

Supplemental Environmental Assessment. Stormy and Daniels Lake Elodea Eradication Project (February 2020)

Introduction

In 2013, the Alaska Department of Natural Resources (DNR) and the U.S. Fish and Wildlife Service (USFWS) approved a strategy for managing the invasive aquatic plant *Elodea* in both Stormy and Daniels Lake on the Kenai Peninsula (Blackburn 2013). Selected management strategies included applying the herbicides fluridone and/or diquat to reduce the biomass and ultimately eradicate *Elodea* to reduce the threat that this highly invasive species will disperse elsewhere in the Swanson River and Bishop Creek drainages, or into other lakes, waterbodies, wetlands, streams, and rivers statewide. Treatment plans were proposed and approved through the preliminary Environmental Assessment (EA) completed in August 2013 (Blackburn 2013).

Later, Beck Lake, Sport Lake, and Hilda-Seppu Lakes were found to be infested with *Elodea*. Treatment plans were developed and Supplemental Environmental Assessments (SEAs) were completed as modifications to the plan for eradicating *Elodea* from the Kenai Peninsula (Blackburn 2014; Johnson 2017). Herbicidal treatments of all lakes treated so far appear to have been successful (Morton et al. 2019).

In September 2019, *Elodea* was discovered in Sandpiper Lake in the Miller Creek Drainage on the northern Kenai Peninsula (Massengill 2019). The population in Sandpiper Lake is now the only known remaining population of *Elodea* on the Kenai Peninsula.

This document adopts in part and supplements the EA for the proposed Treatment of Stormy and Daniels Lake for the Purpose of Eradication of *Elodea* and Maintaining Ecological Integrity of Waterways on the Kenai Peninsula, finalized by DNR and the USFWS August 2013 and modified via SEAs in 2014 and 2017.

We present two alternatives in this SEA: (1) no change to the 2013 EA (no action alternative), and (2) adopt amendments to the 2013 EA, the 2014 SEA, and the 2017 SEA (proposed action alternative). Under the first alternative, DNR and the USFWS would continue its current management plan to treat *Elodea* in Stormy Lake, Daniels Lake, Beck Lake, and Sport Lake as described in the 2013 EA, the 2014 SEA, and the 2017 SEA. Under the second alternative (proposed action), the 2013 EA, the 2014 SEA, and the 2017 SEA would be amended to increase the scope of the treatment to include Sandpiper Lake. The proposed change would continue to ensure consistent action towards the management goal of eradicating this highly invasive submersed aquatic plant from the Kenai Peninsula.

We believe the changes proposed in this Draft SEA would not significantly alter the analysis of impacts for any of the resource areas evaluated in the 2013 EA, nor would it result in any substantive changes in the approved action, and therefore we are not proposing to conduct a new environmental analysis. We believe the proposed amendment falls within the scope

of analysis documented in the 2013 EA, the 2014 SEA, and the 2017 SEA and that the potential impacts resulting from documenting these changes have been adequately evaluated in this SEA.

This preliminary SEA will be made available for public comment for a 30-day period. Comments received by the public, stakeholders, and agencies will be reviewed and considered. The DNR will disclose its final decision and supporting rationale following the close of the public comment period.

Purpose and Need for Action

The overall purpose and need for the management of *Elodea* on the Kenai Peninsula is described in Blackburn (2013). Readers are referred to this document for details. The purpose of this preliminary SEA is to implement changes that incorporate new information regarding the extent of *Elodea* on the Kenai Peninsula. The need for this action is based on the following factors identified in 2013–2019:

- *Elodea*, the first submerged freshwater invasive plant to become established in Alaska, has the potential to spread rapidly on the Kenai Peninsula affecting ecological and economic values (Schwoerer and Morton 2018).
- Based on surveys of over 90 lakes beginning in 2013 it appeared that *Elodea* populations were constrained to six lakes: five lakes (Stormy, Daniels, Beck, and Hilda-Seppu) in two watersheds north of the community of Nikiski and Sport Lake near Soldotna.
- Sandpiper Lake is a remote lake on the extreme north of the Kenai Peninsula.
- *Elodea* was likely introduced to Sandpiper Lake recently by floatplane.
- As long as *Elodea* resides in Sandpiper Lake, it may be spread by float planes, waterfowl, and downstream flow, posing a threat of further infestations within the Miller Creek drainage and, if transported by floatplanes or waterfowl, to a much broader area.

Background

As documented in the EA, neither *Elodea* nor other exotic submerged freshwater plants were known to occur on the Kenai Peninsula until very recently. Pfauth and Sysma (2005) did not detect *Elodea* in Vogel, Johnson and Longmere Lakes as part of a larger regional survey of exotic aquatic plants in 2005. However, in September 2012, *Elodea* was incidentally found in Stormy Lake while it was being treated with rotenone for northern pike. In October 2012, Alaska Department of Fish & Game (ADF&G) and USFWS staff found *Elodea* in Daniels Lake. In May 2013, immediately after ice-out, a more comprehensive boat survey with rakes confirmed that Daniels Lake was in the early stages of infestation with *Elodea* distribution restricted to five discrete areas along the shoreline. This information led to the drafting and approval of the 2013 EA (Blackburn 2013).

With the recognition that a strategic approach to *Elodea* management could not be determined without a more comprehensive understanding of its distribution on the Kenai Peninsula, USFWS staff surveyed 68 lakes on the western peninsula during summer 2013 targeting waterbodies that were exposed to likely routes of infection: public boat launches, multiple private homes, road accessible or floatplane charters. Other partners surveyed Beluga Lake in Homer, Trout and Juneau Lakes on Chugach National Forest, and Bear Lake near Seward. *Elodea* was found in only one additional lake, the 200-acre Beck Lake in the Bishop Creek watershed. Significantly, no other nonnative submerged aquatic plant was detected.

Treatment plans for Beck Lake were developed and a Supplemental Environmental Assessment (SEA) was completed as a modification to the plan for eradicating *Elodea* from the Kenai Peninsula (Blackburn 2014). Herbicidal treatments of the three infested lakes in 2014 and 2015 appear to have been successful (Morton et al. 2019).

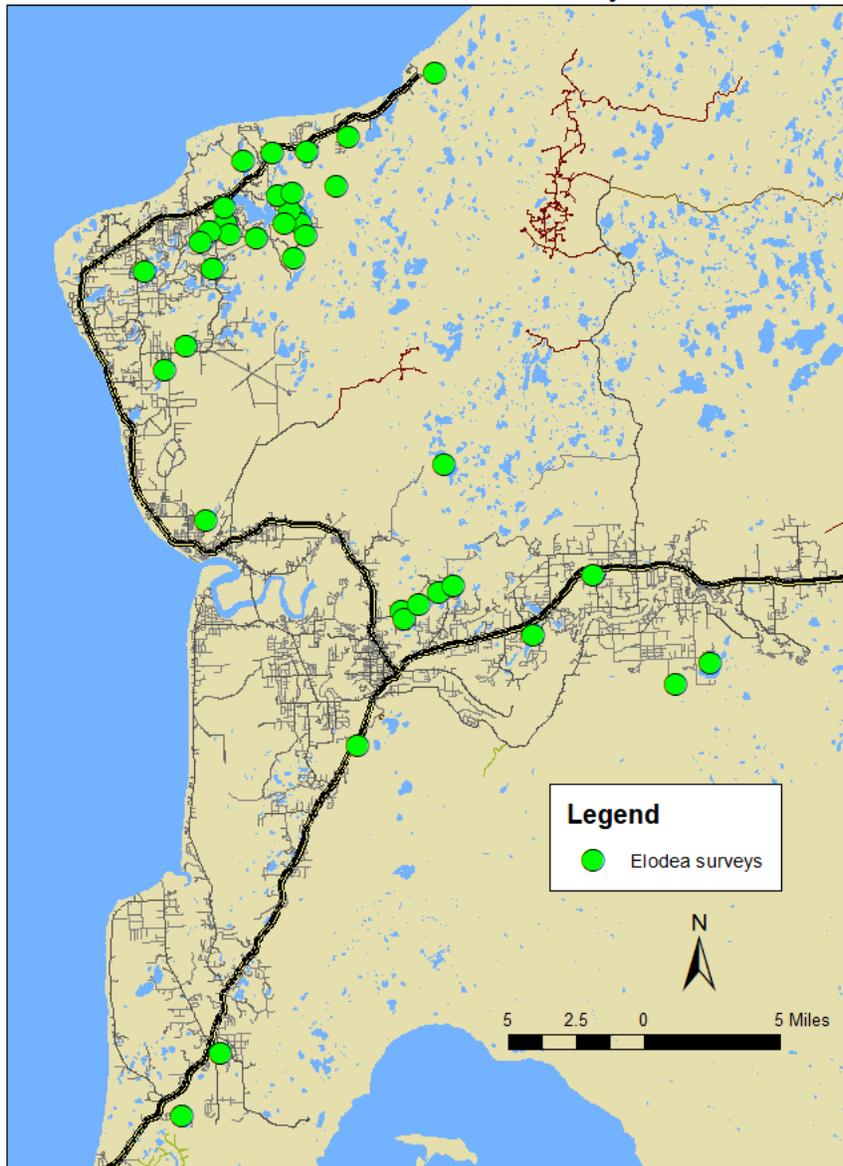
Additional surveys were conducted in 2014 and 2015 bringing the total lakes surveyed on the Kenai Peninsula to over 90.

In February 2017, *Elodea* was discovered in Sport Lake on the Kenai Peninsula. A treatment plan for Sport Lake was developed and a Supplemental Environmental Assessment (SEA) was completed as a modification to the plan for eradicating *Elodea* from the Kenai Peninsula (Johnson 2017). Treatment of Sport Lake in 2017 and 2018 appear to have been successful (Morton et al. 2019).

In July 2017, *Elodea* was detected in Hilda-Seppu Lakes, two small lakes connected to Beck Lake. The Alaska Department of Environmental Conservation granted an emergency pesticide use permit exemption for the treatment of these lakes in August 2017 (Hartig 2017). Treatments of these lakes appear to have been successful (Morton et al. 2019).

Thirty-eight water bodies were surveyed for *Elodea* by Kenai Watershed Forum staff in 2018 and 2019, but no *Elodea* was found.

2018-2019 Elodea Surveys



Locations of water bodies surveyed for Elodea in 2018 and 2019. Data were provided by Maura Schumacher of the Kenai Watershed Forum.

In September 2019, *Elodea* was discovered in Sandpiper Lake in the Miller Creek Drainage on the northern Kenai Peninsula (Massengill 2019). The population in Sandpiper Lake is now the only known remaining population of *Elodea* on the Kenai Peninsula.

ADF&G staff installed a fencing barrier in the outlet stream below Sandpiper Lake to prevent movement of northern pike. This barrier should also help to keep *Elodea* from spreading downstream from Sandpiper Lake.



Mesh barrier in outlet stream below Sandpiper Lake, September 25, 2019.

Elodea was not detected during a 1955 study of Sandpiper Lake (Baxter 1956) or in a more thorough vegetation survey in 1984 (Jakubas and Firman 1984; Friedersdorff 1986).

Elodea was reported from Vogel Lake (connected by stream to Sandpiper Lake) in 1964 (McMullen 1964); however, this was likely a misidentification. The vegetation portion of this survey appeared to be cursory and the identification of *Elodea*, which would have been the first documentation of the genus in Alaska at the time, was not remarked about. Subsequent and more thorough surveys in 2005, 2013, and 2019 found no *Elodea* in Vogel Lake (Pfauth and Sytsma 2005; Bella 2013; Bowser 2019).

Because of its proximity to Anchorage, it is commonly used for landing practice by float planes. It is likely that *Elodea* was introduced to Sandpiper Lake by floatplane some time after 1984.

The Kenai Peninsula is in the early stages of infestation by *Elodea*. Based on surveys of over 90 lakes in 2013–2016, *Elodea* populations have only been found in six lakes in three watersheds on the western Kenai Peninsula. While herbicide treatments in 2014–2018 may have successfully eradicated *Elodea* from these lakes, outflow from formerly infested lakes in the Bishop Creek drainage remain a concern as *Elodea* may have become established downstream in Bishop Creek or spread to adjacent water bodies, and from there to the connected waters of the Kenai Lowlands on the western peninsula. Likely initial vectors on the peninsula were dumped aquaria (Bowmer et al. 1995) and discarded

commercial lab kits. However, as these early populations of *Elodea* become better established, float planes, motor boats (including anchors, fishing gear), and even waterfowl will become the more probable vectors.

Agency Authorities

The Alaska Department of Natural Resources is authorized to control and eradicate the spread of pests per Alaska Statute (AS 44.37.030). The management strategies outlined in the 2013 EA, the 2014 SEA, the 2017 SEA, and this SEA have been developed in conjunction with the USFWS and other stakeholder agencies, organizations, and partners in the Kenai Peninsula Cooperative Weed Management Area. This information was previously presented to the public with invitation to participate in the development of project goals in public meetings in February 2013, April 2014, and April 2017.

Alternatives

In this section, we present two alternatives. The first alternative would continue the current management plan to treat *Elodea* in Stormy and Daniels Lake as described in the 2013 EA, in Beck Lake as amended in the 2014 SEA, and in Sport Lake as amended in the 2017 SEA. Under the second alternative, the 2013 EA would be amended to increase the scope of the treatments to include Sandpiper Lake in addition to the other six lakes on the Kenai Peninsula.

Alternative 1: Continue Management at Stormy, Daniels and Beck Lakes, Sport Lake and Hilda-Seppu Lakes (no action alternative)

Under the first alternative, DNR and the USFWS would continue its current management plan to treat *Elodea* in Stormy, Daniels, Beck, Sport, and Hilda-Seppu Lakes with the treatment objectives to reduce the aquatic invasive plant *Elodea* biomass and eradicate *Elodea* within these waterbodies using the herbicides diquat and fluridone, as described in the 2013 EA. This alternative would not allow for eradication of *Elodea* across the entire Kenai Peninsula as the objective was originally stated in the 2013 EA. *Elodea* would remain in Sandpiper Lake, representing a risk of spread to new waterbodies.

Alternative 2: Amend Management to Include Sandpiper Lake (proposed action alternative)

Alternative 2 would amend the 2013 EA to increase the scope of treatments to include Sandpiper Lake in addition to Stormy, Daniels, Beck, Sport, and Hilda-Seppu Lakes following the same management objectives outlined in the 2013 EA including treatments using the herbicides diquat and fluridone. Currently, Sandpiper Lake is the only waterbody on the Kenai Peninsula known to have *Elodea*. The proposed change would continue to ensure consistent action towards the management goal of eradicating the highly invasive *Elodea* from the Kenai Peninsula and therefore reducing ecological and economic impacts

of *Elodea*. All herbicide use will, by law, strictly conform to the herbicide product label and all permit restrictions.

Category	Alternative 1	Alternative 2
Geographic Scope	Stormy Lake (403 surface acres) Daniels Lake (621 surface acres) Beck Lake (197 surface acres) Sport Lake (70 surface acres) Hilda-Seppu Lakes (55 surface acres)	Stormy Lake (403 surface acres) Daniels Lake (621 surface acres) Beck Lake (197 surface acres) Sport Lake (70 surface acres) Hilda-Seppu Lakes (55 surface acres) Sandpiper Lake (74 surface acres)
Herbicide Use	diquat fluridone	diquat fluridone

Affected Environment

In the 2013 EA, the environmental review and comments chapter summarizes the relevant physical, biological, and social components of the ecosystem, some of which could be affected by actions associated with the eradication of *Elodea* by DNR and its partners. We incorporate by reference the narrative presented in the 2013 EA, 2014 SEA, and 2017 SEA for this chapter for Stormy, Daniels, Beck, Sport, and Hilda-Seppu Lakes, including narrative analyses and the analysis presented in the Finding of No Significant Impact (FONSI) including our responses to public comment.

Sandpiper Lake (GeoNames: [5873355](#)), formerly known as Honeymoon Lake, is a remote lake in the Miller Creek drainage on the northern Kenai Peninsula accessible by floatplane or snowmachine. Most of the shore of Sandpiper Lake is on the Kenai National Wildlife Refuge within the Dave Spencer Unit of the Kenai Wilderness. A small part of the north shore of Sandpiper Lake is bordered by land owned by the Kenai Peninsula Borough.



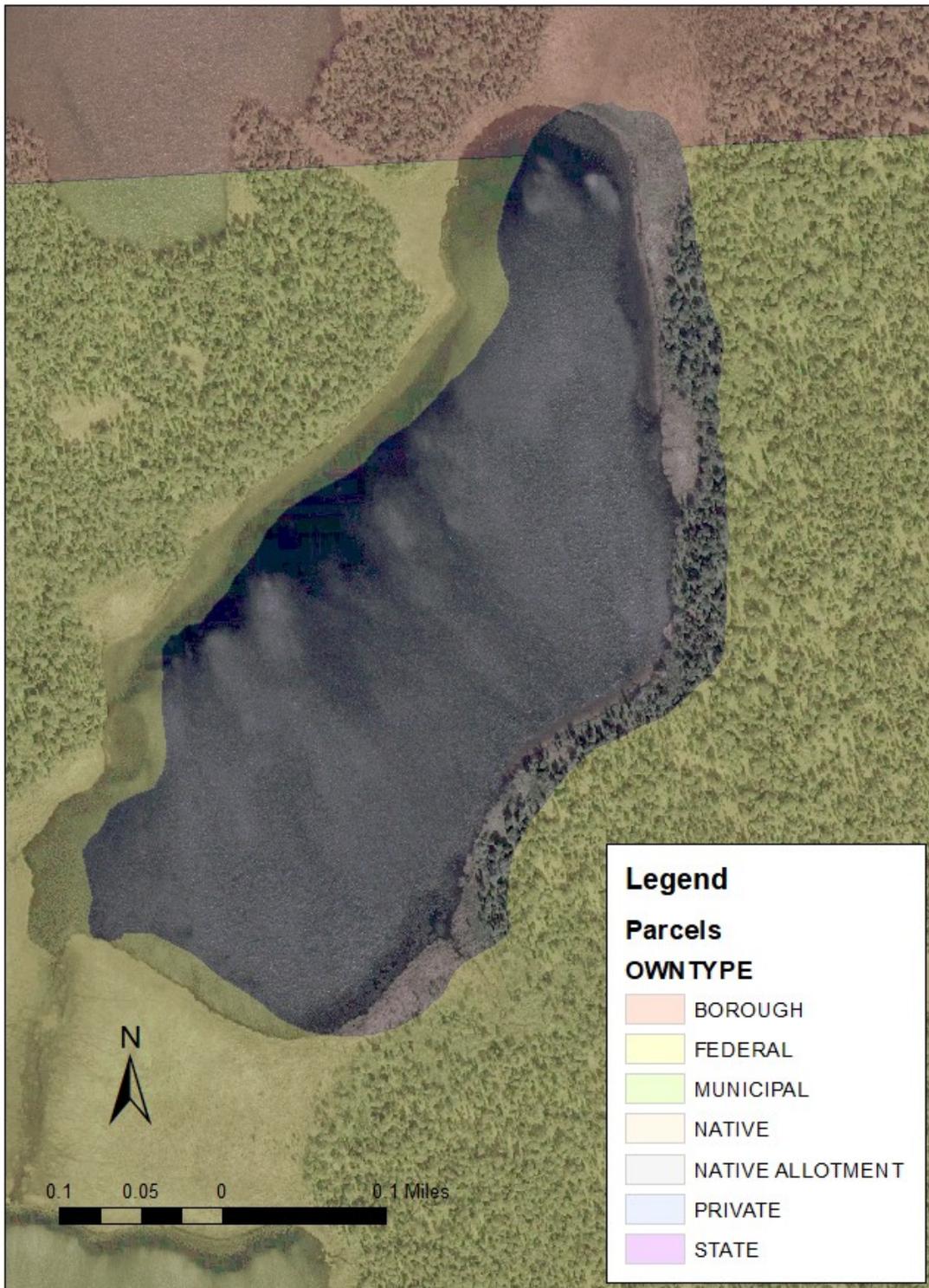
View of Sandpiper Lake, September 25, 2019, looking north from the southwest side of the lake near the outlet.

Friedersdorff (1986) provided a physical description of Sandpiper Lake. The watershed area for the lake is estimated to be 1.8 square miles. Streams, springs, and runoff supply the lake. There is a small inlet stream on the southeast side of the lake and an outlet stream on the southwest side of the lake leading to an unnamed lake (recently referred to as North Vogel Lake) north of Vogel Lake. Flow of the outlet stream ranges from 0 to about 1 cfm (Baxter 1956; Friedersdorff 1986). When USFWS staff visited this stream in September 2019 there was no perceivable flow.

Specific information on Sandpiper Lake is included below.

Location	Size	Outflow	Adjacent Land Ownership
T11N, R6W (Section 31) 61.0036 °N, -150.4079 °W	74 acres 17.3 ft. mean depth 1280 acre-feet volume	0–1 cfs (Baxter 1956; Friedersdorff 1986)	Kenai National Wildlife Refuge Kenai Peninsula Borough

Sandpiper Lake Land Ownership



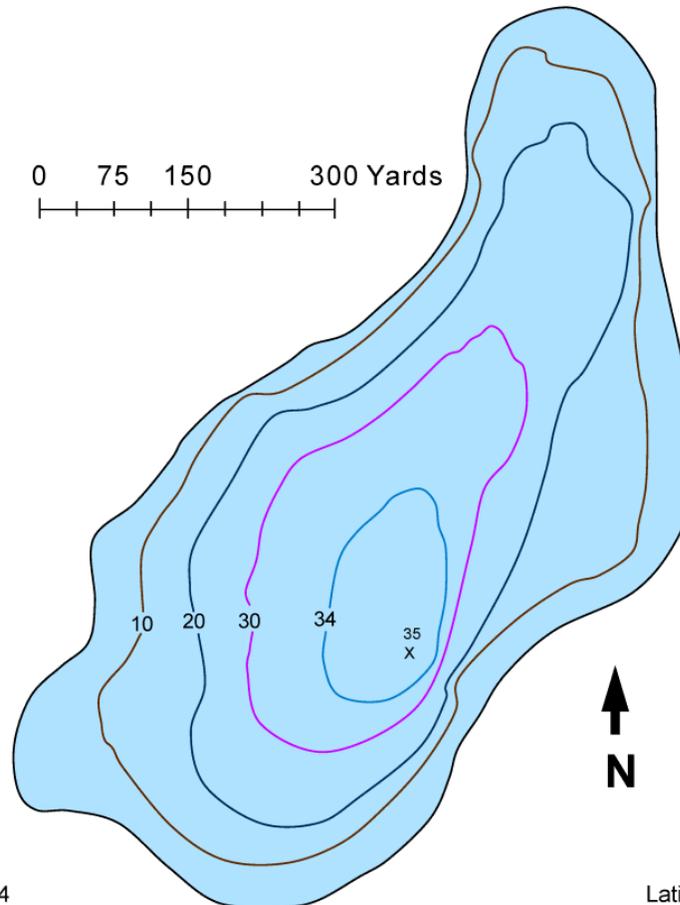
Map of land ownership around Sandpiper Lake.



U.S. Fish & Wildlife Service

Kenai Fish & Wildlife Field Office
43655 Kalifornsky Beach Road
Soldotna, AK 99669 907-262-9863

Sandpiper Lake



Surface Acres: 74

Maximum depth (ft): 35

Shoreline Length (ft): 2,450

Most recent fish survey: 1984

Sport fish species observed: rainbow trout

Latitude: 61°0.16'N

Longitude: -150°24.51'W

Access: Remote/Aircraft

Lake Public Access: Remote location in Miller Creek watershed. Lake open to aircraft.

Map of Sandpiper Lake (Kenai Fish & Wildlife Field Office 2008).

Jakubas and Firman (1984) surveyed the vegetation of Sandpiper Lake, where they found diverse native aquatic plants: *Comarum palustre* L.; *Eleocharis* R.Br.; *Equisetum fluviatile* L.; *Myrica gale* L.; *Myriophyllum* L.; *Nuphar polysepalum* Engelm.; *Nymphaea tetragona* Georgi; *Potamogeton alpinus* Balb.; *Potamogeton berchtoldii* Fieb.; *Potamogeton foliosus* Raf.;

Potamogeton gramineus L.; *Potamogeton natans* L.; *Potamogeton robbinsii* Oakes; *Potamogeton zosteriformis* Fernald; *Ranunculus aquatilis* L.; *Schoenoplectus* (Rchb.) Palla; *Sparganium angustifolium* Michx.; and *Sparganium minimum* (L.) Fr.

Fish species documented from Sandpiper Lake include rainbow trout (*Oncorhynchus mykiss* (Walbaum, 1792)), resident red salmon (*Oncorhynchus nerka* (Walbaum, 1792)), and threespine stickleback (*Gasterosteus aculeatus* Linnaeus, 1758) (Baxter 1956; Friedersdorff 1986). Northern pike were found in the Miller Creek drainage in 2019.

Supplemental Environmental Assessment Conclusions

Is an EIS required?

Public Involvement

The SEA will be posted on the ADNR website. Any interested citizens will be encouraged to contact the preparers of this SEA to discuss.

Public scoping/notification

Duration of Public Comment

A 30-day public comment period will occur for the SEA. Comments should be sent to... After the public commenting period, a summary of comments and responses will be included in the final SEA.

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