Fish Community Inventory of Dyked Wetlands in the St. Clair National Wildlife Area, Ontario, 2018 and 2019

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ABSTRACT

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The St. Clair National Wildlife Area (NWA) is a wetland complex located along the eastern shore of Lake St. Clair in the Municipality of Chatham-Kent, Ontario. Water levels in two wetlands (East and West Cell) are managed through a series of water control structures. Lake Chubsucker [*Erimyzon sucetta; Species at Risk Act (*SARA) Endangered and Pugnose Shiner (*Notropis anogenus;* SARA Threatened) have been previously detected within the St. Clair NWA. In May and September 2018, Fisheries and Oceans Canada sampled the East Cell to determine the occurrence and size structure of Lake Chubsucker. Additional sampling was conducted in September 2019 in the East and West cells to describe the composition of the fish community. Aquatic habitat, such as substrate composition, water depth, and macrophyte availability, was measured at each sampling site in 2018 and 2019. A total of 35 sites were sampled in 2018, while 55 sites were sampled in 2019. In 2018, 1,386 fishes representing 16 species were captured. Based on pooled catch data the most abundant species in 2018 were Pumpkinseed (*Lepomis gibbosus*), Black Crappie (*Pomoxis nigromaculatus*), Largemouth Bass (*Micropterus salmoides*), Bowfin (*Amia calva*), and Brown Bullhead (*Ameiurus nebulosus*). A total of six Lake Chubsucker (total length 75 mm to 200 mm) were captured in the East Cell in 2018. A total of 768 fishes representing 14 species were captured in the East Cell in 2019. The most abundant species were Pumpkinseed, Golden Shiner (*Notemigonus crysoleucas*), Black Crappie, Largemouth Bass, and Bowfin. A total of 1,041 fishes representing 15 species were captured in the West Cell in 2019. The most abundant species were Pumpkinseed, Golden Shiner, Bowfin, Largemouth Bass, and Bluegill (*Lepomis macrochirus*). Lake Chubsucker was captured in both the East Cell (nine individuals; 74 mm to 215 mm total length) and West Cell (five individuals; 61 mm to 145 mm total length) in 2019. Pugnose Shiner was not detected during 2018 or 2019 sampling. Results of sampling will be used to inform long-term management of SARA-listed fishes in the St. Clair NWA, including the response of fishes to proposed water-level drawdown.

RÉSUMÉ

Barnucz, J., Colm, J.E., and Drake, D.A.R. 2021. Fish Community Inventory of Dyked Wetlands in the St. Clair National Wildlife Area, Ontario, 2018 and 2019. Can. Data Rep. Fish. Aquat. Sci. 1324: vii + 34 p.

Réserve nationale de faune (RNF) de Sainte-Claire est un complexe de milieux humides situé sur la rive est du lac Sainte-Claire, dans la municipalité de Chatham-Kent, en Ontario. Les niveaux d'eau dans deux milieux humides (cellules Est et Ouest) sont maintenus au moyen d'une série d'installations de régulation des eaux. Le sucet de lac [*Erimyzon sucetta*; espèce en voie de disparition en vertu de la *Loi sur les espèces en péril* (LEP)] et le méné camus (*Notropis anogenus*; espèce menacée en vertu de la LEP) ont été observés par le passé dans la RNF de Sainte-Claire. En mai et en septembre 2018, Pêches et Océans Canada a réalisé un échantillonnage dans la cellule Est en vue de déterminer la présence et la structure de taille du sucet de lac. D'autres échantillonnages ont été réalisés en septembre 2019 dans les cellules Est et Ouest afin de décrire la composition de la communauté de poissons. L'habitat aquatique (p. ex. la composition du substrat, la profondeur d'eau et la présence de macrophytes) a été mesuré à chaque site d'échantillonnage en 2018 et 2019. Au total, 35 sites ont été échantillonnés en 2018 et 55 sites l'ont été en 2019. En 2018, 1 386 poissons représentant 16 espèces ont été capturés. Selon les données regroupées sur les prises, le crapet-soleil (*Lepomis gibbosus*), la marigane noire (*Pomoxis nigromaculatus*), l'achigan à grande bouche (*Micropterus salmoides*), le poisson-castor (*Amia calva*) et la barbotte brune (*Ameiurus nebulosus*) ont été les espèces les plus abondantes en 2018. Au total, six sucets de lac (entre 75 mm et 200 mm de longueur totale) ont été capturés dans la cellule Est en 2018. Au total, 768 poissons représentant 13 espèces ont été capturés dans la cellule Est en 2019. Le crapet-soleil, le méné jaune (*Notemigonus crysoleucas*), la marigane noire, l'achigan à grande bouche et le poisson-castor ont été les espèces les plus abondantes. Au total, 1 041 poissons représentant 15 espèces ont été capturés dans la cellule Ouest en 2019. Le crapet-soleil, le méné jaune, le poisson-castor, l'achigan à grande bouche et le crapet arlequin (*Lepomis macrochirus*) ont été les espèces les plus abondantes. En 2019, des sucets de lac ont été capturés dans la cellule Est (neuf individus; entre 74 mm et 215 mm de longueur totale) et dans la cellule Ouest (cinq individus; entre 61 mm et 145 mm de longueur totale). Aucun méné camus n'a été observé dans le cadre des échantillonnages réalisés en 2018 et 2019. Les résultats des échantillonnages serviront à orienter la gestion à long terme des espèces inscrites sur la liste de la LEP dans la RNF de Sainte-Claire, y compris la réponse des poissons à l'abaissement du niveau d'eau proposé.

INTRODUCTION

Fisheries and Oceans Canada (DFO) has the responsibility to provide for the protection and recovery of fishes listed under the *Species at Risk Act* (SARA) of 2002. To inform scientific aspects of the recovery process, DFO regularly conducts field sampling to satisfy several research objectives for SARA-listed fishes, such as evaluating the distribution and abundance of species, determining species-habitat relationships, and better understanding the influence of threats and recovery actions. DFO data reports are published to support the Species at Risk Program by providing an overview of field activities and to provide a medium for archiving data associated with the sampling of SARA-listed fishes and their habitat.

This data report summarizes sampling by DFO in 2018 and 2019 to better understand the occurrence of SARA-listed fishes, and composition of the fish assemblage, within dyked wetlands of the St. Clair Unit within the St. Clair National Wildlife Area (NWA). The St. Clair NWA is a unique wetland complex that was created following the purchase of 242.8 ha of wetland from Dover Marshes Limited in 1974 as part of a wetland habitat preservation program led by the Canadian Wildlife Service [Environment and Climate Change Canada (ECCC) 2016]. Following the purchase, a series of habitat improvement measures, including the installation of dykes, resulted in the creation of two wetland cells (East and West) with water levels managed by a pump system. The wetlands are dominated by stands of cattails (*Typha* spp.) interspersed with areas of shallow (< 2 m) open water and ponds (ECCC 2016), while the edges of the cells contain large stands of both cattail and non-native European Common Reed (*Phragmites australis* subsp*. australis*). A variety of aquatic macrophytes have been detected within the cells including pondweed species (*Potamogeton* spp.), bulrush species (*Schoenoplectus* spp.), bur-reed species (*Sparganium* spp.), White Water Lily (*Nymphaea odorata*), American Lotus (*Nelumbo lutea*), Pickerelweed (*Pontederia cordata*), Chara species (*Chara* spp.), and Wild Celery (*Vallisneria americana*) (ECCC 2016).

Due to dyking, wetland cells within the St. Clair Unit are not subject to the same natural hydrologic fluctuations that occur in other coastal wetlands, and therefore also lack periodic cycles of drying and flooding necessary for the rejuvenation of marsh soils and natural maintenance of aquatic macrophyte communities. To allow for periods of drying and promote macrophyte regeneration, the management plan of the St. Clair NWA has identified artificial water-level drawdown through the dyke and pump system as a means of ensuring ongoing wetland function within both wetland cells. However, because water-level drawdown has the potential to directly and indirectly affect fishes contained within both cells, including SARA-listed species, sampling by DFO in 2018 and 2019 was undertaken to better understand the incidence of SARA-listed species and attributes of the fish assemblage and habitat features in the system.

Lake Chubsucker (*Erimyzon sucetta;* SARA Endangered) and Pugnose Shiner (*Notropis anogenus;* SARA Threatened) have been previously detected within the St. Clair Unit [Committee on the Status of Endangered Wildlife in Canada (COSEWIC) 2013; Biotactic 2016]. Lake Chubsucker has been detected periodically between 2002 and 2018 within both the East and West cells, while Pugnose Shiner was detected by DFO on a single occasion in the West Cell in 2003 (COSEWIC 2013). The objective of field sampling by DFO in 2018 (East Cell) and 2019 (East and West cells) was to: 1) determine the occurrence, size-structure, and habitat associations of Lake Chubsucker and Pugnose Shiner, and 2) evaluate the composition of the fish assemblage. Sampling was also conducted to evaluate aquatic habitat features of both cells.

METHODS

STUDY AREA AND SITE SELECTION

The primary objective of 2018 sampling was to better understand the occurrence, habitat associations, and size-structure of Lake Chubsucker in the East Cell. Survey sites were selected if they had water depths of approximately 1 m or greater and (or) if they contained more than three aquatic macrophyte genera. The macrophyte criterion was implemented based on knowledge from previous surveys of Lake Chubsucker in southern Ontario, where detections of the species were usually associated with diverse submerged macrophyte assemblages. Sampling of the East Cell in 2018 occurred on May 23rd and 24th with 14 net sets, and September 18th to 19th with 21 net sets, resulting in a total of 35 fyke-net sites in the East Cell in 2018 (Figure 1; Table 1a). Seining was attempted in May 2018 but was abandoned due to difficult wading conditions (deep water and / or substrate not conducive to wading). In 2019, sampling was expanded to include sites within both the West and East cells. Unlike sampling in 2018, which was primarily focused on detecting Lake Chubsucker, sampling in 2019 was designed to sample representative aquatic habitats within both cells. In 2019, sites were selected haphazardly from the available navigable habitats within both cells. In 2019, sampling in the East Cell occurred between September 16th and 18th with 30 net sets (Figure 1; Table 1b). Sampling of the West Cell occurred between September 9th and 11th with 25 net sets (Figure 1, Table 1c). Only fyke nets were used in the 2019 survey. A distance approximating at least 100 m was maintained between all sites across both years. Sampling in 2018 and 2019 was completed with the use of a small jon boat powered with a surface drive outboard.

FISH ASSEMBLAGE SAMPLING

In 2018 and 2019, fishes were sampled using mini fyke nets consisting of a 0.6 m x 1.2 m box opening followed by 0.6 m diameter hoops (Figure 2). The nets had a 7.6 m lead and 2 x 4.8 m wings. The entire net was constructed of 3 mm (1/8") mesh. A large protective mesh was placed over the opening box to deter the entry of turtles. Nets were deployed and retrieved using a combination of wading and the use of long push poles to manoeuvre the sampling vessel. Nets were secured in the fishing position with vertical rebar placed at the terminal end of the lead, wings, and cod end of the net. Effort was made to secure the lead against the shore or a patch of dense macrophytes to encourage fishes to enter the net. Nets were set for a period of 17 to 20 hours depending on travel time and site access to each net. All fishes captured were identified to species. For each species, the maximum and minimum total length (mm) per sampling site was measured and recorded. Physical or photo vouchers were retained for a subset of species for subsequent identification in the lab. Lake Chubsucker specimens were individually measured for total length (mm) and weight (g), photographed, and released.

AQUATIC HABITAT SAMPLING

Aquatic habitat was assessed shortly after net deployment. Habitat variables were measured near the centre of each net set location. A total of nine habitat variables were measured including site depth (m), air temperature (°C), water temperature (°C), conductivity (µS), dissolved oxygen (mg/L), Secchi tube depth (m), and turbidity (NTU). Three depth measurements that were representative of depths within the sampling site were recorded. Surface water temperature (°C), conductivity (µS), turbidity (NTU), and dissolved oxygen (mg/L) were measured using a YSI EXO2 multi-parameter sonde unit. Secchi measurements (m) were

collected using a 120 cm Fieldmaster turbidity tube. Air temperature (°C) was measured using a Kestrel 3000 wind metre. Site location (latitude, longitude) was determined using a Garmin Montana 600 handheld GPS unit.

Aquatic macrophytes were assessed in an undisturbed area beside the fyke net. In 2018, macrophytes were assessed using two methods. The first method involved a visual assessment of the percent areal coverage of four macrophyte classes (submerged, emergent, floating, and open water). The dominant submerged macrophyte genera (or species, if possible) was also noted based on visual observation. In September of 2018, an additional method was incorporated based on Wagner and Mikulyuk (2012), which involved submerging a garden rake vertically through the water column until it reached the lake bed. The rake was twisted 360° and pulled vertically up to the boat. The relative macrophyte density on the rake was assessed with the following criteria: no macrophytes present (score = 0), 1 – 25% of rake tines covered (score = 1), 25% to 100% of rake tines covered (score = 2), and substantial overflow of macrophytes across the majority of tines (score = 3). The dominant submerged macrophyte genera on the rake was also recorded. In 2019, percent areal coverage of the four macrophyte classes was recorded. During rake sampling, all submerged macrophyte genera on the rake were recorded and the dominant genus was also noted. Lastly, a visual survey of all macrophyte genera was performed and all genera observed within the site boundaries (i.e., approximately 5 m^2 around the set net) were recorded. Photographs were taken of all rake samples and selected macrophytes to provide a record of macrophyte composition at each site in 2018 and 2019.

SAMPLING PERMITS AND DATA ARCHIVING

Sampling for this project was conducted under the authority of SARA Permit Number 19-PCA-00015 and Canadian Wildlife Service Permit “Fish Community Assessment of St. Clair Canadian Wildlife Area”. All fyke-net activities were conducted under Standard Operating Protocol GWACC-115, approved by the Environment and Climate Change Canada Animal Care Committee (operated under the approval of the Canadian Council on Animal Care). Data associated with these collections are housed under the project code “YEAR-NWA-LCS” in the Biodiversity Science Database within the Great Lakes Laboratory for Fisheries and Aquatic Sciences. Every effort has been made to ensure the accuracy of data contained in this report; however, species identities and other sampling results may be revised as part of a long-term data archiving process conducted in partnership with the Royal Ontario Museum. Raw data associated with this data report may be obtained by contacting the Great Lakes Laboratory for Fisheries and Aquatic Sciences.

RESULTS

FISH ASSEMBLAGE SAMPLING

2018 Fish Assemblage Sampling

A total of 1,386 fishes representing 16 species were captured in the East Cell in May and September 2018 (Table 2a). Based on pooled catch data the most abundant species in 2018 were Pumpkinseed (*Lepomis gibbosus*), Black Crappie (*Pomoxis nigromaculatus*), Largemouth Bass (*Micropterus salmoides*), Bowfin (*Amia calva*), and Brown Bullhead (*Ameiurus nebulosus*). (Figure 3a). The most frequently occurring species in 2018 across East Cell sites were Pumpkinseed (97%), Bowfin (83%), Black Crappie (74%), Largemouth Bass (54%), and Brown Bullhead (40%) (Figure 3a). A total of six Lake Chubsucker were captured in the East Cell in

September 2018, ranging in length from 75 mm to 200 mm and in weight from 5.6 g to 103.9 g (Table 3, Figure 4, Figure 5).

2019 Fish Assemblage Sampling – East Cell

A total of 768 fishes representing 13 species were captured (Table 2b). Based on pooled catch data the most abundant species were Pumpkinseed, Golden Shiner (*Notemigonus crysoleucas*), Black Crappie, Largemouth Bass, and Bowfin (Figure 3b). The most frequently occurring species across East Cell sites in 2019 were Pumpkinseed (87%), Largemouth Bass (67%), Black Crappie (50%), Bowfin (47%), and Yellow Bullhead (*Ameiurus natalis*) (37%) (Figure 3b). A total of nine Lake Chubsucker were captured in the East Cell in 2019, ranging in length from 74 mm to 215 mm and in weight from 4.5 g to 151.5 g (Table 3, Figure 4, Figure 5).

2019 Fish Assemblage Sampling – West Cell

A total of 1,041 fishes representing 15 species were captured (Table 2c). Based on pooled catch data the most abundant species in the West Cell in 2019 were Pumpkinseed, Golden Shiner, Bowfin, Largemouth Bass, and Bluegill (*Lepomis macrochirus*) (Figure 3c). The most frequently occurring species across all West Cell sites in 2019 were Pumpkinseed (96% of sites), Bowfin (64%), Largemouth Bass (48%), Golden Shiner (44%), Black Crappie, and Northern Pike (*Esox lucius*) (32%) (Figure 3c). A total of five Lake Chubsucker were captured in the West Cell in 2019, ranging in length from 61 mm to 145 mm and in weight from 2.5 g to 46.5 g (Table 3, Figure 4, Figure 5).

HABITAT SAMPLING

2018 Habitat Sampling – East Cell (May 2018)

Habitat samples were obtained at all fish sampling sites (n = 14) in May 2018 in the East Cell. Air temperature ranged from 20.80 °C to 29.80 °C with a mean of 24.71 °C (Table 4a). Water temperature ranged from 20.21 °C to 26.15 °C with a mean of 22.72 °C (Table 4a). Conductivity ranged from 318.70 µS to 398.40 µS with a mean of 369.93 µS (Table 4a). Dissolved oxygen ranged from 7.57 mg/L to 16.75 mg/L with a mean of 11.10 mg/L (Table 4a). Secchi tube measurements ranged from 1.04 m to 1.18 m with a mean of 1.13 m (Table 4a). Turbidity ranged from 1.47 NTU to 101.37 NTU with a mean of 15.91 NTU (Table 4a). Mean depth at each site ranged from 0.74 m to 0.92 m with a grand mean of 0.82 m (Table 4a). Emergent macrophyte coverage ranged from 0% to 30% with a mean of 13.1% (Table 5a). Floating macrophyte coverage ranged from 0% to 60% with a mean of 23.1% (Table 5a). Submerged macrophyte coverage ranged from 40% to 90% with a mean of 61.5% (Table 5a). Open water ranged coverage from 0% to 30% with a mean of 2.3% (Table 5a). The dominant aquatic macrophyte class among May 2018 sites was submerged at 11 of 14 sites (Table 5a). The dominant aquatic macrophyte genera observed from May 2018 sites included *Potamogeton* sp. (six sites), *Chara* spp. (three sites), *Nymphaea* sp. (two sites), *Utricularia* sp. (two sites), and *Typha* sp. (one site) as shown in Table 6a.

2018 Habitat Sampling – East Cell (September 2018)

Habitat samples were obtained at all fish sampling sites (n = 21) in September 2018 in the East Cell. Air temperature ranged from 20.60 °C to 31.20 °C with a mean of 27.28 °C (Table 4b). Water temperature ranged from 21.37 °C to 26.33 °C with a mean of 23.33 °C (Table 4b). Conductivity ranged from 420.80 µS to 482.20 µS with a mean of 443.61 µS (Table 4b).

Dissolved oxygen ranged from 1.40 mg/L to 10.96 mg/L with a mean of 4.98 mg/L (Table 4b). Secchi tube ranged from 0.41 m to 1.60 m with a mean of 0.95 m (Table 4b). Turbidity ranged form 0.77 NTU to 11.24 NTU with a mean value of 4.17 NTU (Table 4b). Mean depth at each site ranged from 0.36 m to 1.13 m with a grand mean of 0.71 m across all sites (Table 4b). Emergent macrophyte coverage ranged from 0% to 30% with a mean of 11.2% (Table 5b). Floating macrophyte coverage ranged from 5% to 40% with a mean of 27.5% (Table 5b). Submerged macrophyte coverage ranged from 35% to 80% with a mean of 54.0% (Table 5b). Open water coverage ranged from 0% to 40% with a mean of 7.2% (Table 5b). Relative aquatic macrophyte density (rake score) of submerged macrophytes ranged from 1 to 3 with a mean of 1.9 (Table 5b). The dominant aquatic macrophyte class among September 2018 sites was submerged at 20 sites (Table 5b). The most dominant aquatic macrophyte class among 2018 sites was submerged at 20 of 21 sites (Table 5b). The dominant aquatic macrophyte genera observed across all sites included *Ceratophyllum* sp. (eight sites), *Chara* spp. (five sites), *Myriophyllum* sp. (five sites), and *Utricularia* sp. (three sites) as shown in Table 6b.

2019 Habitat Sampling – East Cell

Habitat samples were obtained at all fish sampling sites (n = 30) in 2019 in the East Cell. Air temperature ranged from 21.70 °C to 29.00 °C with a mean of 25.81 °C (Table 4c). Water temperature ranged from 19.27 °C to 26.20 °C with a mean of 22.07 °C (Table 4c). Conductivity ranged from 306.60 µS to 425.00 µS with a mean of 372.40 µS (Table 4c). Dissolved oxygen ranged from 0.24 mg/L to 10.80 mg/L with a mean of 3.86 mg/L (Table 4c). Secchi tube ranged from 0.33 m to 1.07 m with a mean value of 0.74 m (Table 4c). Turbidity ranged from 0.85 NTU to 40.00 NTU with a mean value of 7.68 NTU (Table 4c). Mean depth at each site ranged from 0.45 m to 1.73 m with a grand mean of 0.89 m (Table 4c). Emergent macrophyte coverage ranged from 0% to 15% with a mean of 4.7% (Table 5c). Floating macrophyte coverage ranged from 0% to 80% with a mean of 35.0% (Table 5c). Submerged macrophyte coverage ranged from 20% to 90% with a mean of 57.3% (Table 5c). Open water coverage ranged from 0% to 30% with a mean of 2.8% (Table 5c). The relative density (rake score) of submerged macrophytes ranged from 1 to 3 with a mean of 2.5 (Table 5c). The dominant macrophyte classes across all sites were submerged at 20 sites), followed by floating at 10 sites (Table 5c). The dominant aquatic macrophyte genera observed within each site included *Ceratophyllum* sp. (11 sites), *Nymphaea* sp. (10 sites), *Elodea* sp. (five sites), *Chara* spp. (two sites), and *Myriophyllum* sp. (two sites) as reported in Table 6c. The most frequently occurring macrophyte genera across all 30 survey sites (Figure 6a) included *Nymphaea* sp. (29 sites), *Ceratophyllum* sp. (25 sites), *Elodea* sp. (15 sites), *Hydrocharis* sp. (14 sites), and *Typha* sp. (11 sites).

2019 Habitat Sampling – West Cell

Habitat samples were obtained at all fish sampling sites (n = 25) in 2019 in the West Cell. Air temperature in the West Cell ranged from 19.90 °C to 33.80 °C with a mean of 26.99 °C (Table 4d). Water temperature ranged form 17.24 °C to 24.04 °C with a mean of 19.99 °C (Table 4d). Conductivity ranged from 239.70 µS to 390.90 µS with a mean value of 329.98 µS (Table 4d). Dissolved oxygen ranged from 1.17 mg/L to 9.86 mg/L with a mean of 5.21 mg/L (Table 4d). Secchi tube ranged from 0.39 m to 1.10 m with a mean of 0.79 m (Table 4d). Turbidity ranged from 0.68 NTU to 222.20 NTU with a mean of 18.42 NTU (Table 4d). Mean depth at each site ranged from 0.62 m to 1.49 m with a mean depth across all sites of 0.92 m (Table 4d). Emergent macrophyte coverage ranged from 0% to 10% with a mean of 3.7% (Table 5d). Floating macrophyte coverage ranged from 0% to 100% with a mean of 32.9% (Table 5d). Submerged macrophyte coverage ranged from 0% to 100% with a mean of 62.5% (Table 5d).

Open water coverage ranged from 0% to 20% with a mean of 0.83% (Table 5d). The relative density (rake score) of submerged macrophyte density ranged from 1 to 3 with a mean of 2.1 (Table 5d). The dominant macrophyte classes across all sites were submerged at 18 sites and floating at six sites (Table 5d). The dominant aquatic macrophyte genera observed within each site (Table 6d) included *Ceratophyllum* sp. (seven sites), *Elodea* sp. (seven sites), *Nymphaea* sp. (five sites), *Nelumbo* sp. (three sites), and *Chara* spp. (one site). The most frequently occurring macrophyte genera across all 25 survey sites (Figure 6b) included *Nymphaea* sp. (21 sites), *Elodea* sp. (18 sites), *Ceratophyllum* sp. (13 sites), *Hydrocharis* sp. (11 sites), and *Lemna* sp. (seven sites).

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Table 1a. Sites sampled in 2018 in the East Cell of the St. Clair National Wildlife Area.

Site Code	Field Number	Date (mm/dd)	Waterbody	Latitude	Longitude
2018-East-1-1	2018-NWA-LCS-230518-001A	5/23	East Cell	42.36073	-82.40502
2018-East-1-2	2018-NWA-LCS-230518-002A	5/23	East Cell	42.36166	-82.40286
2018-East-1-3	2018-NWA-LCS-230518-003A	5/23	East Cell	42.36539	-82.39950
2018-East-1-4	2018-NWA-LCS-230518-004A	5/23	East Cell	42.36504	-82.40171
2018-East-1-5	2018-NWA-LCS-230518-005A	5/23	East Cell	42.36600	-82.40388
2018-East-1-6	2018-NWA-LCS-230518-006A	5/23	East Cell	42.36771	-82.40270
2018-East-1-7	2018-NWA-LCS-230518-007A	5/23	East Cell	42.36979	-82.40116
2018-East-1-8	2018-NWA-LCS-240518-001A	5/24	East Cell	42.37394	-82.39935
2018-East-1-9	2018-NWA-LCS-240518-002A	5/23	East Cell	42.37492	-82.39874
2018-East-1-10	2018-NWA-LCS-240518-003A	5/23	East Cell	42.37582	-82.39854
2018-East-1-11	2018-NWA-LCS-240518-004A	5/23	East Cell	42.37556	-82.39951
2018-East-1-12	2018-NWA-LCS-240518-005A	5/23	East Cell	42.37644	-82.39874
2018-East-1-13	2018-NWA-LCS-240518-006A	5/23	East Cell	42.37849	-82.39941
2018-East-1-14	2018-NWA-LCS-240518-007A	5/23	East Cell	42.37855	-82.40107
2018-East-2-1	2018-NWA-LCS-170918-001A	9/17	East Cell	42.36366	-82.39996
2018-East-2-2	2018-NWA-LCS-170918-002A	9/17	East Cell	42.36240	-82.40182
2018-East-2-3	2018-NWA-LCS-170918-003A	9/17	East Cell	42.36016	-82.40529
2018-East-2-4	2018-NWA-LCS-170918-004A	9/17	East Cell	42.36114	-82.40476
2018-East-2-5	2018-NWA-LCS-170918-005A	9/17	East Cell	42.36382	-82.40475
2018-East-2-6	2018-NWA-LCS-170918-006A	9/17	East Cell	42.36448	-82.40447
2018-East-2-7	2018-NWA-LCS-170918-007A	9/17	East Cell	42.36700	-82.40324
2018-East-2-8	2018-NWA-LCS-180918-001A	9/18	East Cell	42.36963	-82.40123
2018-East-2-9	2018-NWA-LCS-180918-002A	9/18	East Cell	42.37158	-82.39996
2018-East-2-10	2018-NWA-LCS-180918-003A	9/18	East Cell	42.37278	-82.39957
2018-East-2-11	2018-NWA-LCS-180918-004A	9/18	East Cell	42.37355	-82.39956
2018-East-2-12	2018-NWA-LCS-180918-005A	9/18	East Cell	42.37465	-82.39937
2018-East-2-13	2018-NWA-LCS-180918-006A	9/18	East Cell	42.37494	-82.39870
2018-East-2-14	2018-NWA-LCS-180918-007A	9/18	East Cell	42.37567	-82.39869
2018-East-2-15	2018-NWA-LCS-190918-001A	9/19	East Cell	42.37560	-82.39938
2018-East-2-16	2018-NWA-LCS-190918-002A	9/19	East Cell	42.37614	-82.39894
2018-East-2-17	2018-NWA-LCS-190918-003A	9/19	East Cell	42.37645	-82.39889
2018-East-2-18	2018-NWA-LCS-190918-004A	9/19	East Cell	42.37738	-82.39962
2018-East-2-19	2018-NWA-LCS-190918-005A	9/19	East Cell	42.37819	-82.39911
2018-East-2-20	2018-NWA-LCS-190918-006A	9/19	East Cell	42.37848	-82.39944
2018-East-2-21	2018-NWA-LCS-190918-007A	9/19	East Cell	42.37832	-82.40049

Table 1b. Sites sampled in 2019 in the East Cell of the St. Clair National Wildlife Area.

Site Code	Field Number	Date (mm/dd)	Waterbody	Latitude	Longitude
2019-East-01	2019-NWA-LCS-160919-001A	9/16	East Cell	42.36946	-82.39162
2019-East-02	2019-NWA-LCS-160919-002A	9/16	East Cell	42.36837	-82.39670
2019-East-03	2019-NWA-LCS-160919-003A	9/16	East Cell	42.36737	-82.40076
2019-East-04	2019-NWA-LCS-160919-004A	9/16	East Cell	42.36489	-82.40250
2019-East-05	2019-NWA-LCS-160919-005A	9/16	East Cell	42.36361	-82.40000
2019-East-06	2019-NWA-LCS-160919-006A	9/16	East Cell	42.36278	-82.40303
2019-East-07	2019-NWA-LCS-160919-007A	9/16	East Cell	42.36103	-82.40401
2019-East-08	2019-NWA-LCS-160919-008A	9/16	East Cell	42.36066	-82.40515
2019-East-09	2019-NWA-LCS-160919-009A	9/16	East Cell	42.36180	-82.40503
2019-East-10	2019-NWA-LCS-160919-010A	9/16	East Cell	42.36338	-82.40501
2019-East-11	2019-NWA-LCS-170919-001A	9/17	East Cell	42.36538	-82.40433
2019-East-12	2019-NWA-LCS-170919-002A	9/17	East Cell	42.36853	-82.40225
2019-East-13	2019-NWA-LCS-170919-003A	9/17	East Cell	42.37057	-82.40095
2019-East-14	2019-NWA-LCS-170919-004A	9/17	East Cell	42.37159	-82.39923
2019-East-15	2019-NWA-LCS-170919-005A	9/17	East Cell	42.37289	-82.39896
2019-East-16	2019-NWA-LCS-170919-006A	9/17	East Cell	42.37386	-82.39935
2019-East-17	2019-NWA-LCS-170919-007A	9/17	East Cell	42.37471	-82.39813
2019-East-18	2019-NWA-LCS-170919-008A	9/17	East Cell	42.37324	-82.39584
2019-East-19	2019-NWA-LCS-170919-009A	9/17	East Cell	42.37067	-82.39561
2019-East-20	2019-NWA-LCS-170919-010A	9/17	East Cell	42.37189	-82.39280
2019-East-21	2019-NWA-LCS-180919-001A	9/18	East Cell	42.37394	-82.39420
2019-East-22	2019-NWA-LCS-180919-002A	9/18	East Cell	42.37481	-82.39568
2019-East-23	2019-NWA-LCS-180919-003A	9/18	East Cell	42.37615	-82.39830
2019-East-24	2019-NWA-LCS-180919-004A	9/18	East Cell	42.37457	-82.39996
2019-East-25	2019-NWA-LCS-180919-005A	9/18	East Cell	42.37529	-82.40002
2019-East-26	2019-NWA-LCS-180919-006A	9/18	East Cell	42.37582	-82.39939
2019-East-27	2019-NWA-LCS-180919-007A	9/18	East Cell	42.37669	-82.39729
2019-East-28	2019-NWA-LCS-180919-008A	9/18	East Cell	42.37817	-82.39916
2019-East-29	2019-NWA-LCS-180919-009A	9/18	East Cell	42.37659	-82.40009
2019-East-30	2019-NWA-LCS-180919-010A	9/18	East Cell	42.37774	-82.40120

Table 1c. Sites sampled in 2019 in the West Cell of the St. Clair National Wildlife Area.

Site Code	Field Number	Date (mm/dd)	Waterbody	Latitude	Longitude
2019-West-01	2019-NWA-LCS-090919-001A	9/9	West Cell	42.37671	-82.40328
2019-West-02	2019-NWA-LCS-090919-002A	9/9	West Cell	42.37617	-82.40301
2019-West-03	2019-NWA-LCS-090919-003A	9/9	West Cell	42.37517	-82.40527
2019-West-04	2019-NWA-LCS-090919-004A	9/9	West Cell	42.37326	-82.40305
2019-West-05	2019-NWA-LCS-090919-005A	9/9	West Cell	42.36649	-82.40597
2019-West-06	2019-NWA-LCS-090919-006A	9/9	West Cell	42.36795	-82.40568
2019-West-07	2019-NWA-LCS-090919-007A	9/9	West Cell	42.36896	-82.40571
2019-West-08	2019-NWA-LCS-090919-008A	9/9	West Cell	42.37106	-82.40459
2019-West-09	2019-NWA-LCS-090919-009A	9/9	West Cell	42.37260	-82.40539
2019-West-10	2019-NWA-LCS-090919-010A	9/9	West Cell	42.37506	-82.40353
2019-West-11	2019-NWA-LCS-100919-001A	9/10	West Cell	42.36597	-82.40992
2019-West-12	2019-NWA-LCS-100919-002A	9/10	West Cell	42.36815	-82.40897
2019-West-13	2019-NWA-LCS-100919-003A	9/10	West Cell	42.37110	-82.40939
2019-West-14	2019-NWA-LCS-100919-004A	9/10	West Cell	42.36999	-82.41254
2019-West-15	2019-NWA-LCS-100919-005A	9/10	West Cell	42.36801	-82.41374
2019-West-16	2019-NWA-LCS-100919-006A	9/10	West Cell	42.37150	-82.41090
2019-West-17	2019-NWA-LCS-100919-007A	9/10	West Cell	42.36906	-82.41061
2019-West-18	2019-NWA-LCS-100919-008A	9/10	West Cell	42.37264	-82.40823
2019-West-19	2019-NWA-LCS-100919-009A	9/10	West Cell	42.37486	-82.40703
2019-West-20	2019-NWA-LCS-100919-010A	9/10	West Cell	42.37386	-82.40793
2019-West-21	2019-NWA-LCS-110919-001A	9/10	West Cell	42.36188	-82.40801
2019-West-22	2019-NWA-LCS-110919-002A	9/10	West Cell	42.36303	-82.40948
2019-West-23	2019-NWA-LCS-110919-003A	9/10	West Cell	42.36423	-82.41100
2019-West-24	2019-NWA-LCS-110919-004A	9/10	West Cell	42.36557	-82.41256
2019-West-25	2019-NWA-LCS-110919-005A	9/10	West Cell	42.36727	-82.41405

Table 2a. Fish assemblage sampling results from the St. Clair National Wildlife Area (East Cell) in May and September 2018. Values are aggregate catch (raw abundance) from a single fyke net at each site.

Site Code	*Ameiurus melas*	*Ameiurus natalis*	*Ameiurus nebulosus*	*Amia calva*	*Carassius auratus*	*Cyprinus carpio*	*Erimyzon sucetta*	*Esox lucius*	*Lepomis gibbosus*	*Lepomis macrochirus*	*Micropterus salmoides*	*Notemigonus crysoleucas*	*Noturus gyrinus*	*Perca flavescens*	*Pomoxis nigromaculatus*	*Umbra limi*	Total
2018-East-1-1	0	1	1	0	0	0	0	0	26	2	0	0	0	0	17	0	**47**
2018-East-1-2	1	0	0	2	0	0	0	0	42	0	0	0	2	0	5	0	**52**
2018-East-1-3	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1	**4**
2018-East-1-4	0	0	0	1	0	0	0	1	22	0	0	0	0	0	2	0	**26**
2018-East-1-5	0	0	0	1	1	0	0	0	9	0	0	0	0	0	0	0	**11**
2018-East-1-6	0	0	0	1	0	0	0	0	11	0	0	2	0	0	3	0	**17**
2018-East-1-7	1	1	0	1	0	0	0	3	13	0	0	0	0	0	4	0	**23**
2018-East-1-8	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	**2**
2018-East-1-9	0	0	0	3	0	0	0	0	4	0	0	3	0	0	9	0	**19**
2018-East-1-10	0	1	0	4	0	0	0	4	10	0	0	2	0	0	0	0	**21**
2018-East-1-11	1	0	0	1	0	0	0	1	13	1	0	0	0	0	0	1	**18**
2018-East-1-12	0	0	6	3	1	0	0	0	9	0	0	2	0	0	3	0	**24**
2018-East-1-13	0	0	0	18	0	1	0	1	2	0	1	0	0	0	3	0	**26**
2018-East-1-14	0	0	4	3	0	1	0	0	1	0	1	0	0	0	5	0	**15**
2018-East-2-1	1	0	2	2	0	0	0	0	12	0	0	0	0	0	0	0	**17**
2018-East-2-2	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	3	**10**
2018-East-2-3	0	0	1	0	0	0	0	0	30	0	5	0	0	0	0	2	**38**
2018-East-2-4	1	0	0	3	0	0	0	0	52	0	8	1	0	0	0	0	**65**
2018-East-2-5	0	0	0	0	0	0	1	0	70	0	6	0	0	0	1	1	**79**
2018-East-2-6	0	0	0	1	0	0	2	0	43	0	11	1	0	1	3	1	**63**
2018-East-2-7	0	0	0	1	0	0	0	0	7	0	1	0	0	0	5	2	**16**
2018-East-2-8	0	0	0	7	0	1	0	0	15	0	19	0	0	0	4	1	**47**
2018-East-2-9	0	0	0	1	0	0	0	1	34	0	3	0	0	0	8	0	**47**
2018-East-2-10	0	0	0	2	0	0	0	0	47	0	4	0	0	0	11	1	**65**
2018-East-2-11	2	0	0	0	1	0	0	1	52	0	6	0	0	0	11	0	**73**
2018-East-2-12	0	0	2	2	0	0	0	1	126	0	10	0	0	0	9	0	**150**
2018-East-2-13	2	0	0	7	0	0	0	0	22	0	3	0	0	0	4	0	**38**
2018-East-2-14	0	0	1	2	0	0	0	2	26	1	1	0	0	0	6	1	**40**
2018-East-2-15	0	0	1	0	0	0	0	0	14	0	2	0	0	0	1	1	**19**
2018-East-2-16	0	0	2	4	0	0	0	0	67	0	5	1	0	0	2	0	**81**
2018-East-2-17	2	0	1	1	0	0	1	1	35	0	0	0	0	0	3	0	**44**
2018-East-2-18	0	0	3	2	0	0	0	0	46	1	6	0	0	0	3	0	**61**
2018-East-2-19	1	0	1	2	0	0	2	0	35	0	4	0	0	0	4	0	**49**
2018-East-2-20	7	0	1	4	0	0	0	1	13	0	0	0	0	0	4	0	**30**
2018-East-2-21	0	0	1	3	0	0	0	0	34	0	6	0	0	0	5	0	**49**
Total	**19**	**3**	**27**	**84**	**3**	**3**	**6**	**19**	**950**	**5**	**102**	**12**	**2**	**1**	**135**	**15**	**1386**

Table 2b. Fish assemblage sampling results from the St. Clair National Wildlife Area (East Cell) in 2019. Values are aggregate catch (raw abundance) from a single fyke net at each site.

Site Code	*Ameiurus melas*	*Ameiurus natalis*	*Ameiurus nebulosus*	*Ameiurus* sp.	*Amia calva*	*Carassius auratus*	*Erimyzon sucetta*	*Esox lucius*	*Lepomis gibbosus*	*Lepomis macrochirus*	*Lepomis* sp.	*Micropterus salmoides*	*Notemigonus crysoleucas*	*Pomoxis nigromaculatus*	*Umbra limi*	Total
2019-East-01	0	0	0	0	2	0	0	0	0	0	5	0	0	0	0	**7**
2019-East-02	0	0	1	0	0	0	0	0	36	0	11	11	28	1	0	**88**
2019-East-03	1	0	0	0	3	0	0	0	49	0	0	2	0	3	0	**58**
2019-East-04	0	0	0	0	1	0	0	0	1	0	0	3	0	1	1	**7**
2019-East-05	0	2	0	0	0	0	0	1	12	0	0	1	0	0	0	**16**
2019-East-06	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	**3**
2019-East-07	0	1	0	0	0	0	0	0	0	6	0	1	0	0	0	**8**
2019-East-08	1	0	0	0	1	0	0	0	16	0	0	0	0	3	0	**21**
2019-East-09	1	2	1	1	0	0	1	0	3	0	0	0	0	3	0	**12**
2019-East-10	0	0	0	0	0	0	1	0	24	0	0	1	0	9	0	**35**
2019-East-11	1	1	0	0	0	0	0	0	9	0	0	2	0	0	1	**14**
2019-East-12	0	0	3	0	2	0	0	1	30	0	0	4	0	2	0	**42**
2019-East-13	1	1	0	0	0	0	0	0	0	0	0	2	0	5	0	**9**
2019-East-14	0	0	0	0	0	0	0	0	8	0	0	1	0	0	0	**9**
2019-East-15	0	0	0	0	0	0	0	0	7	0	0	2	0	0	1	**10**
2019-East-16	0	1	0	0	0	0	0	0	8	0	0	2	0	1	0	**12**
2019-East-17	0	2	0	0	1	1	0	1	14	0	0	5	0	0	0	**24**
2019-East-18	0	0	0	0	1	0	0	0	10	0	0	0	0	0	0	**11**
2019-East-19	0	0	0	0	2	0	0	0	24	0	0	3	1	0	1	**31**
2019-East-20	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	**23**
2019-East-21	0	0	0	0	0	1	0	0	10	0	0	0	0	8	0	**19**
2019-East-22	0	0	1	0	0	0	0	1	38	0	0	1	5	0	0	**46**
2019-East-23	0	0	0	0	0	0	2	0	8	0	0	0	2	0	0	**12**
2019-East-24	0	0	3	0	4	0	0	0	12	1	0	0	1	6	0	**27**
2019-East-25	0	0	0	0	11	0	1	0	11	1	0	2	3	1	0	**30**
2019-East-26	0	2	0	0	0	0	0	0	34	3	0	2	18	5	0	**64**
2019-East-27	0	2	1	0	1	0	0	0	14	0	0	1	0	3	0	**22**
2019-East-28	0	0	0	0	1	0	2	0	23	0	0	4	0	0	0	**30**
2019-East-29	0	1	0	0	2	0	0	2	22	1	0	0	9	3	0	**40**
2019-East-30	0	1	0	0	0	0	2	0	28	1	0	2	4	0	0	**38**
Total	**5**	**16**	**10**	**1**	**35**	**2**	**9**	**6**	**474**	**13**	**16**	**52**	**71**	**54**	**4**	**768**

Table 2c. Fish assemblage sampling results from the St. Clair National Wildlife Area (West Cell) in 2019. Values are aggregate catch (raw abundance) from a single fyke net at each site.

Site Code	*Ameiurus melas*	*Ameiurus natalis*	*Ameiurus nebulosus*	*Ameiurus* sp.	*Amia calva*	*Cyprinus carpio*	*Erimyzon sucetta*	*Esox lucius*	*Fundulus diaphanus*	*Lepomis gibbosus*	*Lepomis macrochirus*	*Micropterus salmoides*	*Notemigonus crysoleucas*	*Perca flavescens*	*Pomoxis nigromaculatus*	*Umbra limi*	**Total**
2019-West-01	0	0	0	0	0	0	1	0	0	43	4	5	6	0	0	0	**59**
2019-West-02	0	0	0	0	2	0	0	0	0	9	0	2	0	0	1	0	**14**
2019-West-03	0	0	0	0	0	0	0	0	0	35	0	2	2	0	0	0	**39**
2019-West-04	0	0	0	0	0	0	0	0	0	32	0	2	0	0	0	0	**34**
2019-West-05	0	0	0	0	0	0	0	1	0	8	0	0	1	0	0	0	**10**
2019-West-06	0	0	0	0	0	0	0	0	2	67	0	1	4	0	0	0	**74**
2019-West-07	0	0	0	0	0	0	1	1	0	42	0	1	0	0	0	0	**45**
2019-West-08	1	0	0	0	1	0	0	0	0	37	0	0	0	0	0	0	**39**
2019-West-09	0	0	0	0	1	0	0	1	0	42	0	1	1	0	0	0	**46**
2019-West-10	0	0	0	0	0	0	0	0	0	32	0	3	2	0	0	0	**37**
2019-West-11	0	0	0	0	2	0	0	0	0	5	0	0	0	0	0	0	**7**
2019-West-12	0	0	0	0	3	0	2	0	0	101	0	6	17	0	0	0	**129**
2019-West-13	0	1	1	0	2	0	0	3	0	17	2	1	4	0	1	0	**32**
2019-West-14	0	0	0	0	8	0	0	0	0	3	0	0	0	0	4	0	**15**
2019-West-15	0	0	3	0	1	0	0	2	0	36	1	1	0	0	2	0	**46**
2019-West-16	0	0	0	0	1	0	0	0	0	14	0	0	0	0	0	0	**15**
2019-West-17	1	0	0	1	7	1	0	1	0	1	8	0	0	0	7	0	**27**
2019-West-18	0	0	0	0	2	0	0	1	0	0	0	0	2	0	0	0	**5**
2019-West-19	1	0	0	0	0	0	0	0	0	13	0	0	0	0	1	0	**15**
2019-West-20	1	0	0	0	1	0	0	0	0	15	0	0	0	0	2	0	**19**
2019-West-21	0	1	0	0	2	0	0	1	0	98	5	0	0	1	2	0	**110**
2019-West-22	0	0	0	0	7	0	1	0	0	96	1	4	14	7	0	1	**131**
2019-West-23	0	0	0	0	4	0	0	0	0	58	0	0	2	1	0	2	**67**
2019-West-24	0	0	1	0	0	0	0	0	0	6	0	0	0	0	0	0	**7**
2019-West-25	0	0	1	0	4	0	0	0	0	14	0	0	0	0	0	0	**19**
Total	**4**	**2**	**6**	**1**	**48**	**1**	**5**	**11**	**2**	**824**	**21**	**29**	**55**	**9**	**20**	**3**	**1041**

*Table 3. Summary of Lake Chubsucker (*Erimyzon sucetta*) captures from 2018 and 2019 survey of the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Date (mm/dd/yy)	Latitude	Longitude	Total Length (mm)	Weight (g)
2018-East-2-5	9/17/2018	42.36382	-82.40475	75	*
2018-East-2-6	9/17/2018	42.36448	-82.40447	183	90.2
2018-East-2-6	9/17/2018	42.36448	-82.40447	77	5.6
2018-East-2-17	9/19/2018	42.37645	-82.39889	200	103.9
2018-East-2-19	9/19/2018	42.37819	-82.39911	145	41.1
2018-East-2-19	9/19/2018	42.37819	-82.39911	153	44.6
2019-East-09	9/16/2019	42.36180	-82.40503	193	113
2019-East-10	9/16/2019	42.36338	-82.40501	215	151.5
2019-East-23	9/18/2019	42.37615	-82.39830	77	5
2019-East-23	9/18/2019	42.37615	-82.39830	75	4.5
2019-East-25	9/18/2019	42.37529	-82.40002	196	107.5
2019-East-28	9/18/2019	42.37817	-82.39916	74	4.5
2019-East-28	9/18/2019	42.37817	-82.39916	79	4.5
2019-East-30	9/18/2019	42.37774	-82.40120	83	6
2019-East-30	9/18/2019	42.37774	-82.40120	174	81.5
2019-West-01	9/09/2019	42.37671	-82.40328	66	*
2019-West-07	9/09/2019	42.36896	-82.40571	135	31.5
2019-West-12	9/10/2019	42.36815	-82.40897	61	2.5
2019-West-12	9/10/2019	42.36815	-82.40897	66	4.5
2019-West-22	9/11/2019	42.36303	-82.40948	145	46.5

*Table 4a. Summary of aquatic habitat data from May 2018 sampling (East Cell) in the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Air Tempera-ture (°C)	Water Tempera-ture (°C)	Conductivity (µS)	Dissolved Oxygen (mg/L)	Secchi Tube (m)	Turbidity (NTU)	Mean Depth (m)
2018-East-1-1	22.30	20.32	377.30	10.67	*	8.30	0.77
2018-East-1-2	25.00	20.21	371.30	10.49	*	47.16	0.74
2018-East-1-3	26.40	20.95	387.30	14.23	1.11	3.07	0.88
2018-East-1-4	29.80	20.70	388.50	12.30	*	6.08	0.75
2018-East-1-5	23.20	20.58	376.00	9.78	*	101.37	0.91
2018-East-1-6	20.80	21.95	377.90	9.40	1.15	2.43	0.77
2018-East-1-7	22.40	22.20	386.50	8.04	1.16	4.53	0.76
2018-East-1-8	23.00	23.70	373.00	9.76	*	2.28	0.77
2018-East-1-9	23.80	24.08	380.20	12.36	*	3.74	0.89
2018-East-1-10	25.10	23.92	398.40	7.57	*	8.85	0.84
2018-East-1-11	25.20	24.33	390.00	16.75	1.18	3.72	0.76
2018-East-1-12	24.90	24.61	318.70	10.84	*	1.47	0.92
2018-East-1-13	25.70	26.15	320.70	14.55	1.12	14.41	0.85
2018-East-1-14	28.30	24.42	333.20	8.71	1.04	15.26	*
Min	**20.80**	**20.21**	**318.70**	**7.57**	**1.04**	**1.47**	**0.74**
Mean	**24.71**	**22.72**	**369.93**	**11.10**	**1.13**	**15.91**	**0.82**
Max	**29.80**	**26.15**	**398.40**	**16.75**	**1.18**	**101.37**	**0.92**

*Table 4b. Summary of aquatic habitat data from September 2018 sampling (East Cell) of the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Air Tempera-ture (°C)	Water Tempera-ture (°C)	Conduct-ivity (µS)	Dissolved Oxygen (mg/L)	Secchi Tube (m)	Turbidity (NTU)	Mean Depth (m)
2018-East-2-1	27.50	21.95	449.50	4.86	0.81	2.84	0.53
2018-East-2-2	27.90	21.98	479.10	1.40	0.92	4.98	0.63
2018-East-2-3	27.30	21.57	420.80	3.55	0.41	11.24	0.36
2018-East-2-4	30.10	23.11	482.20	1.50	0.83	2.64	0.64
2018-East-2-5	29.80	21.37	431.60	2.15	0.83	1.60	0.60
2018-East-2-6	31.20	21.45	442.10	1.45	0.77	6.75	0.57
2018-East-2-7	30.30	23.74	435.00	2.72	0.85	6.74	0.61
2018-East-2-8	28.50	22.46	460.60	7.69	0.85	8.32	0.64
2018-East-2-9	29.70	24.39	426.30	7.32	0.85	8.23	0.78
2018-East-2-10	27.90	25.71	442.60	6.80	0.90	5.34	0.83
2018-East-2-11	26.60	24.86	436.20	8.40	1.60	1.68	0.81
2018-East-2-12	27.40	26.33	471.10	3.92	0.75	2.61	0.87
2018-East-2-13	28.10	23.47	435.00	5.67	1.02	1.91	0.85
2018-East-2-14	30.20	24.61	443.90	6.77	0.90	1.94	0.81
2018-East-2-15	20.60	22.77	439.00	2.63	*	3.84	0.44
2018-East-2-16	21.50	23.48	428.70	5.99	*	1.39	0.51
2018-East-2-17	23.40	23.11	423.00	2.73	1.15	2.31	0.70
2018-East-2-18	25.10	22.86	441.20	8.93	1.20	3.71	0.82
2018-East-2-19	23.40	22.18	431.60	3.90	1.18	5.93	1.13
2018-East-2-20	31.00	24.22	448.90	5.34	0.98	2.85	0.82
2018-East-2-21	25.40	24.25	447.50	10.96	1.20	0.77	1.03
Min	**20.60**	**21.37**	**420.80**	**1.40**	**0.41**	**0.77**	**0.36**
Mean	**27.28**	**23.33**	**443.61**	**4.98**	**0.95**	**4.17**	**0.71**
Max	**31.20**	**26.33**	**482.20**	**10.96**	**1.60**	**11.24**	**1.13**

*Table 4c. Summary of aquatic habitat data from 2019 sampling (East Cell) of the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Air Tempera-ture (°C)	Water Tempera-ture (°C)	Conductivity (µS)	Dissolved Oxygen (mg/L)	Secchi Tube (m)	Turbidity (NTU)	Mean Depth (m)
2019-East-01	28.20	19.90	306.60	1.20	1.07	15.00	0.71
2019-East-02	28.10	20.26	380.00	1.75	0.50	13.00	0.76
2019-East-03	26.30	24.77	317.70	0.33	0.33	19.00	0.81
2019-East-04	26.00	20.24	389.00	0.43	0.43	40.00	0.74
2019-East-05	25.20	19.32	327.00	1.90	1.03	13.00	0.66
2019-East-06	27.10	19.27	376.50	0.24	0.35	3.00	0.88
2019-East-07	24.70	21.70	373.10	2.80	0.75	10.00	0.45
2019-East-08	26.20	20.32	338.00	2.35	0.86	7.00	1.54
2019-East-09	24.80	20.90	392.40	1.00	0.73	3.30	1.02
2019-East-10	24.90	20.00	361.20	0.99	1.05	2.50	1.49
2019-East-11	24.50	19.70	360.60	1.03	0.91	8.00	1.22
2019-East-12	24.70	22.70	418.80	5.35	0.84	6.70	0.72
2019-East-13	28.80	22.19	413.40	2.10	0.55	10.00	1.43
2019-East-14	28.30	23.30	341.50	7.34	0.56	12.00	0.87
2019-East-15	27.30	25.27	378.10	10.80	0.94	3.00	0.76
2019-East-16	26.60	23.70	361.10	5.67	0.40	2.60	0.69
2019-East-17	26.30	25.10	387.70	8.90	0.95	0.85	0.74
2019-East-18	24.50	24.40	420.20	2.95	0.85	2.90	0.45
2019-East-19	27.00	26.20	425.00	5.10	0.93	3.00	0.72
2019-East-20	29.00	24.80	400.00	8.50	0.95	3.30	0.62
2019-East-21	21.70	20.30	373.00	1.35	0.65	*	0.54
2019-East-22	22.90	20.15	391.10	2.50	0.68	7.00	0.51
2019-East-23	23.40	21.53	396.10	4.48	0.66	9.30	0.64
2019-East-24	24.70	22.92	382.00	7.15	0.87	1.20	0.99
2019-East-25	24.50	22.35	374.70	4.17	0.52	7.70	1.16
2019-East-26	25.40	20.50	356.30	4.60	1.07	1.90	1.09
2019-East-27	25.70	22.30	338.80	6.88	0.50	3.10	1.27
2019-East-28	25.60	22.70	337.60	4.88	1.00	10.00	0.72
2019-East-29	25.50	22.70	380.20	4.40	0.44	3.50	0.63
2019-East-30	26.30	22.70	374.20	4.65	0.88	1.00	1.73
Min	**21.70**	**19.27**	**306.60**	**0.24**	**0.33**	**0.85**	**0.45**
Mean	**25.81**	**22.07**	**372.40**	**3.86**	**0.74**	**7.68**	**0.89**
Max	**29.00**	**26.20**	**425.00**	**10.80**	**1.07**	**40.00**	**1.73**

*Table 4d. Summary of aquatic habitat data from 2019 (West Cell) of the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Air Tempera-ture (°C)	Water Tempera-ture (°C)	Conductivity (µS)	Dissolved Oxygen (mg/L)	Secchi Tube (m)	Turbidity (NTU)	Mean Depth (m)
2019-West-01	19.90	18.56	329.50	3.08	*	0.92	0.85
2019-West-02	24.00	18.71	325.60	4.97	*	0.68	0.79
2019-West-03	23.40	19.17	330.90	8.65	*	3.24	0.81
2019-West-04	25.80	17.24	300.50	3.39	*	222.20	0.89
2019-West-05	27.50	18.41	239.70	6.46	0.90	9.56	0.77
2019-West-06	26.40	19.14	297.70	6.53	1.05	4.29	0.76
2019-West-07	*	17.82	292.90	1.92	1.07	4.75	0.82
2019-West-08	25.50	17.59	294.10	4.96	0.80	9.50	0.93
2019-West-09	24.80	19.85	335.70	8.50	0.81	11.20	0.82
2019-West-10	23.70	18.74	327.10	9.86	0.99	5.58	0.82
2019-West-11	26.40	20.61	314.50	7.48	0.55	23.00	0.79
2019-West-12	28.20	21.30	324.60	8.50	0.94	11.74	0.81
2019-West-13	26.90	20.01	341.80	3.06	0.76	5.66	0.62
2019-West-14	29.60	18.98	336.70	6.19	0.88	13.80	0.86
2019-West-15	28.20	21.27	360.10	6.06	0.99	3.67	0.92
2019-West-16	25.60	19.62	306.50	5.50	0.55	7.50	0.91
2019-West-17	25.90	19.76	336.80	3.54	0.97	2.89	0.94
2019-West-18	27.20	20.20	337.00	4.97	0.58	13.28	0.81
2019-West-19	27.90	19.45	338.30	3.39	0.39	22.76	1.11
2019-West-20	27.20	20.32	336.40	1.23	0.89	3.11	0.75
2019-West-21	30.40	22.82	378.90	5.48	0.90	4.38	1.49
2019-West-22	29.20	21.45	390.90	1.69	0.53	10.22	1.41
2019-West-23	31.10	22.90	388.20	5.34	1.10	4.64	1.31
2019-West-24	33.80	21.87	338.00	1.17	0.55	36.23	1.22
2019-West-25	29.20	24.04	347.10	8.22	0.47	25.60	0.90
Min	**19.90**	**17.24**	**239.70**	**1.17**	**0.39**	**0.68**	**0.62**
Mean	**26.99**	**19.99**	**329.98**	**5.21**	**0.79**	**18.42**	**0.92**
Max	**33.80**	**24.04**	**390.90**	**9.86**	**1.10**	**222.20**	**1.49**

*Table 5a. Summary of aquatic macrophyte classes from May 2018 sampling (East Cell) of the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Emergent (%)	Floating (%)	Submerged (%)	Open Water (%)	SAV Density	Dominant Class
2018-East-1-1	20	10	40	30	*	Submerged
2018-East-1-2	0	20	80	0	*	Submerged
2018-East-1-3	0	40	60	0	*	Submerged
2018-East-1-4	0	60	40	0	*	Floating
2018-East-1-5	20	40	40	0	*	Submerged
2018-East-1-6	15	15	70	0	*	Submerged
2018-East-1-7	15	15	70	0	*	Submerged
2018-East-1-8	*	*	*	*	*	*
2018-East-1-9	15	15	70	0	*	Submerged
2018-East-1-10	15	15	70	0	*	Submerged
2018-East-1-11	20	40	40	0	*	Floating
2018-East-1-12	30	30	40	0	*	Submerged
2018-East-1-13	10	0	90	0	*	Submerged
2018-East-1-14	10	0	90	0	*	Submerged
Min	**0**	**0**	**40**	**0**	*****	
Mean	**13**	**23**	**62**	**2**	*****	
Max	**30**	**60**	**90**	**30**	*****	

*Table 5b. Summary of aquatic macrophyte classes from September 2018 sampling (East Cell) of the St. Clair National Wildlife Area. * indicates parameter not measured.*

Site Code	Emergent (%)	Floating (%)	Submerged (%)	Open Water (%)	SAV Density	Dominant Class
2018-East-2-1	30	30	40	0	3	Submerged
2018-East-2-2	0	35	55	10	1	Submerged
2018-East-2-3	20	25	50	5	2	Submerged
2018-East-2-4	15	40	40	5	1	Submerged
2018-East-2-5	5	40	55	0	3	Submerged
2018-East-2-6	5	40	55	0	2	Submerged
2018-East-2-7	10	30	60	0	2	Submerged
2018-East-2-8	10	40	50	0	3	Submerged
2018-East-2-9	10	20	70	0	2	Submerged
2018-East-2-10	20	5	55	20	1	Submerged
2018-East-2-11	5	20	65	10	1	Submerged
2018-East-2-12	5	30	35	30	1	Submerged
2018-East-2-13	5	30	45	20	2	Submerged
2018-East-2-14	10	10	40	40	2	Submerged
2018-East-2-15	20	30	50	0	1	Submerged
2018-East-2-16	*	*	*	*	3	*
2018-East-2-17	20	30	50	0	1	Submerged
2018-East-2-18	5	20	75	0	2	Submerged
2018-East-2-19	20	20	60	0	2	Submerged
2018-East-2-20	5	15	80	0	3	Submerged
2018-East-2-21	5	40	50	5	2	Submerged
Min	**0**	**5**	**35**	**0**	**1**	
Mean	**11**	**28**	**54**	**7**	**2**	
Max	**30**	**40**	**80**	**40**	**3**	

Table 5c. Summary of aquatic macrophyte classes from September 2019 sampling (East Cell) of the St. Clair National Wildlife Area.

Site Code	Emergent (%)	Floating (%)	Submerged (%)	Open Water (%)	SAV Density	Dominant Class
2019-East-01	0	0	70	30	3	Submerged
2019-East-02	0	55	40	5	3	Floating
2019-East-03	0	80	20	0	2	Floating
2019-East-04	0	80	20	0	2	Floating
2019-East-05	0	50	50	0	3	Floating
2019-East-06	0	70	30	0	3	Floating
2019-East-07	0	40	60	0	3	Submerged
2019-East-08	5	35	60	0	3	Submerged
2019-East-09	10	50	40	0	2	Floating
2019-East-10	10	40	50	0	3	Submerged
2019-East-11	5	15	80	0	2	Submerged
2019-East-12	5	25	55	15	3	Submerged
2019-East-13	5	10	85	0	3	Submerged
2019-East-14	5	5	90	0	3	Submerged
2019-East-15	10	20	70	0	3	Submerged
2019-East-16	5	20	70	0	2	Submerged
2019-East-17	0	20	60	20	3	Submerged
2019-East-18	0	70	20	10	3	Floating
2019-East-19	10	20	70	0	1	Submerged
2019-East-20	10	20	70	0	2	Submerged
2019-East-21	0	70	30	0	2	Floating
2019-East-22	5	55	40	0	2	Floating
2019-East-23	5	30	65	0	2	Submerged
2019-East-24	5	15	80	0	2	Submerged
2019-East-25	5	15	80	0	2	Submerged
2019-East-26	15	60	25	0	1	Floating
2019-East-27	5	15	80	0	3	Submerged
2019-East-28	5	35	60	0	3	Submerged
2019-East-29	10	20	70	0	3	Submerged
2019-East-30	5	10	80	5	2	Submerged
Min	**0**	**0**	**20**	**0**	**1**	
Mean	**5**	**35**	**57**	**3**	**2**	
Max	**15**	**80**	**90**	**30**	**3**	

Table 5d. Summary of aquatic macrophyte classes from September 2019 sampling (West Cell) of the St. Clair National Wildlife Area.

Site Code	Emergent (%)	Floating (%)	Submerged (%)	Open Water (%)	SAV Density	Dominant Class
2019-West-01	10	20	70	0	3	Submerged
2019-West-02	5	20	75	0	2	Submerged
2019-West-03	10	10	80	0	2	Submerged
2019-West-04	5	25	70	0	2	Submerged
2019-West-05	10	10	80	0	2	Submerged
2019-West-06	10	10	80	0	2	Submerged
2019-West-07	5	5	90	0	2	Submerged
2019-West-08	5	15	80	0	3	Submerged
2019-West-09	*	*	*	*	2	*
2019-West-10	5	5	90	0	3	Submerged
2019-West-11	0	30	70	0	2	Submerged
2019-West-12	5	20	75	0	3	Submerged
2019-West-13	0	100	0	0	1	Floating
2019-West-14	0	60	20	20	1	Floating
2019-West-15	0	20	80	0	2	Submerged
2019-West-16	0	50	50	0	2	Submerged
2019-West-17	0	80	20	0	1	Floating
2019-West-18	0	0	100	0	3	Submerged
2019-West-19	10	50	40	0	3	Floating
2019-West-20	5	80	15	0	1	Floating
2019-West-21	0	20	80	0	3	Submerged
2019-West-22	5	20	75	0	1	Submerged
2019-West-23	0	40	60	0	3	Submerged
2019-West-24	0	60	40	0	2	Floating
2019-West-25	0	40	60	0	2	Submerged
Min	**0**	**0**	**0**	**0**	**1**	
Mean	**4**	**33**	**63**	**1**	**2**	
Max	**10**	**100**	**100**	**20**	**3**	

Table 6a. Summary of dominant aquatic macrophyte genera recorded per site from May 2018 sampling (East Cell) of the St. Clair National Wildlife Area. Dominant genera were assessed based on visual observation within the water column.

Site Code	Dominant Genera
2018-East-1-1	*Typha* sp.
2018-East-1-2	*Potamogeton* sp.
2018-East-1-3	*Utricularia* sp.
2018-East-1-4	*Nymphaea* sp.
2018-East-1-5	*Potamogeton* sp.
2018-East-1-6	*Utricularia* sp.
2018-East-1-7	*Potamogeton* sp.
2018-East-1-8	*Potamogeton* sp.
2018-East-1-9	*Chara* spp.
2018-East-1-10	*Potamogeton* sp.
2018-East-1-11	*Nymphaea* sp.
2018-East-1-12	*Chara* spp.
2018-East-1-13	*Potamogeton* sp.
2018-East-1-14	*Chara* spp.

Table 6b. Summary of aquatic macrophyte genera from September 2018 sampling (East Cell) of the St. Clair National Wildlife Area. Values indicate whether genera were represented by at least one species (1) or absent (0) at the site. The most abundant genus on the rake sample was recorded as dominant.

Site Code	*Ceratophyllum* sp.	*Chara* spp.	*Elodea* sp.	*Filamentous algae*	*Hydrocharis* sp.	*Lemna* sp.	*Myriophyllum* sp.	*Najas* sp.	*Nelumbo* sp.	*Nymphaea* sp.	*Phragmites* sp.	*Pondeteria* sp.	*Potamogeton* sp.	*Sagittaria* sp.	*Salix* sp.	*Typha* sp.	*Utricularia* sp.	Dominant Genera
2018-East-2-1	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	1	*Ceratophyllum* sp.
2018-East-2-2	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	*Ceratophyllum* sp.
2018-East-2-3	1	0	1	0	1	1	0	0	0	1	1	0	0	1	0	1	0	*Ceratophyllum* sp.
2018-East-2-4	1	0	1	0	1	0	0	0	0	1	1	0	0	1	0	1	1	*Ceratophyllum* sp.
2018-East-2-5	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0	1	0	*Ceratophyllum* sp.
2018-East-2-6	1	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	*Myriophyllum* sp.
2018-East-2-7	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	*Ceratophyllum* sp.
2018-East-2-8	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	*Myriophyllum* sp.
2018-East-2-9	1	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	*Myriophyllum* sp.
2018-East-2-10	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	1	1	*Utricularia* sp.
2018-East-2-11	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	*Utricularia* sp.
2018-East-2-12	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	*Utricularia* sp.
2018-East-2-13	0	1	1	0	0	0	1	0	0	1	0	0	1	0	0	1	1	*Chara* spp.
2018-East-2-14	1	1	1	0	1	0	1	0	0	0	0	1	1	0	0	1	1	*Chara* spp.
2018-East-2-15	1	0	1	0	0	0	1	0	0	1	0	0	0	1	0	1	1	*Ceratophyllum* sp.
2018-East-2-16	1	0	1	0	1	0	1	0	0	1	0	0	1	1	0	1	0	*Myriophyllum* sp.
2018-East-2-17	0	1	0	0	0	0	1	0	0	1	0	0	1	1	0	1	1	*Myriophyllum* sp.
2018-East-2-18	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	1	*Chara* spp.
2018-East-2-19	0	1	0	0	0	0	1	0	0	1	0	0	1	1	0	1	1	*Chara* spp.
2018-East-2-20	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	*Ceratophyllum* sp.
2018-East-2-21	1	1	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	*Chara* spp.
Total Genera	**17**	**9**	**12**	**0**	**8**	**1**	**15**	**0**	**0**	**20**	**2**	**2**	**6**	**7**	**0**	**19**	**16**	

Table 6c. Summary of aquatic macrophyte genera from September 2019 sampling (East Cell) of the St. Clair National Wildlife Area. Values indicate whether genera were represented by at least one species (1) or absent (0) at the site. The most abundant genus on the rake sample was recorded as dominant.

Site Code	*Ceratophyllum* sp.	*Chara* spp.	*Elodea* sp.	*Filamentous algae*	*Hydrocharis* sp.	*Lemna* sp.	*Myriophyllum* sp.	*Najas* sp.	*Nelumbo* sp.	*Nymphaea* sp.	*Phragmites* sp.	*Pondeteria* sp.	*Potamogeton* sp.	*Sagittaria* sp.	*Salix* sp.	*Typha* sp.	*Utricularia* sp.	Dominant Genera
2019-East-01	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-East-02	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	*Nymphaea* sp.
2019-East-03	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Nymphaea* sp.
2019-East-04	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	*Nymphaea* sp.
2019-East-05	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Nymphaea* sp.
2019-East-06	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Nymphaea* sp.
2019-East-07	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Elodea* sp.
2019-East-08	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	*Ceratophyllum* sp.
2019-East-09	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	*Nymphaea* sp.
2019-East-10	1	1	1	0	1	0	0	1	0	1	0	0	0	0	0	1	0	*Ceratophyllum* sp.
2019-East-11	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	1	0	*Ceratophyllum* sp.
2019-East-12	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-East-13	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-East-14	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	*Myriophyllum* sp.
2019-East-15	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	*Chara* spp.
2019-East-16	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	*Myriophyllum* sp.
2019-East-17	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-East-18	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	*Nymphaea* sp.
2019-East-19	1	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	*Ceratophyllum* sp.
2019-East-20	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	*Elodea* sp.
2019-East-21	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	*Nymphaea* sp.
2019-East-22	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	*Nymphaea* sp.
2019-East-23	1	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	*Elodea* sp.
2019-East-24	1	0	1	0	1	0	0	0	0	1	0	0	0	0	1	1	0	*Elodea* sp.
2019-East-25	1	0	1	0	1	0	0	0	0	1	0	0	0	0	1	1	0	*Elodea* sp.
2019-East-26	1	0	1	0	1	0	0	0	0	1	0	0	1	1	0	0	0	*Nymphaea* sp.
2019-East-27	1	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	*Ceratophyllum* sp.
2019-East-28	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	*Ceratophyllum* sp.
2019-East-29	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	*Chara* spp.
2019-East-30	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	*Ceratophyllum* sp.
Total Genera	**25**	**8**	**15**	**1**	**14**	**0**	**5**	**2**	**0**	**29**	**1**	**1**	**6**	**2**	**3**	**11**	**7**	

Table 6d. Summary of aquatic macrophyte genera from September 2019 sampling (West Cell) of the St. Clair National Wildlife Area. Values indicate whether genera were represented by at least one species (1) or absent (0) at the site. The most abundant genus on the rake sample was recorded as dominant.

Site Code	*Ceratophyllum* sp.	*Chara* spp.	*Elodea* sp.	*Filamentous algae*	*Hydrocharis* sp.	*Lemna* sp.	*Myriophyllum* sp.	*Najas* sp.	*Nelumbo* sp.	*Nymphaea* sp.	*Phragmites* sp.	*Pondeteria* sp.	*Potamogeton* spp.	*Sagittaria* sp.	*Salix* sp.	*Typha* sp.	*Utricularia* sp.	Dominant Genera
2019-West-01	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	1	1	*Elodea* sp.
2019-West-02	0	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0	0	*Nelumbo* sp.
2019-West-03	0	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	1	*Elodea* sp.
2019-West-04	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	*Elodea* sp.
2019-West-05	1	0	1	0	1	0	0	0	0	1	0	0	1	0	0	1	0	*Nymphaea* sp.
2019-West-06	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	*Elodea* sp.
2019-West-07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
2019-West-08	0	0	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0	*Elodea* sp.
2019-West-09	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	1	0	*
2019-West-10	0	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	*Elodea* sp.
2019-West-11	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-West-12	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	*Chara* spp.
2019-West-13	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	*Nelumbo* sp.
2019-West-14	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	*Nymphaea* sp.
2019-West-15	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-West-16	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	*Elodea* sp.
2019-West-17	1	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	*Nelumbo* sp.
2019-West-18	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*Ceratophyllum* sp.
2019-West-19	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	*Nymphaea* sp.
2019-West-20	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	*Nymphaea* sp.
2019-West-21	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-West-22	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-West-23	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
2019-West-24	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	*Nymphaea* sp.
2019-West-25	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	*Ceratophyllum* sp.
Total Genera	**13**	**2**	**18**	**0**	**11**	**7**	**2**	**0**	**5**	**21**	**0**	**1**	**5**	**0**	**0**	**6**	**6**	

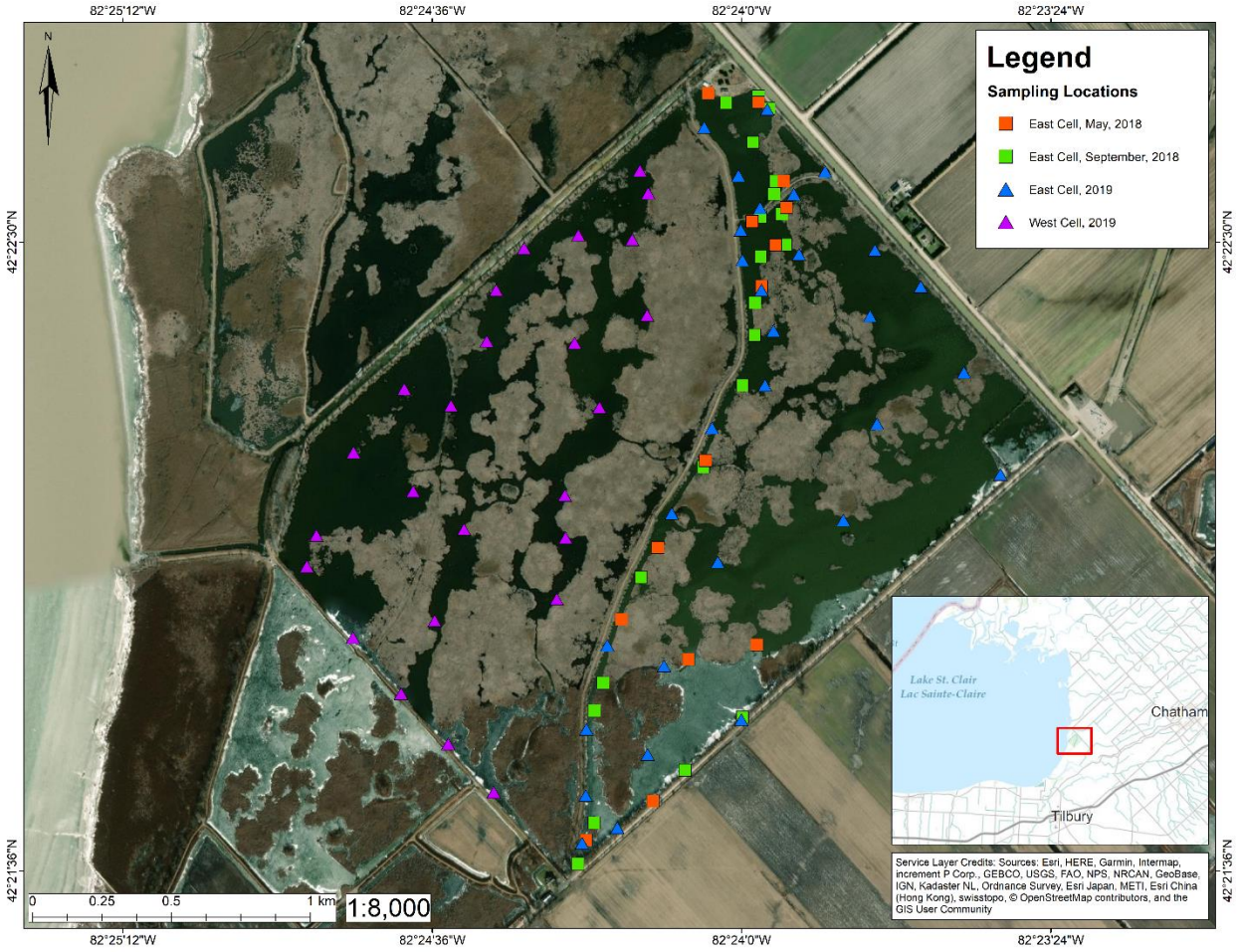

Figure 1. Sites sampled with fyke nets during 2018 and 2019 sampling of the St. Clair National Wildlife Area.

Figure 2. Photo of mini fyke net deployed in the St. Clair National Wildlife Area (September 2019).

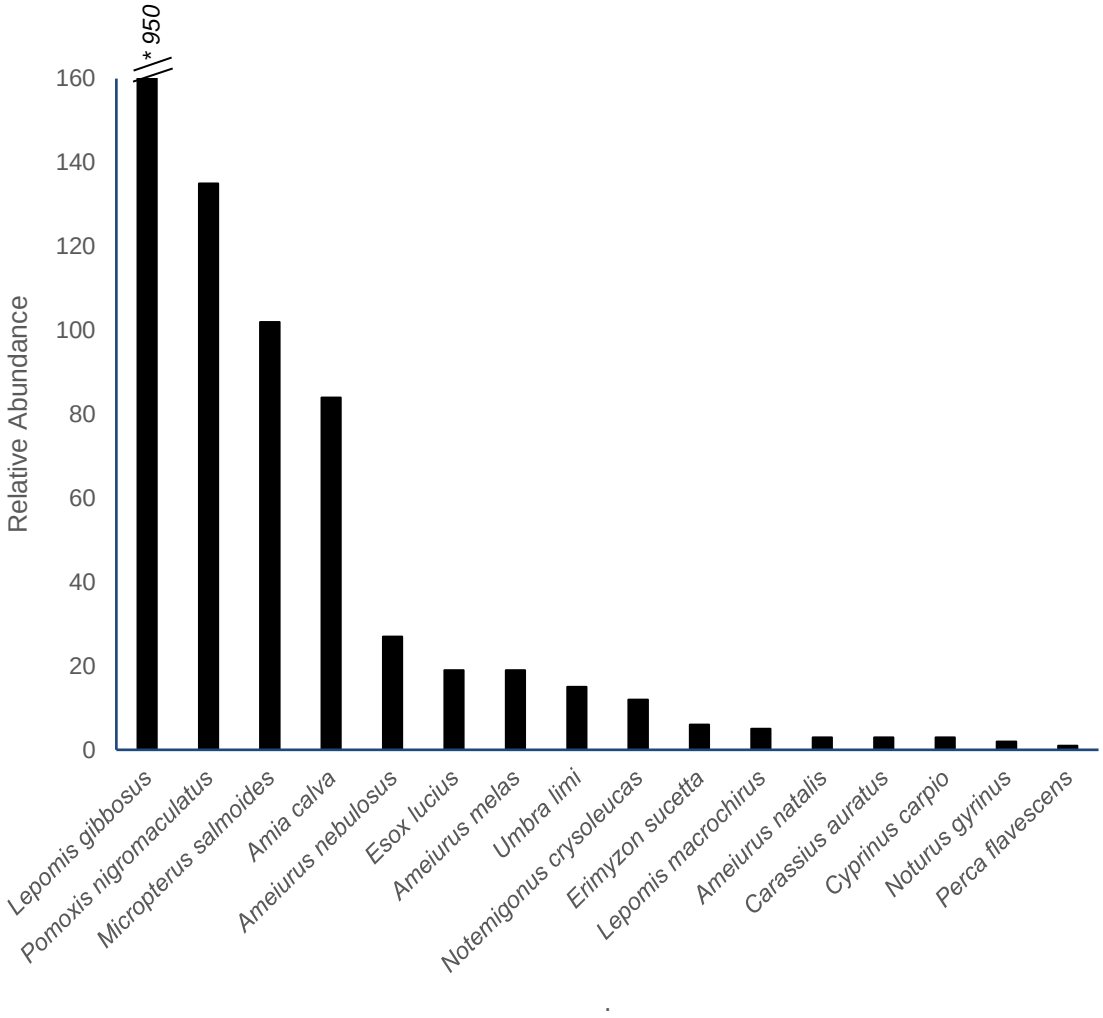

Figure 3a. Rank-abundance of catch data (aggregate relative abundance) from sampling of the East Cell of the St. Clair National Wildlife Area Survey in 2018 (May, September).

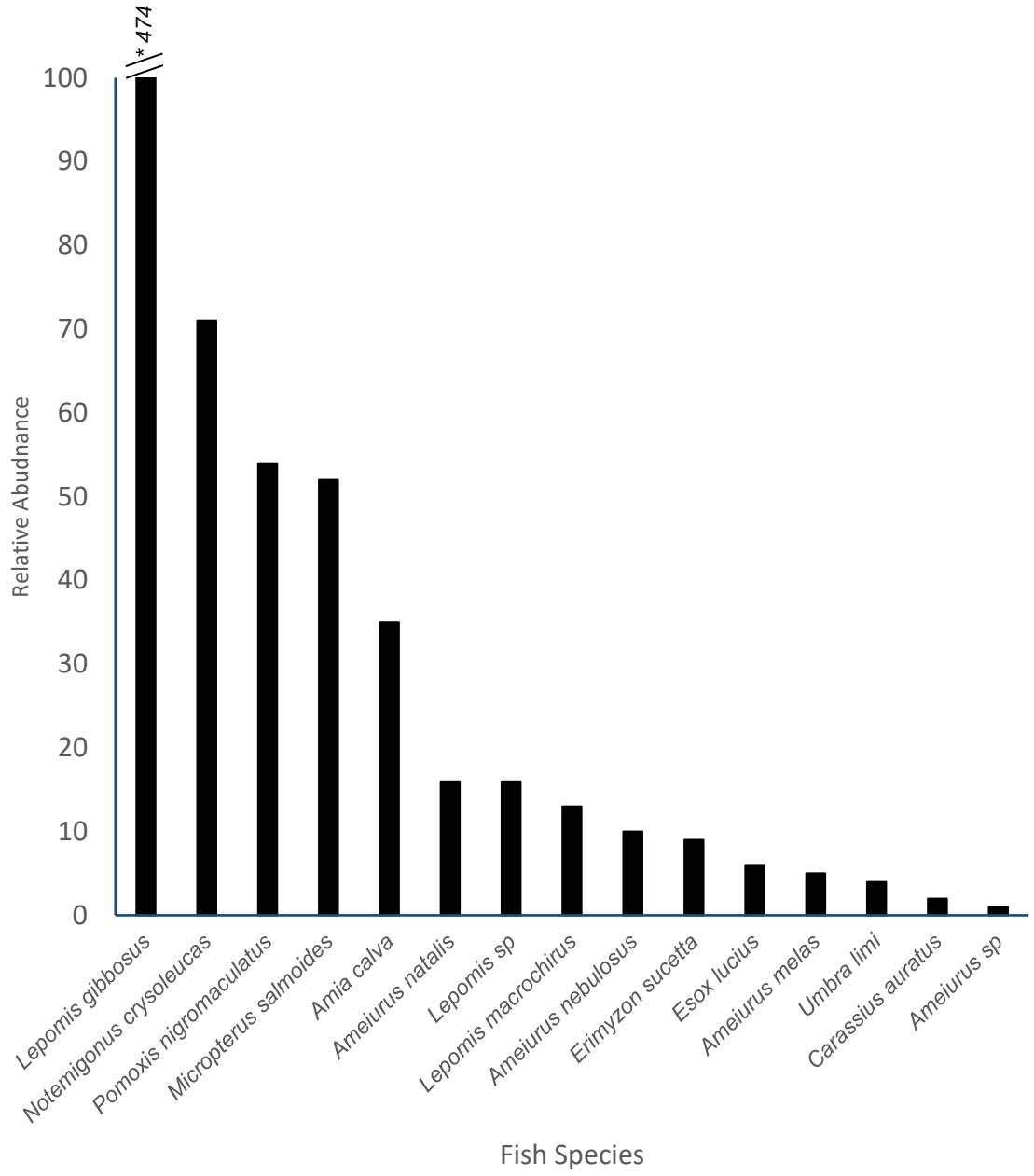

Figure 3b. Rank-abundance of catch data (aggregate relative abundance) from sampling of the East Cell of the St. Clair National Wildlife Area Survey in 2019 (September).

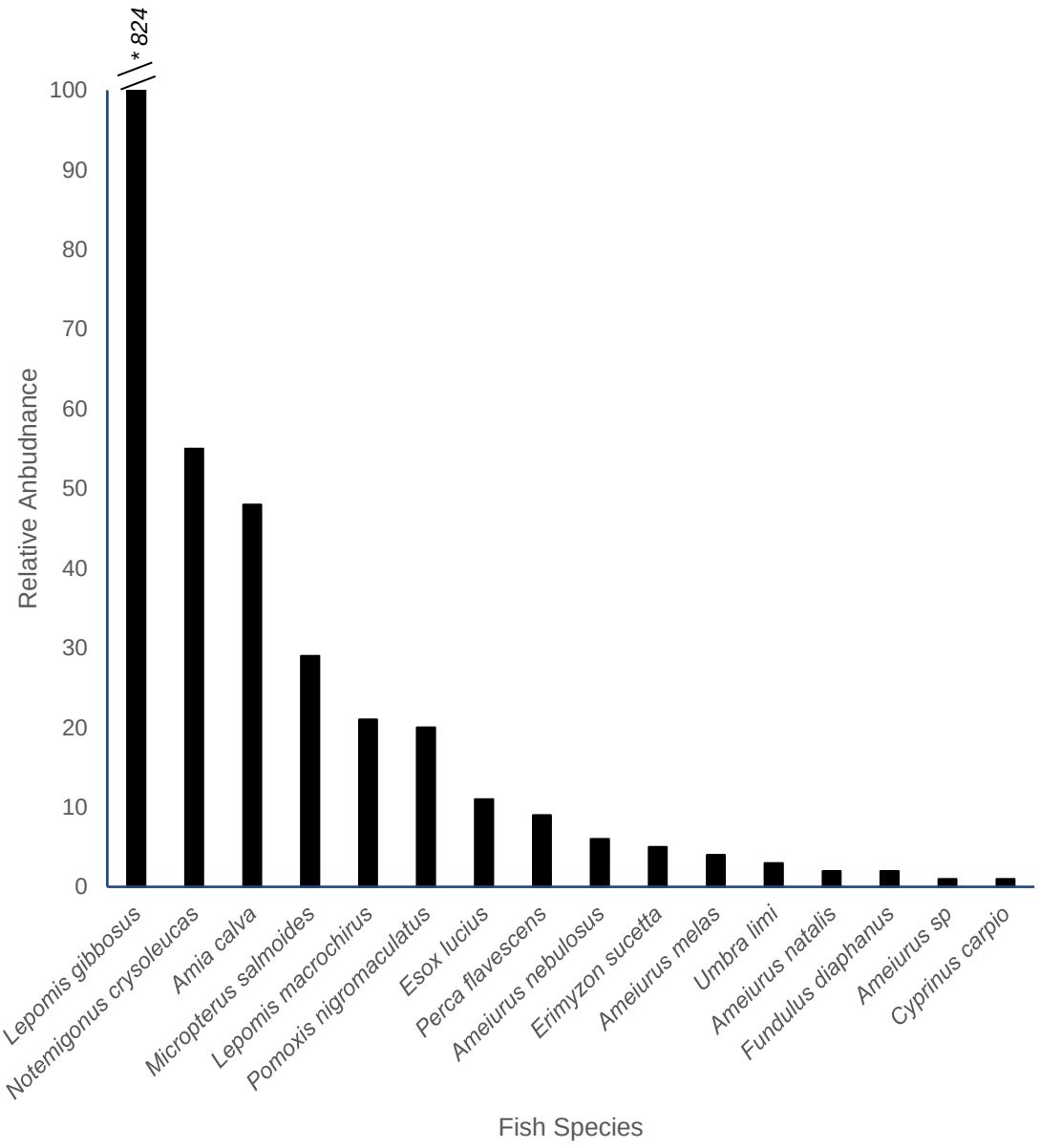

Figure 3c. Rank-abundance of catch data (aggregate relative abundance) from sampling of the West Cell of the St. Clair National Wildlife Area Survey in 2019 (September).

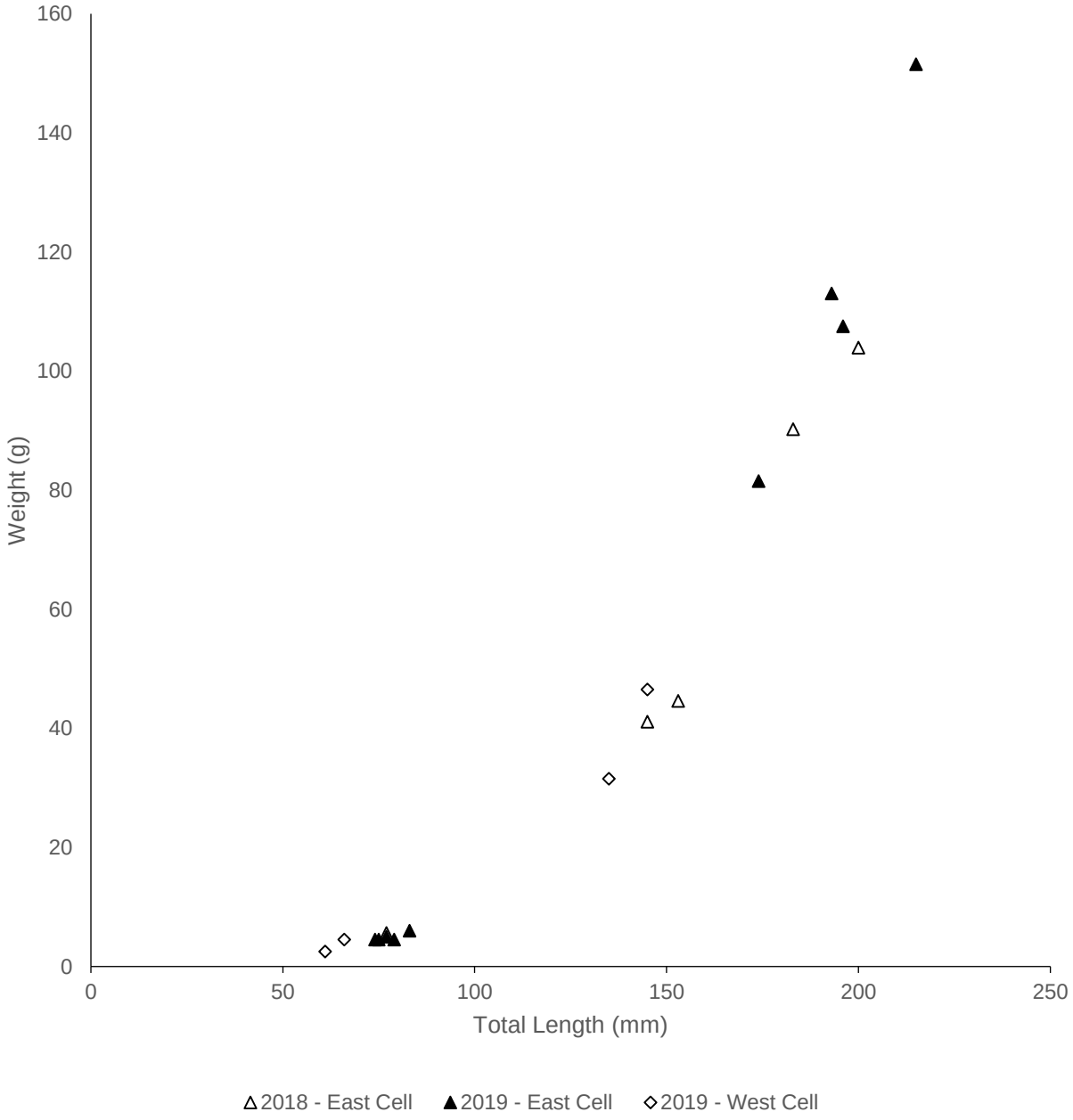

*Figure 4. Total length (mm) and weight (g) of captured Lake Chubsucker (*Erimyzon sucetta*) from 2018 (East Cell), 2019 (East Cell), and 2019 (West Cell).*

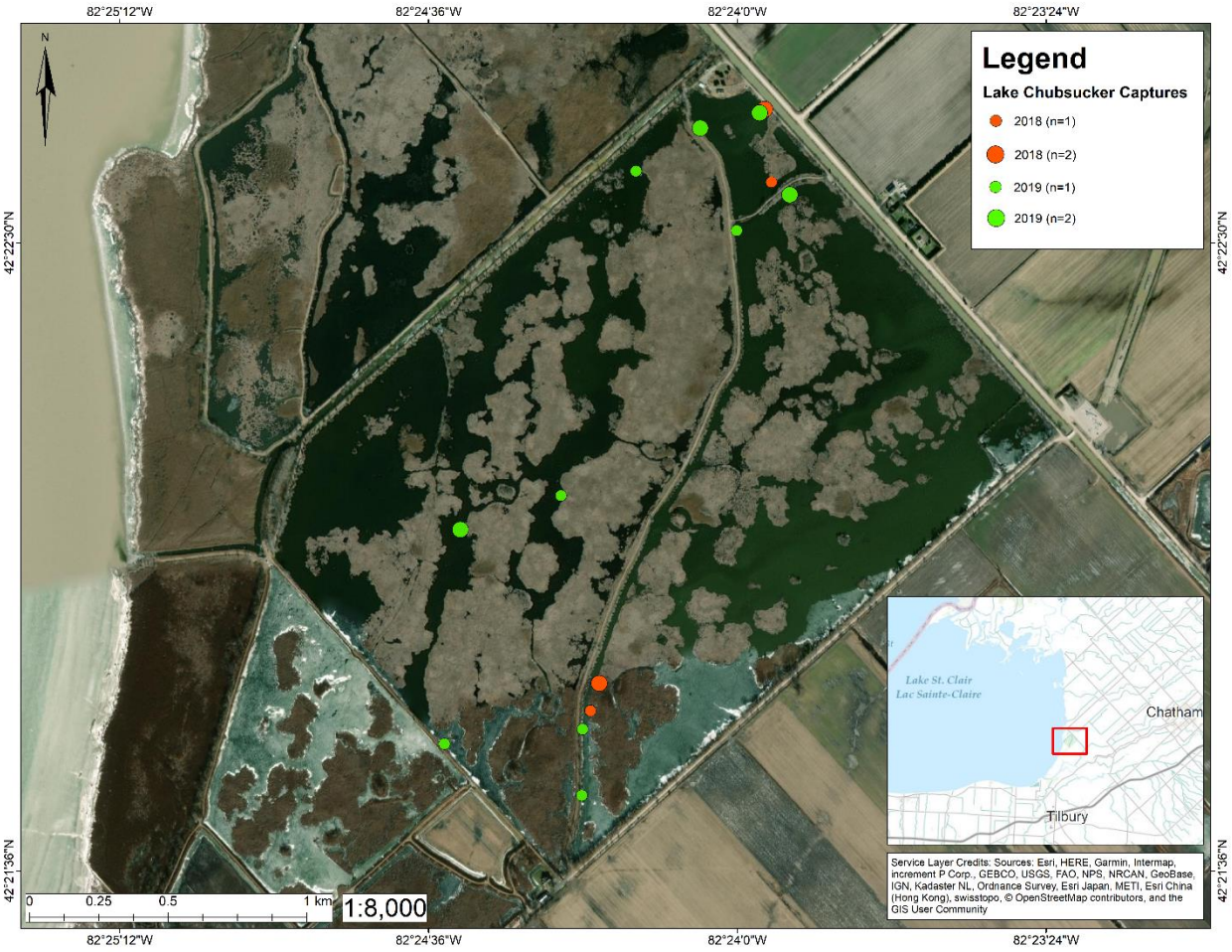

*Figure 5. Capture locations of Lake Chubsucker (*Erimyzon sucetta*) from 2018 (red), 2019 (green) in the East and West cells.*

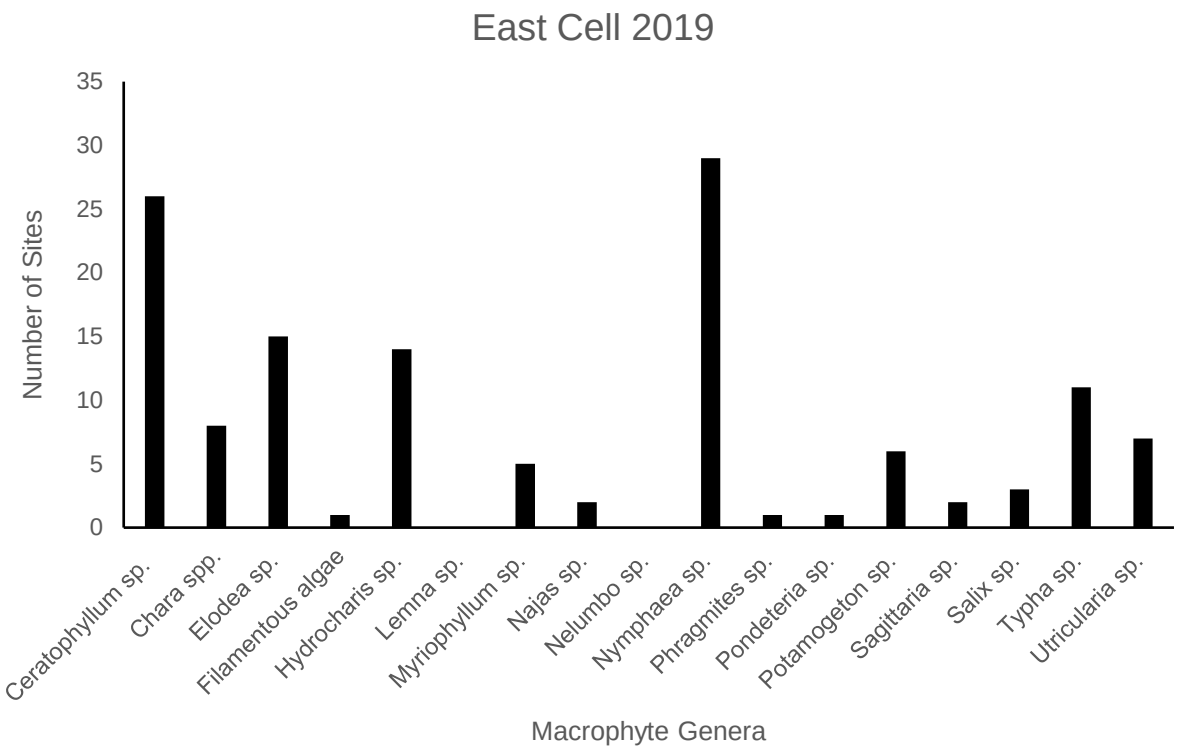

Figure 6a. Occurrence of macrophyte genera from the East Cell (30 sites) of the St. Clair National Wildlife Area based on 2019 sampling.

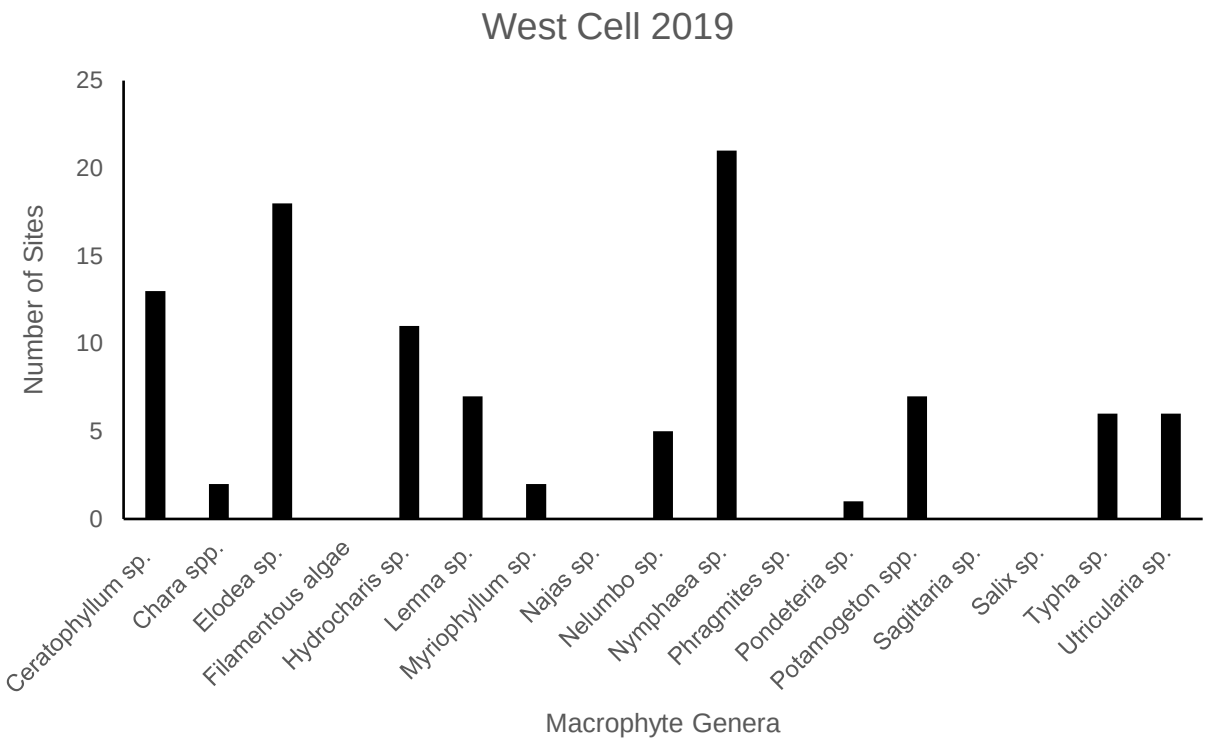

Figure 6b. Occurrence of macrophyte genera in the West Cell (25 sites) of the St. Clair National Wildlife Area based on 2019 sampling.