

2016 Field Survey
Salmon River Estuary

SLELO-PRISM Early Detection Surveillance
June 10th and 14th, 2016

Report prepared by Ashley Gingeleski and Ben Hansknecht on June 17th, 2016



Figure 1. Panoramic view of Salmon River Estuary at Pine Grove Road boat launch. Photo by Ben Hansknecht.

Introduction and Background¹

The Salmon River is an important sport-fishing destination located in Oswego County, New York, and passes through the villages of Pulaski and Altmar. Populations of Chinook, Coho and Atlantic salmon, steelhead and brown trout are maintained both through annual stocking and management focused on enhancing natural reproduction of these fish within the river. Public fishing access is plentiful along the approximately 14 miles of the lower river downstream of the Lighthouse Hill Dam, where much of the land is accessible through Public Fishing Rights easements, and these areas see heavy fishing pressure during the fall salmon and spring steelhead runs.

The Salmon River Freshwater Estuary is defined as that portion of the lower river that is directly influenced by the lake levels of nearby Lake Ontario. The estuary extends east from the Salmon River's outlet into Lake Ontario to approximately 1200 feet east of the State Route 3 bridge. This braided portion of the river is bordered by emergent marsh, riverine wetlands and shrub swamps, and is recognized as important fish spawning habitat as well as a staging area for steelhead and salmon preparing for their annual spawning runs. Additionally, the variety of wetland habitats within the estuary are important habitat for birds and other wildlife, including several threatened bird species.

Public access of the Salmon River Estuary is possible from both a NYSDEC handicapped-accessible fishing platform off Route 3, and the Pine Grove Boat Launch off Pine Grove Road, maintained by the NYS Office of Parks, Recreation and Historic Preservation.

¹ Introduction and Background taken verbatim from SLELO-PRISM 2012 Salmon River Estuary Knotweed Assessment, by Greg Chapman and Mike McHale; <http://www.sleloinvasives.org/wp-content/uploads/2012/07/Salmon-River-Estuary-Knotweed-Assessment1.pdf>

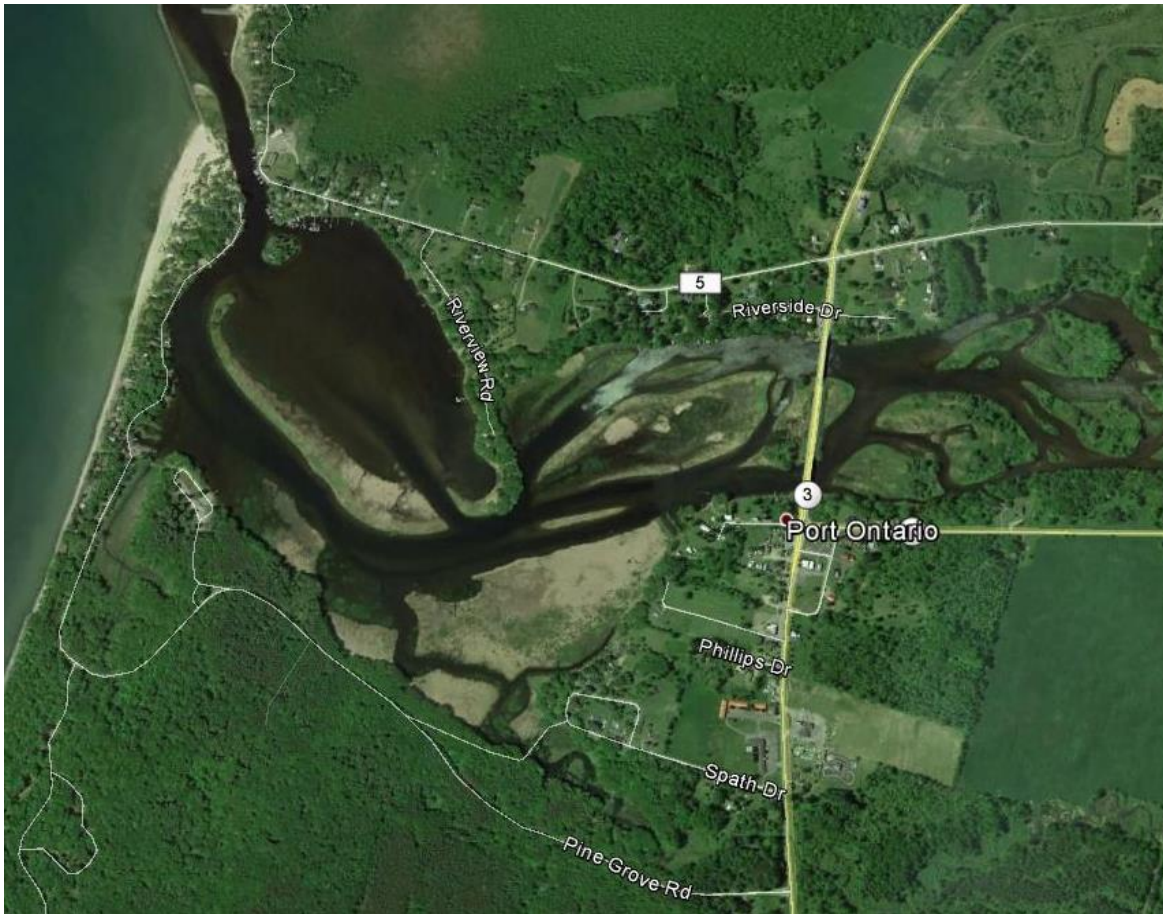


Figure 2. Satellite view of Salmon River Estuary

Survey Methods and Observations

In June of 2016, SLELO Early Detection team members Ben Hansknecht and Ashley Gingeleski surveyed the Salmon River Estuary for aquatic invasive species. This was accomplished through the rake toss technique and visual observations. The rake toss technique involves tossing a weighted double-sided rake off both left and right sides of a canoe pulling in vegetation for identification. The rake is attached to a rope marked in increments of feet for measuring water depth. Visual observations involve scanning aquatic and terrestrial surroundings for noticeable attributes of target and watch-list species.

The locations chosen within the Salmon River Estuary for rake tosses are known as Highly Probable Areas (HPAs). These areas are environments where invasive species are likely to be found as a result of certain characteristics: high rates of human activity, still water, shallow photic zones. HPAs were marked using a Garmin handheld GPSMAP® 62 and reached by canoe. The HPAs in this study were determined using HPAs of past studies. Areas in which the said HPA characteristics were present but had not been previously surveyed were also included.

No Prevention “Watch-list” species were found in the 2016 survey.

Target species determined to be in the Salmon River Estuary according to this survey include water chestnut (**Figure 4**), Eurasian water-milfoil, European frog-bit, curly-leaf pondweed, yellow iris (**Figure 5**), and Japanese knotweed.

Water chestnut was found at HPAs 1, 2, 5, 17, 19, and 21. Eurasian water-milfoil was found at HPAs 4, 5, and 20. European frog-bit was found at HPAs 15, 17, 19, 20, and 21. Curly-leaf pondweed was found at HPAs 2, 5, 17, 18, 19, and 21. Yellow iris was found at HPAs 19 and 20 (**Table 1 and Figure 3**).

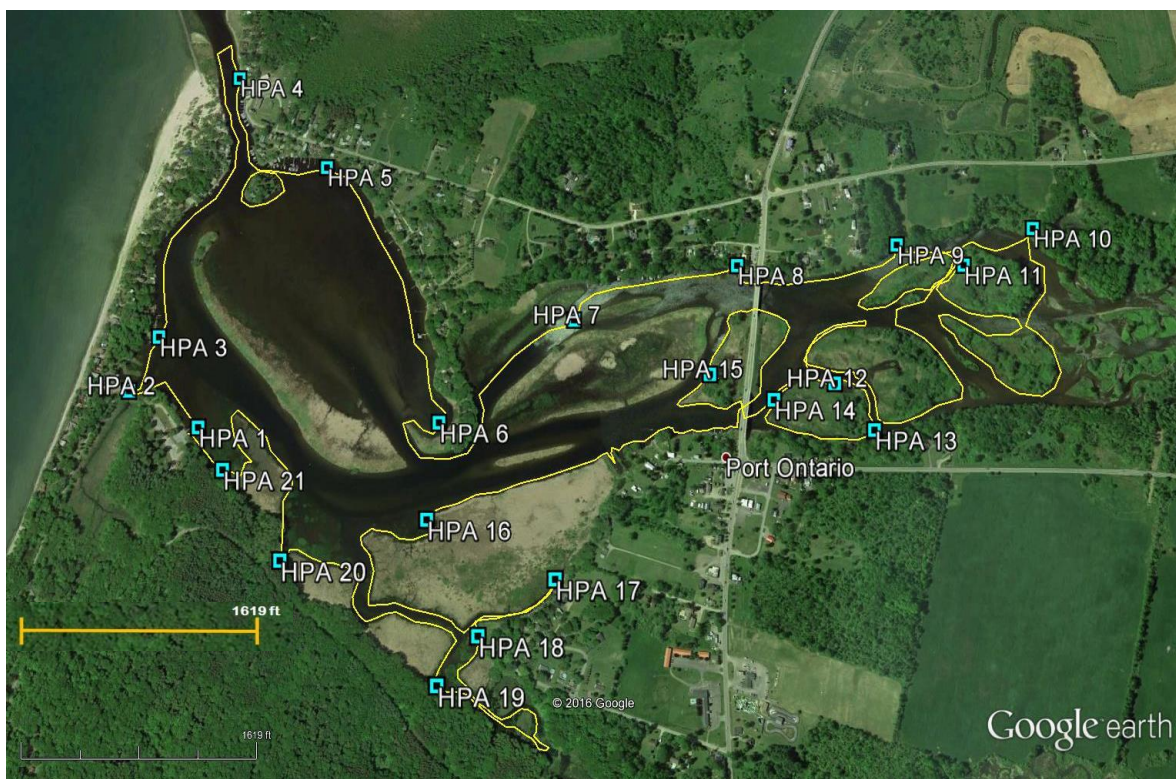


Figure 3. Map of HPAs (in blue) and canoe path (in yellow).

In addition to the HPAs, visual observations of invasive species throughout the estuary were marked using GPS waypoints (WPs). Water chestnut was observed at WPs 34, 35, 37, and 40. Eurasian water-milfoil was observed at WPs 32 and 34 – 40. European frog-bit was observed at WPs 35 – 39. Yellow iris was observed at WPs 28, 31, 33, and 36. Japanese knotweed was observed at WPs 1 – 27, 29, and 30 (**Table 2**).

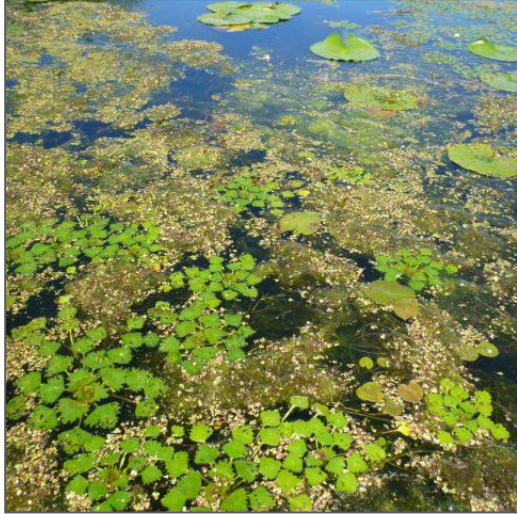


Figure 4. Water chestnut rosettes found at WP 37. Photo by Ashley Gingeleski.



Figure 5. Yellow iris found at WP 36. Photo by Ashley Gingeleski.

Populations of water chestnut, Eurasian water-milfoil, European frog-bit, curly-leaf pondweed and yellow iris were all found to be to the west of the Route 3 bridge. Within this area, the populations were strongly concentrated in the Southern tributary of the Salmon River.

In areas east of the Route 3 bridge, some Japanese knotweed populations were previously treated in 2013, 2014, and 2015 through the Salmon River Habitat Restoration Initiative.



Figure 6. SLELO Early Detection team member Ben Hansknecht. Photo by Ashley Gingeleski.

In addition to invasive species located using rake toss and visual observation methods, various native species were determined to be present. These species include: coontail, elodea, bladderwort, water buttercup, northern snail-seed pondweed, water starwort, slender pondweed, fragrant water lily, eelgrass, filamentous green algae, common reed, arrowhead, broadleaf pondweeds, white-stem pondweed, variable water-milfoil, water marigold, duckweed, and watershield.

Table 1. Highly Probable Areas (HPAs) within the Salmon River Estuary and results of rake tosses.

<i>HPAs</i>	<i>Description</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Throw</i>	<i>Depth (ft)</i>	<i># Spp.</i>	<i>#Inv.</i>	<i>Invasives</i>	<i>Visuals</i>
1	Dock	43.56732	-76.2028	1	4	1	0		WC
				2	2	2	0		
2	Cove Near Residentials	43.56803	-76.20486	1	2.5	4	0	CP	WC, CP
				2	3	4	1		
3	Docks Near River Mouth	43.56911	-76.20418	1	3	2	0		
				2	3.5	1	0		
4		43.57471	-76.20256	1	5	0	0		EM
				2	4.5	0	0		
5	Near Private Dock	43.5727	-76.19968	1	3	1	0		WC, EM, CP
				2	3	1	0		
6	Peninsula's Cove	43.56741	-76.19601	1	2	1	0		
				2	2	1	0		
7	Middle of Grassy Patches	43.56946	-76.19221	1	4	2	0		
				2	6.6	0	0		
8	Cove Near Fishing Parking	43.57058	-76.18743	1	2	0	0		
				2	1.5	2	0		
9	Quiet Cove Near Tributary	43.57095	-76.18277	1	7.5	0	0		
				2	6	0	0		
10	Quiet Shallow Cove	43.57135	-76.17865	1	1.5	0	0		
				2	1.5	0	0		
11	Small Grassy Inlet	43.57058	-76.18079	1	0.5	1	0		
				2	0.75	1	0		
12	Inlet With Grass	43.56818	-76.18477	1	2.5	2	0		
				2	1.5	1	0		
13	Near Shore and Island	43.56726	-76.18374	1	3	2	0		KW
				2	3	0	0		
14	Near Southern Part of Bridge	43.56785	-76.18653	1	4	3	0		
				2	4	0	0		
15	Between Underpasses	43.56836	-76.18832	1	3	3	0		FB
				2	2.5	2	0		
16	Quiet Area Near Grasses	43.56557	-76.19625	1	2	2	0		
				2	2.5	1	0		
17	End of Stream	43.56448	-76.19269	1	2	3	2	FB, CP	WC, FB, CP
				2	2	2	1		
18	Marshy Area	43.56347	-76.19475	1	2	4	1	CP	FB, CP
				2	2	6	0		
19	Cove Near Tree Shade	43.56261	-76.19579	1	1.8	3	0	FB, CP	WC, FB, YI, CP
				2	2	2	2		
20	Quiet Shallow Cove	43.5648	-76.20014	1	1.5	3	0		EM, FB, YI
				2	1.5	1	0		
21	Cove Near Boat Launch	43.56649	-76.20196	1	2	1	0		WC, FB, CP
				2	2	3	0		

Key: WC = Water chestnut, EM = Eurasian water-milfoil, KW = Japanese knotweed,
 FB = European frog-bit, YI = Yellow iris, CP = Curly-leaf pondweed

Table 2. Waypoints (WPs) of visually observed invasive species within the Salmon River Estuary.

<i>WPs</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Species</i>	<i>Notes</i>
1	43.57249	-76.19891	KW	
2	43.5669	-76.1959	KW	
3	43.57088	-76.18128	KW	
4	43.57106	-76.18066	KW	
5	43.57099	-76.18015	KW	
6	43.57034	-76.17808	KW	
7	43.56924	-76.17904	KW	
8	43.56885	-76.17848	KW	
9	43.56809	-76.1787	KW	
10	43.5686	-76.18062	KW	
11	43.56935	-76.18082	KW	
12	43.56919	-76.17974	KW	
13	43.56967	-76.18	KW	
14	43.56972	-76.18073	KW	
15	43.57046	-76.18119	KW	
16	43.5702	-76.18194	KW	
17	43.57003	-76.18279	KW	
18	43.56982	-76.18339	KW	
19	43.56988	-76.18221	KW	
20	43.56854	-76.18152	KW	
21	43.56781	-76.18211	KW	
22	43.56757	-76.18218	KW	
23	43.56752	-76.18292	KW	
24	43.56734	-76.18296	KW	
25	43.56771	-76.1839	KW	
26	43.56718	-76.18456	KW	
27	43.56802	-76.18864	KW	
28	43.56879	-76.18818	YI	
29	43.56932	-76.186	KW	Former Treatment Site
30	43.56725	-76.18906	KW	Private Property
31	43.56672	-76.19115	YI	Cove Near Residential
32	43.56532	-76.19676	EM	Near Dead Log
33	43.56525	-76.19804	YI	Around Curve Near Inlet
34	43.56466	-76.19766	WC, EM	
35	43.56424	-76.19774	WC, EM, FB	
36	43.56418	-76.19729	YI, FB, EM	
37	43.56316	-76.19503	FB, WC, EM	
38	43.56231	-76.19341	FB, EM	
39	43.56554	-76.20013	EM, FB	
40	43.56699	-76.20261	WC, EM	

Key: WC = Water chestnut, EM = Eurasian water-milfoil, KW = Japanese knotweed,
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