Sand Pond: Supplemental Information

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Prepared for:
Canadian Wildlife Service
Environment and Climate Change Canada
Sackville, NB

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Nature of Project and Method

Sand Pond Background

The Sand Pond structure was built shortly after the Canadian Wildlife Service purchased the property in 1968. The site had a history of human use and the lake had been used for cranberry production. The lake was drained as early as 1900 to facilitate cranberry farming. The structure was installed to limit the drainage from the excavated channel to restore the shallow flooded lake.

Re-establishment of the original lake level and ability to raise water above that was done to support one of the primary management goals of the NWA. Goal 1 was to develop and maintain freshwater wetlands principally for waterfowl production and migration.

Early monitoring reports indicate that green winged teal, northern pintail, ring-necked ducks, and black ducks all breed on site and stop over on migration. Canada geese were observed to stage there only. (P.Barkhouse, 1986, Sand Pond National Wildlife Area Management Plan, Canadian Wildlife Service Technical Report)

The structure has been managed without timber in place for at least the past decade. The original lake level has been maintained providing all the benefits to waterfowl and wetland dependant species. The structure does channelize flow and provide an ideal opportunity for beaver activity. Both restrict passage to alewive attempting to reach Sand Pond and Turtle Pond.

Increased fish passage has the potential to increase marine derived nutrient inputs into the lakes which would lead to overall productivity gains. This increased fertility would benefit all trophic levels in the system as has been demonstrated elsewhere (Tintamarre NWA, Front Lake) due to improved alewive passage.

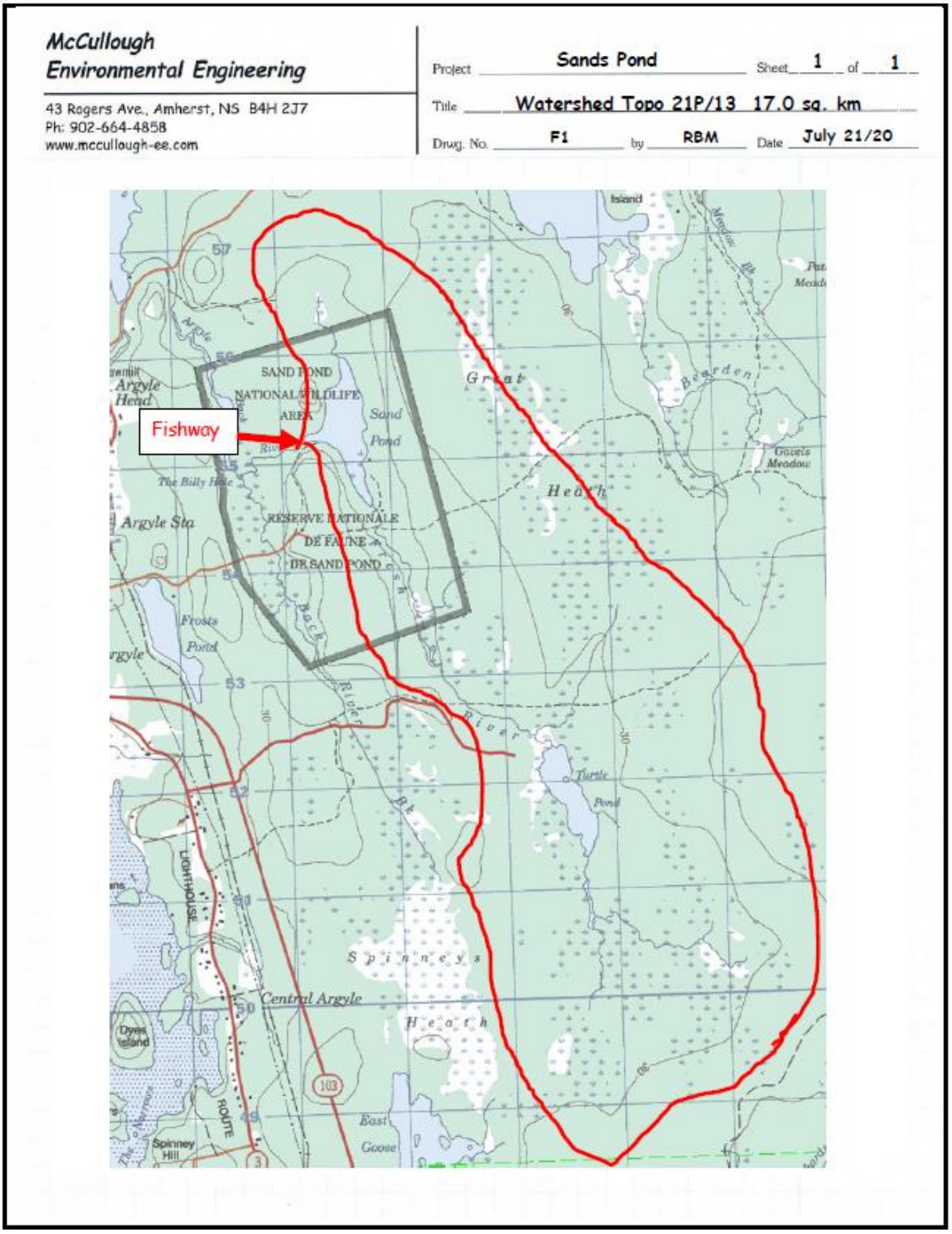
The removal of the structure will have limited impacts of the habitat (potentially positive) while removing an unnatural structure from the NWA that is currently blocking some fish passage.

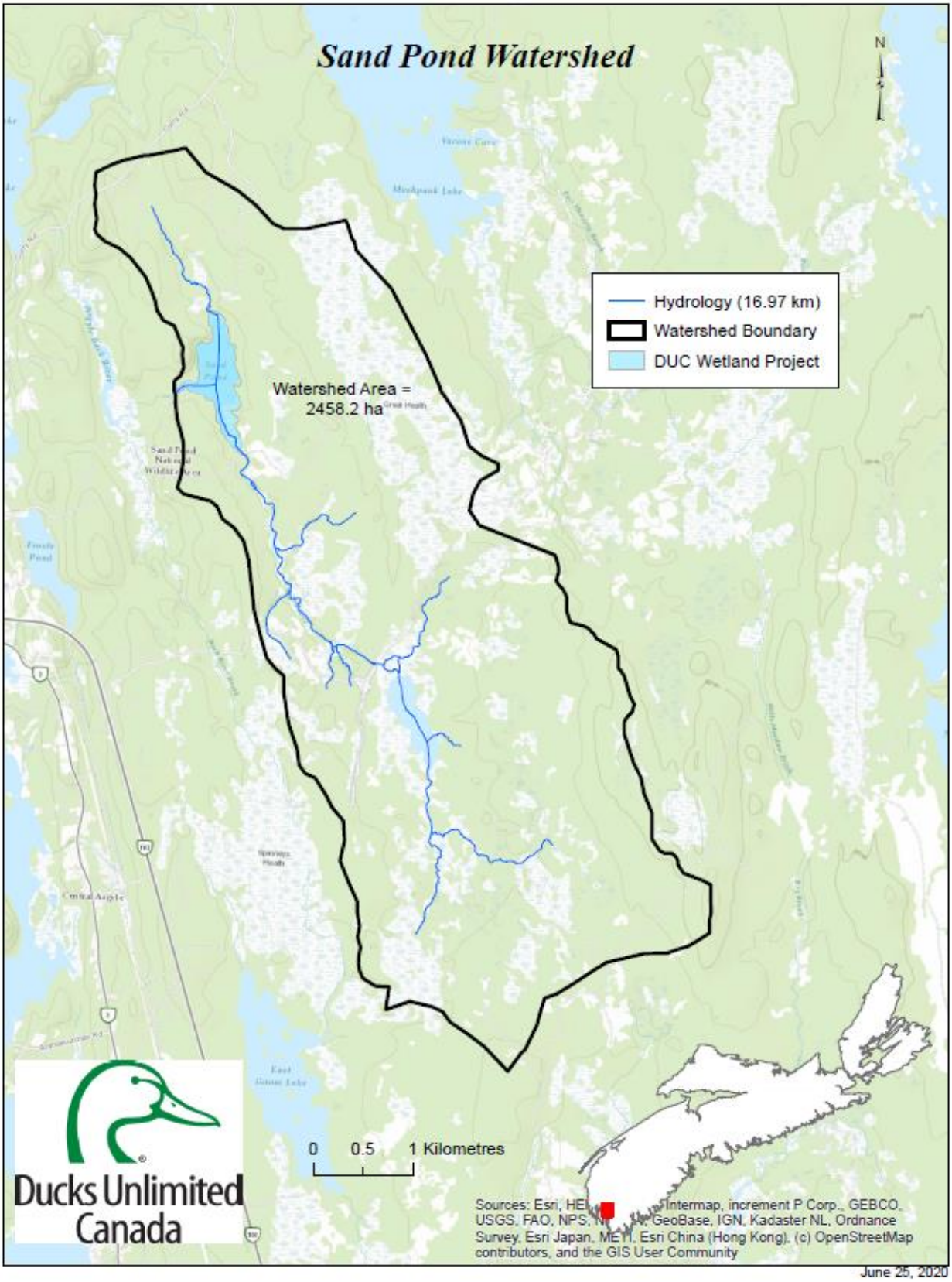
The proposed removal of the structure has been reviewed by DFO and they support the removal of the partial barrier. The project has been approved as an eligible offset for HADD authorizations elsewhere and Small Craft and Harbours plan to fund the project to address infrastructure upgrade impacts.

Restoration

The removal of the structure and restoration of the watercourse will return this area to its original state. No material should be removed below the concrete as the previous outlet channel was human dug. We propose to remove the structure while maintaining the original lake levels.

Site Location




Sand Pond Watershed
N
Hydrology (16.97 km)
Watershed Boundary
DUC Wetland Project
Watershed Area =
2458.2 ha
0
0.5
1 Kilometres
Ducks Unlimited
Canada
Sources: Esri, HE... Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, N... GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
June 25, 2020

Site Photos

Monitoring Program

Monitoring efforts will focus on determining what fish species are present in the system before and after the structure removal. If possible, visual confirmation of passage will be captured.

We expect to find eels and alewife using the lake and will determine the relative abundance of both.

Follow-ups

Monitoring efforts will be ongoing post-restoration to ensure the project is responding as anticipated. Once the schedule of monitoring visits is finalized, this information will be provided to Environment and Climate Change Canada.

Environmental Impact Mitigation

Applicable regulations

All earthwork will occur outside biologically sensitive times (Aug 15-March 30). The following Acts and regulations apply to the planned work:

- Environment Canada: Fish and fish habitat protection prohibitions under the *Fisheries Act*. Work will occur in the fish window (June 1- Sept. 30) unless a variance is requested.
- Environment Canada: *Migratory Birds Convention Act*
- The Federal Policy on Wetland Conservation, *Canadian Environmental Assessment Act*
- NS Wetland Conservation Policy, *Environment Act*
- NS Environment, Watercourse Alterations Standard
- *Species at Risk Act*
- *Special Places Protection Act*

All successful earthworks contractors are required to work under Environmental Protection Guidelines outlined in the contract. This includes, but not limited to, site commissioning and decommissioning, a sediment and erosion control plan, hazardous materials management, work adjacent to watercourses, site drainage.

At a minimum, all equipment will have spill kits on site to deal with any accidental fluid spills and fueling will only occur off site.

All exposed surfaces will be covered with mulch and seeded, silt aprons will be properly installed as regulatory permit stipulations dictate. Trees will be planted in spring 2021 at the structure removal site to accelerate successional growth.

Project duration and frequency of visits

DUC anticipates this project will span over 1-2 months. Non-invasive work, such as baseline monitoring data collection, field topographic surveys and other planning activities will likely take place within 1-2 weeks. The anticipated timeline for earthworks is likely to occur within 1-2 weeks. Frequency of visits will depend on worker schedules, but will likely be clumped by task (i.e. monitoring, surveys etc.). Earthworks will be focused on specific days to complete the job quickly in attempt to minimize the time heavy machinery is on site.

Structure Removal

All activities and vegetation disturbance will be limited to the minimum space to allow for safe operations. No more vegetation including trees will be removed than is absolutely necessary. This includes the mulching of the road to access the site. Mulching of trees and shrubs will be limited to the road footprint and only trees and limbs that are an obstacle to safe access will be removed cleanly.

To facilitate construction, beaver debris will be removed to lower the water level in the lake. Sand bags will be placed across the front and back of the structure to isolate it from flow. All removal will take place in the dry. An adjacent bypass channel will be dug to maintain flow downstream during structure removal. This channel will be restored before leaving the site. All work will be done in based on DFO guidance.

A 20 ton or larger excavator will be employed to remove the structure and berm material in the dry, following all permit stipulations. Tandem trucks will be used to transport berm material and debris offsite where it will be appropriately disposed. Machinery will work on the existing berm footprint only.

Structure Plan