormentine.

Between 1915 and 1920, the dykes that had protected most of the marshes were destroyed by a series of storms. Attempts at restoration failed, and the sea once again invaded the marshlands. The road extending between the village of Bayfield and Trenholm Island held for a time and was maintained as a dyke, while the outer hay land between Trenholm and Jourimain islands reverted to salt marsh. In 1933, rather than attempting to maintain a costly roadway to the islands, the New Brunswick government purchased the islands and moved the

residents to the mainland. For the following 30 years, there was little activity at Cape Jourimain other than waterfowl hunting, oyster harvesting and smelt fishing in the winter. Some of the vacated farm lands were still used for haying and pasturing of cattle (Figure 5).

In the early 1960s, the area was chosen as the approach site for the proposed causeway link between N.B. and P.E.I. By 1966, a prominent road had been built through the area. Although the causeway project was abandoned, the substantial road and adjacent railbed remained.

Cape Jourimain was declared an NWA on June 5, 1980, following a transfer of 205 ha from the federal Department of Public Works in 1977 and the purchase of additional privately owned lands in 1979. As part of the construction of the Confederation Bridge in the early 1990s, and at the request of the Province of New Brunswick, Environment and Climate Change Canada transferred 2 ha of an abandoned field (in the interest of public safety) to assist in the construction of a highway interchange at Route 955. In compensation, 80 ha of adjacent forest and wetland habitat were acquired and added to Cape Jourimain NWA. In recognition of the increased traffic and public presence that the Confederation Bridge would generate, the not-forprofit Cape Jourimain Nature Centre Inc. was formed and entered into an agreement with Environment and Climate Change Canada to develop an education and interpretation centre on Cape Jourimain NWA. The Lease and Master Development Agreements negotiated between Environment and Climate Change Canada and Cape Jourimain Nature Centre Inc. resulted in the construction of a visitors and tourism centre, a larger interpretation centre and restaurant, and a large parking lot facility on Jourimain Island next to the terminus of the Confederation Bridge. The lease also covers 14 km of trails for which Cape Jourimain Nature Centre Inc. is responsible for the control of access and maintenance. The Centre sees over 75 000 visitors per year, which puts a significant pressure on the ecology of the NWA and represents a management challenge.



Figure 4: The Cape Jourimain peninsula and land grant of circa 1810. Most of the area depicted here is now within Cape Jourimain NWA. Trenholm Island is called "Inner Jourimain Island." Scale is approximate.



Figure 5: Aerial photograph of the Cape Jourimain area in 1935. Note the open-fields and farms on Jourimain and Trenholm islands, the "plank road" connecting the islands, remnant dykes and the grid pattern of drainage ditches (bottom centre) in what is now salt marsh.

The rich human history of Cape Jourimain is well recognized, and several sites within the NWA serve to interpret this story (Burns 1933; Finlay 1990; Leonard 1999). The following 19

historical and archaeological sites have been recorded within the NWA, although many locations require further research (Figure 6):

- 1. Mi'kmaq campsite a logical point of embarkation for early Aboriginal people travelling from N.B. to P.E.I. (Goodwin 1892).
- Money Point a small depression in the ground, like the cellar of a small dwelling, located about 4 metres from the edge of the cliff. Goodwin (1892) called this location Money Point, and local legend suggests that a treasure is buried there. This site was infilled during the construction of the Confederation Bridge but can be relocated.
- Wooden palisade possibly an early breakwater or aboiteau. Of unknown age, it consists of many stout pilings that are situated adjacent to the "Horse Pond" (site #4) and landward of the sand dunes.
- 4. Horse Pond a small, rectangular body of water situated near Allen Island. Although it could be a natural pond, its shape and association with the wooden palisade (site #3) suggests that it may be human-made. The name apparently originates from the loss of a horse many years ago.
- 5. Three Acre Field the late Gradin Fitzpatrick provided the name of this old clearing, now forested, on Jourimain Island. Until the 1930s, the field was used to grow potatoes. The location of this field is not consistent with the land clearing pattern on the remainder of Jourimain or Trenholm islands.
- North dyke a sinuous dyke situated in the first brackish impoundment. The width and shape indicate it may also have been used as a road.
- Offshore dyke evidence in the form of wood pilings in the intertidal zone indicates the former size and extent of the adjacent salt marsh. This dyke has been lost to erosion.
- Plank road this road, built on wood pilings, was once the main link to Jourimain Island. It was abandoned due to high maintenance costs around 1930.
- Hotel used by passengers using the ice boat service (site #10) to P.E.I. For a personal account of a stay at the "hotel," see Sleigh (1976).
- Ice boat service the site of the wharf and boat house used by the ice boat service to P.E.I. The service was abolished around 1900 when the Cape Tormentine ferry terminal was built. Much, or possibly all, of this site has been lost to erosion.

- 11. Lighthouse wood structure built around 1870. This heritage lighthouse, just outside of the NWA, is a significant icon for the area.
- 12. Dyke remains.
- 13. Acadian dyke earthwork, located in Dobson's Cove, of very early origin that likely pre-dates the English/Irish settlement period.
- 14. Crib works this rock and log crib work is located within the intertidal area of Dobson's Cove. Early aerial photographs suggest that this structure may have been part of a short causeway leading to a nearby sand dune. Fisher shanties on the dune and many small boats in the tidal creek, presumably fishing for oysters, can be seen in the 1935 aerial photograph (Figure 5).
- Causeway the earthen road that once connected Trenholm Island to the mainland at Bayfield. The road washed out around 1920 and was not rebuilt.
- 16. Bill Liff Upland the name Liff is possibly an abbreviation for Eliphalet. This upland, with an adjacent stream bordering the marsh, and an undocumented mill and dam complex, is a likely site for an early Acadian farm.
- 17. Southeast dyke now completely eroded away, this dyke once connected Jourimain Island to the mainland and effectively shut out the tides from the intertidal salt marshes.
- House sites eight sites in total, including the "hotel." One site was destroyed during the mid-1960s causeway construction.
- 19. Cemetery probably Irish, the cemetery dates from around 1830 to 1850.





#### 1.3 LAND OWNERSHIP

The entire upland and most of the salt marsh of Cape Jourimain NWA are owned and administered by the Government of Canada. The Canadian Coast Guard retains a small parcel at the lighthouse on the east end of Jourimain Island. The property boundary of the NWA follows the mean high-water mark (normal tide) bounding the outer island, salt marsh and dune complex. The federal government does not hold the subsurface mineral rights for Cape Jourimain NWA.

#### 1.4 FACILITIES AND INFRASTRUCTURE

The majority of the infrastructure at Cape Jourimain NWA is under the administration and responsibility of the not-for-profit Cape Jourimain Nature Centre Inc. (figures 7 to 11). The collaborative arrangement between Her Majesty the Queen in Right of Canada and the Cape Jourimain Nature Centre Inc. is detailed in the Master Development Agreement signed by both parties on March 16, 2000. Under this agreement, the Cape Jourimain Nature Centre Inc. is responsible for the maintenance of the visitor's centre, the interpretation centre and associated walking trails. Only 1.0% of the NWA is covered under the agreement with the centre. The remainder of the protected area is administered by Environment and Climate Change Canada's Canadian Wildlife Service (Table 2).

Under the Connecting Canadians to Nature (CCtN) initiative (2015-2020), investments will be made to improve the existing trail network and join it to the Trans Canada Trail system, in partnership with Trans Canada Trails, and to update and improve interpretive materials along the trails over the next few years.

The heritage lighthouse on the southern end of Jourimain Island has been a beacon to travellers for well over a century and a half (Figure 12). Fisheries and Oceans Canada and the Canadian Coast Guard no longer require the lighthouse as a navigational aid, and the Cape Jourimain Nature Centre Inc. has expressed interest in assuming ownership of this building (Comeau MacKenzie Architecture 2011).

Ducks Unlimited Canada operates three controlled water-level wetlands in collaboration with the Canadian Wildlife Service (Table 3; Figure 13).

Type of Facility or Infrastructure	Approximate Size or Number	Responsibility Holder or Owner
Property boundary	16.9 km	ECCC-CWS <sup>1</sup>
Boundary signs	340	ECCC-CWS
NWA entry signs (large)	4	ECCC-CWS
Public notice signs	12	ECCC-CWS
Steel entry gates	2	ECCC-CWS
Cabin (not serviceable)	19 m <sup>2</sup>	ECCC-CWS
Maintenance access points	4	ECCC-CWS
Cape Jourimain Nature Centre and land parcel	4.6 ha	CJNC <sup>2</sup>
Lighthouse trail	1.6 km	CJNC
Gunning Point trail	2.1 km	CJNC
Trenholm Island trail	2.5 km	CJNC
Old railbed trail	2.7 km	CJNC
Parking lot	0.7 ha	CJNC
Foot bridges	6	CJNC
Observation deck	5	CJNC
Observation blinds	2	CJNC
Controlled water-level impoundments	3	DUC <sup>3</sup>

#### Table 2: Facilities and Infrastructure in the Cape Jourimain NWA

Environment and Climate Change Canada–Canadian Wildlife Service Cape Jourimain Nature Centre Inc. Ducks Unlimited Canada 1

2

3



**Figure 7: Aerial view of the Cape Jourimain Nature Centre complex on Jourimain Island** Photo: © Environment and Climate Change Canada, 2004



Figure 8: The busy Trans-Canada highway connecting New Brunswick to Prince Edward Island via the Confederation Bridge opened in 1997 and bisects the Cape Jourimain NWA Photo: C. MacKinnon © Environment and Climate Change Canada, 2012



**Figure 9: The Cape Jourimain Nature Centre's visitor and information building on Jourimain Island** Photo: C. MacKinnon © Environment and Climate Change Canada, 2007



Figure 10: Cape Jourimain Nature Centre (interpretation centre and restaurant), Cape Jourimain NWA

Photo: C. MacKinnon © Environment and Climate Change Canada, 2005



Figure 11: Interpretation centre and trail network maintained by the Cape Jourimain Nature Centre Inc. within the Cape Jourimain NWA (courtesy of the Cape Jourimain Nature Centre Inc.)



Figure 12: The heritage lighthouse on Jourimain Island Photo: C. MacKinnon © Environment and Climate Change Canada, 1989

Ducks Unlimited Canada Project Number	Ducks Unlimited Canada Project Number	Year Built	Size in Hectares (acres)
6272	Bayfield Flooding	1979	8.5 (21)
6412	Beaver Flooding 1	1983	3.6 (9)
6412	Beaver Flooding 2	1985	5.3 (13)

Table 3: Ducks Unlimited Canada Controlled Water-level Projects Within the Cape Jourimain NWA



Figure 13: Bayfield Flooding, Route 955, Cape Jourimain NWA Photo: C. MacKinnon © Environment and Climate Change Canada, 2013

### 2. ECOLOGICAL RESOURCES

#### 2.1 TERRESTRIAL AND AQUATIC HABITATS

Cape Jourimain lies in what is known as the old Appalachian geological province (Auland and Wicklund 1950). Specifically, this area contains components of both the Tormentine and Aulac associations. Jourimain and Trenholm islands are composed primarily of loam from the Tormentine association. The Tormentine parent material is a medium-textured, porous, red till derived mainly from red micaceous sandstone from the late Pennsylvanian period.

Habitat diversity within Cape Jourimain is a reflection of the area's underlying geology and principal landscape features (Table 4). These include extensive coastal marshes and ponds, barrier sand dunes, the two upland islands, a bordering block of upland, and a prominent highway that passes through the area effectively linking all the component features of the NWA.

Wetlands make up 62%, or 382 ha, of the NWA (Figure 14). On Jourimain Island, a sand beach borders the small dune on the southeast sides of the area while a rocky ledge, at Gunning Point, extends out to the north (Figure 6). The adjacent salt marsh is mostly "low marsh": habitat normally flooded twice daily by the tides. This zone is predominantly vegetated by the cordgrass *Spartina alterniflora*. Narrow transitional zones of *Spartina patens* and *S. alterniflora* occur between the main marsh and the uplands (Hanson 2004). The salt marsh on the southeast side of the NWA is bisected by two large tidal channels and several smaller tidal creeks. Many of these smaller flowages terminate in salt marsh pools. Beds of eelgrass (*Zostera marina*) grow in some tidal creeks and on portions of the shallow flats at Dobson's Cove (Figure 15).

The brackish marshes on the northwestern side of the NWA are maintained by tidal intrusion through a small channel and washover area at the southern extremity of the dune ridge. The ponds support dense stands of sago pondweed (*Potamogeton pectinatus*) and smaller amounts of Widgeon grass (*Ruppia maritima*) and Muskgrass (*Chara sp.*).

A sand dune along most of the northwest edge of the NWA rises to 5 metres above the shoreline. The dune acts as an effective barrier to the sea and aids in protecting the brackish ponds to the east. The dune is uniformly covered by marram grass (*Ammophila breviligulata*), except for small patches of bayberry (*Myrica pennsylvanica*).

The upland portions of the NWA are populated mainly by young forests as well as shrub and old-field plant communities. The forested sections are predominantly white spruce (*Picea glauca*), black spruce (*P. mariana*) and larch (*Larix laricina*), with patches of mixed deciduous and coniferous cover. Allen Island, situated at the northwestern end of Trenholm Island, contains an interesting stand of red oak (*Quercus rubra*) surrounded by a dense ground cover of poison ivy (*Rhus radicans*) and ground nut (*Apios americana*) (Figure 16). This island is likely representative of habitat that was once more common along the coast. There is also a small pocket of eastern white cedar (*Thuja occidentalis*) at the head of Smelt Creek within the Walton Upland. Naturally occurring stands of this species are scarce in southeastern New Brunswick (Malone 1978; Harries *et al.* 1991; Harries 1996a; Harries 1996b).

Speckled alder (*Alnus rugosa*), wild rose (*Rosa virginiana*), and bayberry form dense shrub thickets in much of the older fields. More recently abandoned agricultural lands, especially those sections used as pasture, are covered by various grasses and herbaceous plants with expanding colonies of wild rose and meadowsweet (*Spiraea latifolia*).

Habitat Type	Area (ha)
Salt marsh	240
Forest	128
Old field	62
Brackish ponds	55
Tidal channel	25
Shrub upland	27
Sand dune	24
Freshwater marsh	18
Brackish marsh	18
Beaver ponds	12
Alder swale	6
Bog	6
Total	621

Table 4: Habitat Types Within the Cape Jourimain NWA based on 1999 Aerial Photography Interpretation



Figure 14: Example of the extensive salt marshes within the Cape Jourimain NWA Photo: C. MacKinnon © Environment and Climate Change Canada, 2008



Figure 15: Extensive Eelgrass (*Zostera marina*) flats at Dobson's Cove, along the eastern extremity of Cape Jourimain NWA (see Figure 6) Photo: C. MacKinnon © Environment and Climate Change Canada, 1989



Figure 16: Ground nut (*Apios Americana*) found in abundance around Allen Island (west of Trenholm Island) within the Cape Jourimain NWA (see Figure 6) Photo: C. MacKinnon © Environment and Climate Change Canada, 1989

#### 2.2 WILDLIFE SPECIES

#### 2.2.1 Birds

The location of Cape Jourimain NWA and the high diversity of habitats within the area make this an attractive resting and feeding site for birds migrating along the coast and across the Northumberland Strait.

#### Waterfowl

The salt marshes, brackish ponds and intertidal flats provide spring migration and postbreeding staging habitat for large numbers of several waterfowl species. The principal spring migrants are Canada goose (*Branta canadensis*), American black duck (*Anas rubripes*), northern pintail (*Anus acuta*), American green-winged teal (*Anas carolinensis*), greater scaup (*Aythya marila*) and red-breasted merganser (*Mergus serrator*). Blue-winged teal (*Anas discors*) are not numerous during the spring migration, but are usually common during the post-breeding period; a high count of 2800 was reported by MacInnis (MacInnis 1979; MacInnis 1972; MacInnis 1973). Canada geese, black ducks and red-breasted mergansers frequent the tidal marshes and adjoining intertidal areas as well as the brackish ponds (Morton and MacKinnon 1980; MacKinnon and Hicks 1991; Hart 2004). Several seaduck species occur in the coastal waters surrounding the NWA, particularly during their spring and fall migrations (MacKinnon *et al.* 1991). Large numbers of three scoter species (black, surf and white-winged) migrate past the Cape. Scoter flocks are often observed on the water, although some of this movement has been disrupted by the Confederation Bridge (Hicklin and Bunker-Popma 2001; MacKinnon and Kennedy 2006). Common eider (*Somateria mollissima*) and Long-tailed Duck (*Clangula hyemalis*) remain in the waters around the Cape as long as ice-free areas remain.

The wetlands of Cape Jourimain NWA and the intertidal flats and coastal waters that surround it provide a variety of habitats for waterfowl. Waterfowl broods are reared primarily on the brackish ponds and salt marshes; however, a small number also use the Bayfield Flooding and Beaver Flooding areas. Waterfowl production in the NWA for all species usually averages 40 broods per year.

A small colony of Common Tern (*Sterna hirundo*), consisting of less than 10 pairs, regularly nests on the remnants of the north dyke in the first brackish impoundment. Success is usually not great, and nests are often flooded during high water.

#### Shorebirds

The wetlands of Cape Jourimain attract an exceptional diversity of shorebirds (Figure 17). In total, 26 species have been observed on the NWA in recent years. The main concentrations occur during fall migration while willet (*Tringa semipalmata*), killdeer (*Charadrius vociferous*), common snipe (*Gallinago gallinago*) and spotted sandpiper (*Actitis macularius*) breed at Cape Jourimain. Regular migrants include lesser yellowlegs (*Tringa flavipes*), greater yellowlegs (*Tringa melanoleuca*), short-billed dowitcher (*Limnodromus griseus*), Hudsonian godwit (*Limosa haemastica*), black-bellied plover (*Pluvialis squatarola*) and semipalmated plover (*Charadrius semipalmatus*), ruddy turnstone (*Arenaria interpres*), red knot (*Calidris canutus*), and sanderling (*Calidris alba*), as well as the smaller sandpipers: semipalmated sandpiper (*Calidris pusilla*), least sandpiper (*Calidris minutilla*), white-rumped sandpiper (*Calidris fusicollis*) and pectoral sandpiper (*Calidris melanotos*) (Tingley 1980; MacKinnon and Hicks 1991). The Willet is likely the most visible and vocal of the resident shorebirds at Cape Jourimain and thus was chosen as an icon for the Cape Jourimain Nature Centre (MacKinnon 2008).



Figure 17: A diversity of wetlands within the Cape Jourimain NWA provides a host of habitats for a variety of shorebird species

Photo: © Environment and Climate Change Canada, 2004

#### **Passerines**

Several songbirds, including some 17 species of warblers and 6 sparrow species, nest in suitable upland habitats. The salt marsh dwelling passerine, Nelson's sharp-tailed sparrow (Ammodramus nelsoni), is present in considerable numbers (Hanson 2004). The yellow-rumped warbler (Dendroica coronata) often overwinters in small numbers at the Cape. These birds survive by eating the wax myrtle berries on the abundant bayberry (*Myrica pensylvanica*) bushes along the coast.

#### **Gulls and Herons**

Great black-backed gull (Larus marinus) and herring gull (Larus argentatus) are usually present from spring to early fall. Other gulls, including ring-billed gull (Larus delawarensis) and Bonaparte's gull (Chroicocephalus Philadelphia), are common in the spring and fall, while glaucous gull (Larus hyperboreus) and Iceland gull (Larus glaucoides) are seen in the winter.
Great blue heron (*Ardea herodias*) are not known to nest in the immediate vicinity; however, substantial numbers frequent Dobson's Cove throughout July and August. Other waders that occasionally visit the area include green heron (*Butorides virescens*), cattle egret (*Bubulcus ibis*), snowy egret (*Egretta thula*) and tricolored heron (*Egretta tricolor*). Pied-billed grebes (*Podilymbus podiceps*) are commonly seen on the Bayfield Flooding.

#### Raptors

Ospreys (*Pandion haliaetus*) regularly nest within Cape Jourimain NWA, encouraged through the placement of nesting platforms. Two artificial nesting towers were erected in 1983, followed by six more in the mid-1990s. Over half of these are used annually by Osprey, and in one instance a tower platform was occupied by a pair of great-horned owl (*Bubo virginianus*). Other common birds of prey include bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), perlin (*Falco columbaris*), Northern harrier (*Circus cyaneus*), Northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*Accipiter striatus*), rough-legged hawk and American kestrel (*Falco sparverius*).

#### **Other Bird Species**

Many bird species are only encountered within the NWA during spring or fall migration. A few species such as ruffed grouse (*Bonassa umbellus*), hairy woodpecker (*Picoides villosus*) and downy woodpecker (*Picoides pubescens*), black-capped chickadee (*Poecile atricacapillus*) and boreal chickadee (*Parus hudsonicus*) are probably resident year-round. A notable colony of cliff swallow (*Hirundo pyrrhonota*) resides on the lighthouse; the colony numbered some 110 pairs in 1989 but is now declining in number.

#### 2.2.2 Mammals

Mammals are not an overly conspicuous or abundant component of the wildlife of Cape Jourimain NWA. White-tailed deer (*Odocoileus virginianus*) and moose (*Alces alces*) are common. Other midsized mammals include Eastern coyote (*Canis latrans*), bobcat (*Lynx rufus*), porcupine (*Erethizon dorsatum*), mink (*Mustela vison*), snowshoe Hare (*Lepus americanus*) and muskrat (*Ondatra zibethicus*). Small mammals known to the area include short-tailed weasel (*Mustela erminea*), red squirrel (*Tamiasciurus hudsonicus*), masked shrew (*Sorex cinereus*), meadow vole (*Microtus pennsylvanicus*), short-tail shrew (*Blarina brevicauda*), woodland jumping mouse (*Napaeozapus insignis*) and red-backed vole (*Clethrionomys gabberi*) (Dawe 2004). The varieties of species that may occur within the mainland portion of the NWA probably include all those commonly found in similar habitats within the region (Banfield 1974; Dawe 2004). The outer islands would be expected to have a lesser diversity of species.

## 2.2.3 Reptiles and Amphibians

The only reptile confirmed within the NWA is the Northern redbelly snake (*Storeria occipitomaculata*), while frequently encountered amphibians include green frog (*Rana clamitans*), wood frog (*Rana sylvatica*), mink frog (*Rana septentrionalis*) and Northern leopard frog (*Rana pipiens*). Overall, the amphibian and reptile fauna likely comprise most of the species that commonly occur in the province, although thorough inventories have not been conducted (Brannen 2004).

#### 2.2.4 Fish

A complete inventory of fish found within the NWA has not been conducted. Field observations suggest that fish populations consist of typical species that inhabit the tidal creeks, salt marsh pools and brackish ponds in the area. These include mummichog (*Fundulus heteroclitus*), three-spined stickleback (*Gasterosteus aculeatus*), four-spine stickleback (*Apeltes quadracus*) and nine-spine stickleback (*Pungitius pungitius*). Brook trout (*Salvelinus fontinalis*) and white sucker (*Catostomus commersonii*) probably occur in the few small freshwater streams in the NWA. The small stream leading from the Beaver Flooding and emptying into Dobson's cove may support a small spring run of rainbow smelt (*Osmerus mordax*).

#### 2.3 SPECIES AT RISK

Although few species at risk are commonly found within Cape Jourimain NWA, a few may be observed within the area (Table 5). Peregrine Falcon are often observed foraging over the marsh lands and, infrequently, Piping Plover have been noted on the area beaches and dunes. Other more likely visitors include the red knot and short-eared owl.

Considering nesting history and habitat suitability for piping plover at Cape Jourimain NWA, all of the protected area west of Trans-Canada Highway Route 16 is designated as "Critical habitat" under the *Species at Risk Act*.

Table 5:	Species	at Risk i	in Cape	Jourimain	NWA
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Common and Scientific Names of Species	Ca	nada	New Brunswick	Presence or Potential of Presence⁴		
	SARA <sup>1</sup>	COSEWIC <sup>2</sup>	Provincial Ranking <sup>3</sup>			
Birds						
Barn swallow <i>Hirundo rustica</i>	No Status	Threatened	No Status	Confirmed		
Bobolink Dolichonyx oryzivorus	No Status	Threatened	No Status	Probable		
Common nighthawk Chordeiles minor	Threatened	Threatened	No Status	Probable		
Peregrine falcon Falco peregrinus anatum	Special Concern	Special Concern	Endangered	Confirmed		
Piping plover Charadrius melodus melodus	Endangered	Endangered	Endangered	Confirmed		
Rusty blackbird Euphagus carolinus	Special Concern	Special Concern	No Status	Potential		
Short-eared owl Asio flammeus	Special Concern	Special Concern	No Status	Probable		
Arthropods	Arthropods					
Monarch Danaus plexippus	Special Concern	Special Concern	No Status	Probable		

<sup>1</sup> Species at Risk Act (SARA): Extinct, extirpated, endangered, threatened, special concern, not at risk (assessed and deemed not at risk of extinction) or no status (not rated)

<sup>2</sup> Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

<sup>3</sup> Provincial ranking using provincial codes, if applicable

4 List as "confirmed," "probable," or "potential"

## 2.4 INVASIVE SPECIES

With such a long history of human settlement, a number of non-native plant species are found within Cape Jourimain NWA (Harries *et al.* 1991). These have often escaped from old and abandoned house sites. While some of these plants may survive for a very long period of time, they do not always spread to other locations and are not considered invasive. However, some plants such as glossy buckthorn (*Rhamnus frangula*), phragmites (*Phragmites communis* [including *Phragmites australis*]), purple loosestrife (*Lythrum salicaria*) and reed canary grass may be invasive (White *et al.* 1993).

# 3. MANAGEMENT CHALLENGES AND THREATS

The challenges and threats faced by Cape Jourimain NWA are managed within the broader context of the Cape Tormentine peninsula, Chignecto Isthmus and Northumberland Strait ecosystems. Although activities that occur outside of the boundary of the NWA are beyond the scope of this management plan, many of these factors have direct bearing on the successful management of Cape Jourimain NWA, and the effects may be cumulative (Keith 1998). A summary of the more salient issues follows.

## 3.1 HABITAT FRAGMENTATION

The geographic position of Cape Jourimain NWA as a prominent coastal headland makes the area unique and divides the NWA from the greater Cape Tormentine peninsula. The NWA is also bracketed by the village of Bayfield to the east, cottages to the west and Route 955 to the south. Combined, these features tend to isolate the habitat at Cape Jourimain, making it less attractive to some species of wildlife. Further development along the highway may further this isolation.

## 3.2 RECREATION AND TOURISM

Recreation and tourism, including ecotourism, can provide valuable education opportunities to the public, yet have the capacity to contribute additional pressure to protected areas that are specifically set aside as wildlife habitat. Visitors to sites, such as Cape Jourimain NWA, may not always be aware of the wildlife habitat conservation priority of NWAs or that there are limits placed on certain activities. Uninformed use of sensitive areas, or use at sensitive times of the year can have detrimental impacts on habitat and wildlife. Recognizing the significant increase in vehicle traffic and human presence from the Confederation Bridge, the Cape Jourimain Nature Centre was established to assist in educating the public on the value of protected areas and to control visitor access and usage of the site (Sackville 1995; MacKinnon and Ridlington 1996; Cape Jourimain 2000). This Centre represents a key component towards the success of the CCtN Initiative.

# 3.3 OFF-ROAD VEHICLES

Illegal use of off-road vehicles (ORVs) such as all-terrain vehicles, especially in regions abundant in wetlands, is a problem for protected area managers and landowners in general. ORV use leads to the degradation or destruction of plant cover (Hosier and Eaton 1980; Ross 1992). It can also lead to soil compaction, removal of the top layer of soil, and alterations to

drainage, which in turn may degrade or destroy plant cover and the habitat of most local animal species.

The use of ORVs in streams and wetlands results in habitat destruction and loss. Portions of the salt marsh and dunes along the western side of the NWA show such scars. Often, the worst damage is in the form of "braiding," where successive operators, in order to bypass a wet area, make a series of new and parallel trails adjacent to an existing one. Use of ORVs is prohibited within Cape Jourimain NWA.

## 3.4 COASTAL EROSION AND HABITAT LOSS

The Northumberland Strait shoreline, including the Cape Jourimain headland and associated dunes and marshes, are continually being changed through tide and storm events (O'Carroll *et al.* 2006; Hanson *et al.* 2006). These natural conditions have created the sand dunes at the NWA and aid in protecting the adjacent salt marshes. However, these processes have also resulted in significant erosion along the coast with a loss of upland and wetland habitat.

The hardening of the shore with large boulders near the Confederation Bridge may have resulted in diminished rates of erosion to the east near the Cape Jourimain Nature Centre, but has possibly accelerated the rate of erosion to the immediate west at Gunning Point on Jourimain Island.

# 3.5 PREDICTED CLIMATE CHANGE CONTEXT

Sea level rise will place additional pressures on Cape Jourimain through erosion and flooding. More severe storms could breach the dunes, resulting in significant changes to the adjacent wetlands. The salt marsh along the eastern portion of the area adjacent to Dobson's Cove has been noticeably reduced over the past 50 years, and this rate of loss is likely to increase. The overall amount of coastal wetland within Cape Jourimain NWA decreased from 332 ha in 1944 to 310 ha in 2001 (Hanson *et al.* 2006). The amount of beach and dune decreased from 23.1 ha in 1944 to 18.0 ha in 2001 (O'Carroll *et al.* 2006). There is no comparable development of new salt marsh or beach/dune habitat through accretion to replace this habitat loss in the immediate area.

## 3.6 CONTAMINATED SITES

The long-abandoned house sites within the NWA probably had localized sites for garbage that are of no immediate concern. Two areas within the NWA pose potential

contamination risks to the ecosystem. The lighthouse, closely adjacent to the NWA, once used mercury as the float for the light; the buried remains of a community dump lie on the edge of the salt marsh at Bayfield. Both sites have been assessed, and long-term monitoring wells have been drilled at the Bayfield location (ADI Ltd. 2005; Dillon Consulting Ltd. 2011).

# 4. GOALS AND OBJECTIVES

# 4.1 VISION

The long-term vision for Cape Jourimain NWA is to conserve habitat for wildlife and allow for the interpretation of natural processes and anthropogenic impacts in coastal environments in order to encourage public understanding and participation in their conservation. Cape Jourimain NWA was originally established for the protection of its unique coastal habitat, especially for waterfowl, wetland birds and species at risk. However, as the host site for the Cape Jourimain Nature Centre, the NWA also plays an important role in connecting visitors to nature by educating the public about a variety of environmental and wildlife conservation issues as well as the human history of this important coastal area.

# 4.2 GOALS AND OBJECTIVES

**Goal 1:** Important habitats and ecosystems will be restored and managed, particularly for migratory birds and species at risk, and existing infrastructure to sustain and manage dyked wetland habitats will be maintained and improved.

- a. Objective: Wetland habitats within controlled water-level impoundments will be managed to mimic an ecosystem driven by shallow, but relatively stable, water levels so that populations of migratory birds and resident flora and fauna, including species at risk, are sustained, and habitats and residences are created, restored or maintained through active management.
- b. Objective: Manage water levels to achieve a diversity of wetland vegetation and a hemi-marsh composition of vegetation (Sojda and Solberg 1993). Open water and vegetation to be maintained at a 50:50 ratio (with patches of vegetation interspersed with areas of shallow open water) within the next five years and maintained over the long term.

**Goal 2:** Old-field and homestead habitats will be restored and managed in the early stages of plant succession to benefit edge and open grassland migratory birds.

- a. Objective: Maintain the existing 10 ha of open-field habitat in early succession through periodic mowing.
- b. Objective: Maintain wildlife food availability by retaining 90% of "food trees" (that is, trees producing berries) within the old-field habitat.

**Goal 3:** Upland habitats will be managed to maintain native and historic upland vegetation diversity so that populations of migratory birds and species at risk are sustained.

a. Objective: To retain forest diversity, plant 5 ha of Acadia forest (coastal hardwood species that have been lost, predominantly red oak) within existing older-growth forests over the next five years.

Goal 4: Control invasive and alien plant species.

- a. Objective: Determine areas of concern where cover by invasive and alien plant species is greater than 25% or expanding rapidly, and implement methods to reduce the extent and rate of expansion.
- b. Objective: New invasive and alien species will be controlled or completely removed, depending on the species and eradication options, within two years of being detected.

**Goal 5:** Promote opportunities for responsible public access while minimizing human activities that have negative impacts on the habitat or wildlife of Cape Jourimain NWA.

a. Objective: In collaboration with the Cape Jourimain Nature Centre, manage visitor activities so that waterfowl and shorebirds are able to feed and roost without disturbance from human activities.

**Goal 6:** Control unauthorized and prohibited activities in the NWA. Protect and maintain the overall ecological qualities of the NWA including natural habitats and special habitat features (such as expansive salt marsh and island habitat) from illegal activities (such as camping and camp fires).

a. Objective: Document and report, to the Wildlife Enforcement Division, the occurrence of illegal activities within the Cape Jourimain NWA and, where evidence is sufficient, seek enforcement action, thereby reducing or eliminating the occurrence of such activities in the NWA.

**Goal 7:** Promote opportunities to enhance Canadians' connection to nature and increase the knowledge of visitors about Cape Jourimain NWA and coastal ecosystems.

a. Objective: In collaboration with the Cape Jourimain Nature Centre, inform visitors about waterfowl and shorebird ecology and conservation so they can become stewards of our natural heritage.

## 4.3 EVALUATION

Annual monitoring will be performed within the limits imposed by the availability of financial and human resources. The management plan will be reviewed 5 years after its initial approval, and reviewed and updated every 10 years thereafter. The evaluation will take the form of an annual review of monitoring data obtained from the monitoring and research projects outlined below. This monitoring will be used to establish priorities for action and to allocate resources.

# 5. MANAGEMENT APPROACHES

This section and the following table contain a description of some of the possible approaches that could be used in the management of the Cape Jourimain NWA. However, management actions will be determined during the annual work planning process and will be implemented as human and financial resources allow.

Prior to the establishment of the Cape Jourimain NWA, the uplands adjacent to the salt marsh contained only a very limited amount of freshwater habitat (MacInnis 1972, 1973 and 1979). Waterfowl, particularly black ducks, using the area as post-breeding staging habitat regularly flew to a pond some 5 km distant to satisfy their requirements for fresh water. With the cooperation of Ducks Unlimited Canada, three freshwater marshes were built within the NWA: Bayfield Flooding in 1979, and Beaver Flooding 1 and 2 in 1983 (Figure 13). The freshwater marsh units are managed to provide quality waterfowl production habitat (Maillet *et al.* 1999). These conditions will be maintained through site management such as water level manipulations to control vegetation if necessary. For the Bayfield Flooding, periodic flushing with tidal waters may also be used to rejuvenate this freshwater and brackish wetland. At the beginning of each year, Canadian Wildlife Service and Ducks Unlimited Canada employees conduct a joint biological assessment of each project using a combination of tools such as recent aerial photography, ground surveys, and water level data (MacKinnon and Kennedy 2012).

A small colony of 10 pairs of Common Tern intermittently nests on the remnants of the old dykes in the brackish marsh. Breeding success is usually not great, and nests are frequently flooded by the higher tides. A modest build-up of materials on these dykes may support a larger and more viable tern colony. Common Tern colonies in the Atlantic Region may be in decline, and artificial nesting islands have already proven successful in other areas. The creation of a structure within the NWA would provide better tern habitat and be of value as a demonstration area for public education.

Management Challenge or Threat	Goal and Objective(s)	Management Approaches (actions, including level of priority) <sup>1</sup>				
Tourism activities (some activities being illegal within the protected area) such as recreational beach use, camping, open camp fires and boating may become a cumulative environmental effect.	Goal and Objective(s)Goal and Objective(s)Goal and Objective(s)Goal stepsoInitiationInitiati	<ul> <li>Document and report the number and nature of incidents where evidence exists of illegal activities within the NWA to Wildlife Enforcement Division. (1)</li> <li>Communicate with local tourism operators and the provincial tourism department concerning the protected status of Cape Jourimain NWA and provide material demonstrating the ecological values of the area. (1)</li> <li>Collaborate with other conservation organizations to deliver a consistent message towards minimizing disturbance to habitat and wildlife. (2)</li> </ul>				
Wetland habitat management	Goal 1: Important habitats and ecosystems will be restored and managed, particularly for migratory birds and species at risk, and existing infrastructure to sustain and manage dyked wetland habitats will be maintained and improved. Objectives 1.a, 1.b: Manage the controlled water-level impoundments for the greatest value to a broad range of flora and fauna.	<ul> <li>Track habitat change using annual aerial photography. (1)</li> <li>Conduct ground-based monitoring (in collaboration with Ducks Unlimited Canada and Bird Studies Canada) to track water levels, water chemistry and wildlife response to management activities. (2)</li> <li>Conduct focused research projects, in collaboration with academic institutions, directed towards specific management questions. (2)</li> </ul>				

### Table 6: Management Approaches for Cape Jourimain NWA

Management Challenge or Threat	Goal and Objective(s)	Management Approaches (actions, including level of priority) <sup>1</sup>			
Old-field and homestead habitat management	Goal 2: Old-field and homestead habitats will be restored and managed in the early stages of plant succession to benefit edge and open grassland migratory birds. Objectives 2.a, 2.b: Manage old-field and homestead habitats to benefit edge and open grassland migratory birds.	<ul> <li>Maintain the existing 10 hectares of open-field habitat in early succession through periodic mowing. (2)</li> <li>Maintain wildlife food availability by retaining 90% of berry-producing trees within the old-field habitat. (2)</li> </ul>			
Upland habitat management	Goal 3: Upland habitats will be managed to maintain native and historic upland vegetation diversity so that populations of migratory birds and species at risk are sustained. Objective 3.a: Manage upland habitats to maintain upland vegetation.	<ul> <li>Track habitat change using annual aerial photography. (1)</li> <li>Plant 5 hectares of Acadia forest within existing older-growth forests over the next 5 years. (2)</li> </ul>			
Invasive plants	Goal 4: Control invasive and alien plant species. Objective 4.a: Identify invasive plants. Objective 4.b: Eliminate invasive plants.	<ul> <li>Monitor existing nodes of invasive plants for possible expansion. (2)</li> <li>Promote safe biological controls such as <i>Galerucella</i> beetle for Purple Loosestrife. (2)</li> </ul>			
Off-road vehicles (ORVs) cause extensive and long- lasting damage to the fragile wetland habitats within the NWA.	Goal 6: Control unauthorized and prohibited activities in the NWA. Protect and maintain the overall ecological qualities of the NWA including natural habitats and special habitat features (such as expansive salt marsh and island habitat) from illegal activities (such as camping and camp fires). Objective 6.a: Control prohibited activities in the NWA.	<ul> <li>Maintain communications with ORV rider associations regarding the regulations pertaining to Cape Jourimain NWA and damage caused by inappropriate use of ORVs. (2)</li> <li>Maintain regulatory signs. (1)</li> <li>Contribute to communication products highlighting the impact of indiscriminate ORV use. (2)</li> </ul>			
Coastal erosion due to tide and storm events may cause habitat loss.	Goal 1: Important habitats and ecosystems will be restored and managed, particularly for migratory birds and species at risk, and existing infrastructure to sustain and manage dyked wetland habitats will be maintained and improved. Objectives 1.a, 1.b: Understand and, where possible, mitigate potential wetland habitat loss.	<ul> <li>Understand potential impacts of coastal erosion and how the valued ecosystem components of the NWA can be maintained. (1)</li> <li>Conduct long-term annual monitoring (ortho-rectified aerial photography) to retain a historical record of site changes as well as to document significant tidal and climatic events. (1)</li> </ul>			

Management Challenge or Threat	Goal and Objective(s)	Management Approaches (actions, including level of priority) <sup>1</sup>				
Predicted sea-level rise over the next century due to climate change is likely to result in increased flooding and possible breaches of dykes.	Goal 1: Important habitats and ecosystems will be restored and managed, particularly for migratory birds and species at risk, and existing infrastructure to sustain and manage dyked wetland habitats will be maintained and improved. Objectives 1.a, 1.b: Understand and, where possible, mitigate potential wetland habitat loss.	<ul> <li>Understand potential impacts of climate change and how the valued ecosystem components of the protected area can be maintained. (1)</li> <li>Conduct long-term annual monitoring (ortho-rectified aerial photography) to retain a historical record of site changes as well as to document significant tidal and climatic events. (1)</li> </ul>				
Contaminated sites within the NWA pose a potential risk to the ecosystem.	Goal 5: Promote opportunities for responsible public access while minimizing human activities that have negative impacts on the habitat or wildlife of Cape Jourimain NWA. Objective 5.c: Protect the ecosystem from contaminated sites.	<ul> <li>Maintain long-term monitoring wells at the location of the former Bayfield community dump. (1)</li> </ul>				
Engage Canadians in the stewardship of wildlife and the conservation of the natural environment.	Goal 7: Promote opportunities to enhance Canadians' connection to nature and increase the knowledge of visitors about Cape Jourimain NWA and coastal ecosystems Objective 7.a: Inform Canadians about wildlife and coastal ecology.	<ul> <li>Restore and improve public access infrastructure and signage as part of the CCtN initiative (1)</li> <li>Work with Cape Jourimain Nature Centre Inc., to provide walking trails within the NWA and associated interpretive materials. (1)</li> <li>In collaboration with Cape Jourimain Nature Centre Inc., present multimedia display materials about the natural history of the NWA and conservation of the natural environment. (1)</li> </ul>				

<sup>1</sup> Level of priority: 1 (from 0 to 3 years); 2 (from 4 to 6 years); 3 (from 7 to 10 years)

# 5.1 HABITAT MANAGEMENT

# 5.1.1 Wetlands

A series of shallowly flooded freshwater wetlands has been developed to provide wetland habitat for a diversity of species. Physical maintenance of these structures (dykes and water control structures) is the responsibility of Ducks Unlimited Canada. Biological management is a collaborative decision based on annual evaluations of water levels and habitat changes as observed through site inspections and aerial photography (Maillet *et al.* 1999; MacKinnon and Kennedy 2012). Management may include manipulation of water levels to control areas of overgrown vegetation. Vegetation may also be managed by mechanical removal if water level manipulation alone cannot control emergent plant cover (especially of concern are overgrowths of cattail or phragmites). Generally, optimal wetland management strives for a hemi-marsh: an equal mix of vegetation and open water with a high degree of interspersion and plant species diversity (Sojda and Solberg 1993).

#### 5.1.2 Forest

Special attention will be given to preserving the representative "coastal hardwood" stand on Allen and Fox islands, the "cedar swamp" on the upland, and the coastal dune complex. These habitats have been identified as areas where public access may need to be restricted. Negative impacts, such as off-road vehicles on dunes (strictly illegal) and a large amount of foot traffic through the coastal hardwoods, could be damaging. The present level of legal use of the NWA is not considered harmful to the habitat.

To maintain the biological integrity and habitat connectivity of the area, the NWA should be enlarged to provide a wildlife corridor and buffer zone between the upland, wooded swamp and coastal habitats, and the hinterland south and west of Route 955. These additional lands should be considered for acquisition by fee simple purchase from willing vendors at market value.

#### 5.1.3 Upland Habitat

Small sections of the NWA are suitable for upland field habitat enhancement. In the mid-1930s, about 80% of the islands and 50% of the mainland within the present NWA were cleared for agricultural use (Figure 5). The present amount of this area is greatly reduced due to the cessation of agriculture and subsequent natural plant succession.

Old-field habitat will be brush cut (using patch and strip cuts) once every 5 to 10 years to maintain this habitat in early stages of succession. Should some fields tend towards ericaceous plant growth (for example, blueberry barren), these will also be ploughed, harrowed and planted with a wildlife food cover crop, such as buckwheat. Planting of native plant hedgerows is recommended bordering the old fields and adjacent to the fixed-link approach road to act as a visual and acoustic barrier. This habitat will also benefit open grassland predators such as Northern harrier, red-tailed hawk (*Buteo jamaicensis*) and, in winter, rough-legged hawk (*Buteo laopus*).

#### 5.1.4 Nesting Sites

The first recorded Osprey nest within the NWA was observed in 1982. The nest was located in a dead and rotten Red Maple within the Beaver Flooding impoundment. Two alternative nesting sites, towers with 4' x 4' platforms at the top, were erected in 1983. These nesting towers proved successful, and in 1990 nesting sites were again limiting, such that an Osprey pair built a nest on top of a waterfowl hunter's blind in the salt marsh. An additional six platforms were subsequently erected within the NWA. Half of the eight nesting platforms are used annually by Osprey.

## 5.1.5 Species at Risk

Piping plovers have been reported within the dune/beach complex that borders the western side of the NWA. This area west of Route 16 and within the Cape Jourimain NWA is designated as Critical Habitat under the *Species at Risk Act*.

Old fields will be held in early succession to provide rough cover foraging and nesting habitat for short-eared owl. This habitat will also benefit open grassland predators such as northern harrier, red-tailed hawk (*Buteo jamaicensis*) and, in winter, rough-legged hawk (*Buteo laopus*).

#### 5.2 WILDLIFE MANAGEMENT

#### 5.2.1 Species at Risk

No specific management is conducted for species at risk. Sightings of species of interest, such as Peregrine Falcon and Piping Plover, are recorded for long-term monitoring.

## 5.3 MONITORING

Most monitoring within the NWA has consisted of periodic habitat evaluations, such as botanical inventories. Further habitat monitoring is carried out annually by review and yearly comparisons of habitat change as seen from high-resolution aerial photography. This review is part of an annual meeting with wetland managers from Ducks Unlimited Canada and the Canadian Wildlife Service.

Monitoring for many species, such as waterfowl, is conducted as part of a larger regional program, although specific studies have been conducted at Cape Jourimain (MacInnis 1979; MacKinnon and Hicks 1991; Hart 2004).

Other studies, either by the Canadian Wildlife Service or in cooperation with university researchers, are conducted as required.

Effective and efficient monitoring requires careful planning and a coordinated approach. Monitoring will also be carried out in a manner that contributes to meeting species at risk recovery strategy and action plan objectives. Ongoing monitoring needs are as follows:

- 1. Spring and fall waterfowl use.
- 2. Periodic monitoring of songbird distribution and abundance within the wooded interior of the NWA.
- 3. Distribution and density of alien invasive species within the NWA.
- 4. Shorebird numbers (species diversity) and related habitat use within the NWA.
- 5. Decadal evaluation of macro-habitat changes to the upland habitat through the use of high-resolution aerial photography (collected annually).
- 6. Monitoring of known contaminated sites with an assessment of the potential impacts on wildlife and vegetation.

## 5.4 PUBLIC INFORMATION AND OUTREACH

One of the goals of the Connecting Canadians to Nature initiative is to increase public access to the selected NWAs while managing their visitation so that activities do not interfere with the conservation of wildlife. The Cape Jourimain Nature Centre Inc. and complex, including the tourist information kiosk, gift shop, restaurant, interpretation centre and walking trails, already provide a wealth of environmentally respectful experiences and educational opportunities for visitors.

Public access for recreational purposes within the Cape Jourimain NWA is subject to the federal *Wildlife Area Regulations* of the *Canada Wildlife Act*. Section 6.2 lists authorized activities for Cape Jourimain NWA, both with and without special restrictions. Some traditional activities such as waterfowl hunting, fishing, trapping, canoeing and birdwatching are allowed by virtue of a Public Notice posted at all main entrances to the protected area. Hunting within the upland area of the NWA, including the mainland, Jourimain Island and Trenholm Island, is not permitted.

In addition, the unique character of Cape Jourimain NWA and its significance as an important wetland complex, featuring the iconic Willet, has been highlighted in the national

"Heritage to Protect" poster series. A limited number of these are available to educators, students and the general public upon request.

# 6. AUTHORIZED ACTIVITIES AND PROHIBITIONS

In the interest of wildlife and their environment, human activities are minimized and controlled in NWAs through the implementation of the *Wildlife Area Regulations*. These regulations set out activities that are prohibited (subsection 3(1)) in the wildlife area and provide mechanisms for the Minister of the Environment and Climate Change to authorize certain activities to take place in NWAs that are otherwise considered prohibited. The regulations also provide the authority for the Minister to prohibit entry into NWAs.

Activities within an NWA are authorized where notices have been posted at the entrance to or along the boundaries of the NWA or when notices have been published in local newspapers. All activities in an NWA are prohibited unless a notice has been posted or published authorizing the activity to take place. However, in addition to notices, certain activities may be authorized by obtaining a permit from the Minister of the Environment and Climate Change.

## 6.1 **PROHIBITION OF ENTRY**

Under the *Wildlife Area Regulations*, the Minister may publish a notice in a local newspaper or post notices at the entrance of any wildlife area or on the boundary of any part thereof prohibiting entry to any wildlife area or part thereof. These notices can be posted when the Minister is of the opinion that entry is a public health and safety concern or when entry may disturb wildlife and their habitat.

For Cape Jourimain NWA, entry is allowed. However, the Nature Centre and associated walking trails are under licence to the Cape Jourimain Nature Centre Inc., thus further restrictions may apply.

## 6.2 AUTHORIZED ACTIVITIES

For Cape Jourimain NWA, notices authorizing the following activities will be posted at all designated access points. Activities such as camping and open fires are not permitted in the NWA.

Authorized activities without special restrictions:

- 1. Interpretation activities
- 2. Wildlife observation
- 3. Hiking

- 4. Photography
- 5. Skiing
- 6. Skating
- 7. Snowshoeing

Authorized activities with special restrictions:

- 1. Hunting, fishing and trapping<sup>1</sup>
- 2. Canoeing<sup>2</sup>
- 3. Berry picking<sup>3</sup>

**Note:** If there is a discrepancy between the information presented in this document and the notice, the notice prevails, as it is the legal instrument authorizing the activity.

<sup>&</sup>lt;sup>1</sup> Subject to federal and provincial regulations, waterfowl hunting is permitted only within the salt marshes (Figure 18). No upland hunting is allowed.

<sup>&</sup>lt;sup>2</sup> Outboard motors must be less than 10 horsepower.

<sup>&</sup>lt;sup>3</sup> Non-commercial berry picking only.



Figure 18: Posted open and closed hunting zones within the Cape Jourimain NWA. Visitors should check the Public Notices posted on-site for any changes to this advisory.



Figure 19: The Cape Jourimain marshes have a long tradition of waterfowl hunting; brush blinds dot the open landscape Photo: C. MacKinnon © Environment and Climate Change Canada, 2010

## 6.3 RESEARCH

Research activities will be considered for permitting when the results obtained through research have the potential to provide data and information on the following topics of interest:

- 1. Waterfowl, shorebirds and migratory bird population monitoring.
- 2. Habitat use and habitat selection studies for wildlife species inhabiting the NWA.
- 3. Protection or recovery of species at risk.
- 4. Restoration of habitat impacted by historical human activity.
- 5. The effects of climate change and variability on water level management and erosion.
- 6. The impacts of invasive species.

To obtain a permit to conduct research in Cape Jourimain NWA, and to receive instructions on guidelines for research proposals, please contact:

National Wildlife Area – Research Request

Environment and Climate Change Canada, Canadian Wildlife Service

17 Waterfowl Lane, P.O. Box 6227 Sackville NB E4L 1G6

Permit applications should be directed to: ec.scfatlpermis-cwsatlpermits.ec@canada.ca

## 6.4 AUTHORIZATIONS

Permits and notices authorizing an activity may be issued only if the Minister is of the opinion that the activity is scientific research relating to wildlife or habitat conservation; or the activity benefits wildlife and their habitats or will contribute to wildlife conservation; or the activity is not inconsistent with the purpose for which the NWA was established and is consistent with the most recent management plan.

The Minister may also add terms and conditions to permits in order to minimize the impact of an activity on wildlife and wildlife habitat.

All requests for permits or authorizations must be made in writing to the following address:

National Wildlife Area – Permit Request Environment and Climate Change Canada, Canadian Wildlife Service Atlantic Region 17 Waterfowl Lane, P.O. Box 6227 Sackville NB E4L 1G6

For further information, please consult the Policy when Considering Permitting or Authorizing Prohibited Activities in Protected Areas Designated under the *Canada Wildlife Act* and *Migratory Birds Convention Act, 1994* (December 2011). This Environment and Climate Change Canada policy document is available on the protected areas website at https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html.

# 6.5 OTHER FEDERAL AND PROVINCIAL AUTHORIZATIONS

Depending on the type of activity, other federal or provincial permits or authorizations may be required to undertake an activity in this NWA.

Contact your regional federal and provincial permitting office for more information. National Wildlife Area – Permit Request Environment and Climate Change Canada, Canadian Wildlife Service Atlantic Region 17 Waterfowl Lane, P.O. Box 6227 Sackville NB E4L 1G6

Province of New Brunswick Department of Natural Resources Fish and Wildlife Division P.O. Box 6000 Fredericton NB E3B 5H1

# 7. HEALTH AND SAFETY

In the case of environmental emergencies, contact will be made with the Canadian Environmental Emergencies Notification System at the following address:

Maritimes Regional Office Canadian Coast Guard Fisheries and Oceans Canada Telephone: 902-426-6030 or 1-800-565-1633

Non-emergency issues related to security or health and safety issues for Cape Jourimain NWA should be reported to:

National Wildlife Area Program Environment and Climate Change Canada, Canadian Wildlife Service 17 Waterfowl Lane, P.O. Box 6227 Sackville NB E4L 1G6 Telephone: 506-364-5044

All reasonable efforts will be made to protect the health and safety of the public, including adequately informing visitors of any known or anticipated hazards or risks. Further, Environment and Climate Change Canada staff will take all reasonable and necessary precautions to protect their own health and assure safety as well as that of their co-workers. However, visitors (including researchers and contractors) must make all reasonable efforts to inform themselves of risks and hazards and must be prepared and self-sufficient. Natural areas contain some inherent dangers, and proper precautions must be taken by visitors, recognizing that Environment and Climate Change Canada staff neither regularly patrol nor offer services for visitor safety in NWAs. Incidents or emergencies can be reported to the numbers listed in Table 7 below.

Emergency Contacts for Cape Jourimain NWA, New Brunswick 46°09'N 63°49'W				
Cape Jourimain Nature Centre 5039, Route 16, Bayfield, New Brunswick	506-538-2220			
Any life-threatening emergency	911			
Police-Fire-Ambulance	911			
Royal Canadian Mounted Police (RCMP), Shediac detachment	1-506-533-5151			
Rescue Coordination Centre to report air and marine emergencies (emergency only)	1-800-565-1582			
Environmental emergencies (oil, pesticide, chemical spills and other environmental emergencies)	1-800-565-1633			
Environment and Climate Change Canada – Wildlife Enforcement Division	1-506-364-5044			
Environment and Climate Change Canada – Canadian Wildlife Service 17 Waterfowl Lane, P.O. Box 6227, Sackville, New Brunswick, E4L 1G6 (Fax: 506-364-5062)	1-506-364-5044			
New Brunswick Department of Natural Resources and Energy 1100 Champlain Street, Dieppe	1-866-458-8080 1-506-856-2344			
New Brunswick Department of Natural Resources and Energy Fish and Wildlife Branch, Fredericton (general inquiry)	1-506-453-2440			
New Brunswick Poison Control Centres (emergencies)	911			
Sackville Regional Hospital 8 Main Street, Sackville, New Brunswick	1-506-364-4100			

## Table 7: Emergency Contacts for Cape Jourimain NWA

# 8. ENFORCEMENT

The management of NWAs is based on three Acts:

- Migratory Birds Convention Act, 1994, and Migratory Birds Regulations
- Canada Wildlife Act and Wildlife Area Regulations
- Species at Risk Act

To promote compliance with the *Canada Wildlife Act* and *Wildlife Area Regulations*, Environment and Climate Change Canada's Canadian Wildlife Service posts signs along the NWA boundaries and at main access points that identify what activities are authorized within each NWA and any conditions on those activities.

Environment and Climate Change Canada's Wildlife Enforcement Division (ECCC–WED) is responsible for enforcement of federal and provincial wildlife laws, and will perform on-site inspections and investigations, patrol the NWA to promote compliance, and prevent prohibited uses within the NWA. ECCC–WED officers will respond to violations and take appropriate enforcement actions. Canadian Wildlife Service Atlantic staff provide details from site inspections that may require investigation.

A goal of the enforcement program is to control and reduce the occurrence of unauthorized and prohibited activities in the NWA. The purpose of this enforcement is to protect and maintain the overall ecological qualities of the NWA. Unspoiled natural habitat and special habitat features (including expansive salt marsh and island habitats) are to be protected from the damage that may be caused by illegal camping and campfires. Canadian Wildlife Service staff will document and report illegal activities within Cape Jourimain NWA and communicate regularly with ECCC–WED. Where there is sufficient evidence, the Canadian Wildlife Service seeks enforcement action with the view of reducing or eliminating the occurrence of such activities in the NWA.

# 9. PLAN IMPLEMENTATION

The management plan will be implemented over a 10-year period. Annual work plans will be developed in accordance with priorities and budgets, and the details of management plan implementation will be developed through Environment and Climate Change Canada's annual work planning process and will be implemented as human and financial resources allow. An adaptive management approach will be favoured for the implementation of the management plan. The implementation of the plan will be evaluated 5 years after its publication, on the basis of the actions identified in Table 8.

Activity	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Site inspections (health and safety)	x	х	х	х	х	х	х	х	х	х
Facilities maintenance	х	х	х	х	х	х	х	х	х	х
Impoundment monitoring	х	х	х	х	х	х	х	х	х	х
Boundary line maintenance	х	х	х	х	х	х	х	х	х	х
Waterfowl use survey				х					х	
Shorebird survey			х					х		
Botanical survey		х								
Upland habitat management	х		х		х		х		х	
Acadian forest restoration		х		х		х		х		х
CCtN initiative implementation	х	х	х	х						

Table 8: Implementation Strategy Timeline for Cape Jourimain NWA

## 9.1 MANAGEMENT AUTHORITIES AND MANDATES

Environment and Climate Change Canada, Canadian Wildlife Service, Atlantic is responsible for site management of Cape Jourimain NWA. The Cape Jourimain Nature Centre complex and associated trails and infrastructure are the administrative responsibility of the notfor-profit Cape Jourimain Nature Centre Inc. under a licence agreement.

## 9.2 MANAGEMENT PLAN REVIEW

This management plan will be reviewed 5 years after its formal approval by Environment and Climate Change Canada's Canadian Wildlife Service and every 10 years thereafter.

Additions of new information may be appended to the document as required to aid in site management and decision making.

# **10. COLLABORATORS**

There are no formal arrangements pertaining to the overall management or administration of Cape Jourimain NWA. The footprint of the Cape Jourimain Nature Centre, lands immediately by the centre, the vehicle parking area, and walking trails are all covered under a Master Agreement (2000) between the Cape Jourimain Nature Centre Inc. and Environment and Climate Change Canada. In support of this initiative, considerable background work was conducted as part of the project assessment and to evaluate possible cumulative environmental effects (MacKinnon and Ridlington 1996; Keith 1998; Environment and Climate Change Canada 1990; Environment and Climate Change Canada 1999; Cape Jourimain Nature Centre 2000) subject to the NWA regulations. The Cape Jourimain Nature Centre Inc. is responsible for public use and safety within this area.

There are also three controlled water-level impoundments within the NWA that are managed by Ducks Unlimited Canada in collaboration with Environment and Climate Change Canada's Canadian Wildlife Service (under a land use agreement). Ducks Unlimited Canada is responsible for the physical maintenance of these impoundments. In collaboration with Ducks Unlimited Canada, a 30-year plan for the maintenance of infrastructure (such as dykes, water control structures and access roads) for habitat management within controlled water-level impoundments will be established.

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# **APPENDIX I: CONDITIONS OF RESEARCH REQUESTS**

Permission under the *Wildlife Area Regulations* to undertake research may be given, subject to the following conditions:

- All requests for research must be accompanied by a written proposal outlining objectives, project duration, collection of data and specimens and measurements if any, number of participants, funding sources, and location where work is to be undertaken, benefits to the NWA, potential detractors and proposed mitigation measures (all proposals may be subject to a review by the Animal Care Committee of either Environment and Climate Change Canada's Canadian Wildlife Service or the submitting institution);
- No research shall be undertaken without a permit issued under the Canada Wildlife Act – Wildlife Area Regulations and must be consistent with the respective NWA management plan and other relevant legislation (such as the Species at Risk Act or Migratory Birds Convention Act, 1994).
- 3. All researchers must conform to regulations in effect regarding the NWA;
- 4. Copies of raw data (field books/maps), preliminary reports of the research activities and a copy of the final manuscript must be provided to Environment and Climate Change Canada, Canadian Wildlife Service, Atlantic at the end of each field season;
- 5. Priority will be given to researchers whose work has direct management implications for the NWA and species at risk;
- 6. Applications to undertake a minor research study must be submitted to the Environment and Climate Change Canada, Canadian Wildlife Service, Atlantic office (<u>ec.scfatlpermis-cwsatlpermits.ec@canada.ca</u>), in writing, prior to commencement of the project. Minor proposals without problems or issues require at least seven (7) weeks for review, processing and issuance of a permit. Major proposals (that may require expert review, are multiyear, etc.) require a longer review period (minimum six months);
- A statement must be provided to Environment and Climate Change Canada, Canadian Wildlife Service, Atlantic on why the research project cannot be undertaken elsewhere.

8. Any proposed work is subject to the Canada Labour Code, Part II (subject to the strictest safety certification, training, operational experience and mandatory use of appropriate safety equipment).

All projects and activities in the NWA are subject to environmental screening and then, if necessary, to further steps in the Environmental Assessment and Review Process (Environment and Climate Change Canada).

# **APPENDIX II: LEGISLATION**

## **Federal Legislation**

## Canada Wildlife Act

http://laws-lois.justice.gc.ca/eng/acts/W-9/index.html

Fisheries Act http://laws.justice.gc.ca/eng/acts/F-14/

Migratory Birds Convention Act, 1994 http://laws-lois.justice.gc.ca/eng/acts/M-7.01/

Wildlife Area Regulations http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,\_c.\_1609/index.html

Species at Risk Act www.sararegistry.gc.ca/default\_e.cfm www.registrelep-sararegistry.gc.ca
## APPENDIX III: GOVERNMENT OF CANADA SPECIES AT RISK GLOSSARY

*Species at Risk Act* (SARA): The federal legislation that provides protection to species at risk in Canada. This act establishes Schedule 1 as the legal list of wildlife species at risk to which the SARA provisions apply. It classifies those species as being: extirpated, endangered, threatened or special concern. Once listed, the measures to protect and recover a listed wildlife species are implemented. Schedules 2 and 3 contain lists of species that, at the time SARA came into force, needed to be reassessed. After species on Schedules 2 and 3 are reassessed and found to be at risk, they undergo the SARA listing process to be included in Schedule 1. <a href="http://www.sararegistry.gc.ca/status/status\_e.cfm">www.sararegistry.gc.ca/status/status\_e.cfm</a>

**COSEWIC:** Committee on the Status of Endangered Wildlife in Canada. In Canada, species at risk are assessed and classified by COSEWIC. Species designated as at risk before the creation of the *Species at Risk Act* must be re-assessed by COSEWIC according to the new criteria of the Act before they can be added to Schedule 1. These species are listed on Schedules 2 and 3, and are not yet officially protected under SARA.

COSEWIC assessments and status reports: <u>www.sararegistry.gc.ca/status/status\_e.cfm</u>

**Critical habitat:** The habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species.

**ECCC–CWS:** Environment and Climate Change Canada – Canadian Wildlife Service.

**Schedule 1:** The official list of species that are classified as extirpated, endangered, threatened and of special concern.

**Schedule 2:** Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

**Schedule 3:** Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

**Species at risk:** An extirpated, endangered, threatened species, or a species of special concern.

**Wildlife species:** A species, subspecies or biologically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and native to Canada or has been present in Canada without human intervention for at least 50 years.

Species at Risk Act COSEWIC Status		Definition
EXT	Extinct	A wildlife species that no longer exists.
EXP	Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END	Endangered	A wildlife species that is facing imminent extirpation or extinction.
THR	Threatened	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC	Special Concern	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.