Grant County
PUBLIC UTILITY DISTRICT

Connecting Generations
Since 1938

BY ELECTRONIC FILING

June 1, 2021

Kimberly D. Bose. Secretary
Federal Energy Regulatory Commission
Mail Code: DHAC, PJ-12
888 First Street, N.E.
Washington, D.C. 20426

Re: Priest Rapids Hydroelectric Project No. 2114-211 - Article 401(a)(22) – 2020 Aquatic Invasive Species Control and Prevention Plan (AISP) Annual Report

Dear Secretary Bose,

Please find enclosed the Public Utility District No. 2 of Grant County, Washington's (Grant PUD) annual report of the 2020 Aquatic Invasive Species Control and Prevention Plan Program (AISP Program). Activities conducted in 2020 consistent with the requirements of the Aquatic Invasive Species Control and Prevention Plan (AISP), Article 401(a)(22) of the Priest Rapids Hydroelectric Project License[1] and associated obligations and mandates, including the Washington Department of Ecology (WDOE) 401 Water Quality Certification. The AISP Program activities for 2020 were conducted in accordance with the management plan titled, *Aquatic Invasive Species Control and Prevention Plan* (Grant PUD 2010), which was developed in consultation with the Priest Rapids Fish Forum (PRFF), the Washington Department of Fish and Wildlife's (WDFW's) Aquatic Invasive Species Program and the WDOE's Freshwater Aquatic Weed Control Program. The AISP was submitted to Federal Energy Regulatory Commission (FERC) on March 3, 2010 and approved on July 7, 2010. An amendment to the 2010 AISP was approved by FERC in October of 2016[2].

Grant PUD prepared and disseminated a draft summary of the 2020 Aquatic Invasive Species Control and Prevention Program activities for comment on March 1, 2021 to WDOE, WDFW and to members of the PRFF which includes WDOE, WDFW, U.S. Fish & Wildlife Service, Colville Confederated Tribes, Yakama Nation, the Columbia River Inter-Tribal Fish Commission, Bureau of Indian Affairs, the Confederated Tribes of the Umatilla Indian Reservation, and Wanapum People.

Grant PUD's annual AIS meeting was held virtually for 2021 via the Microsoft Teams app on April 29, 2021. Participants included Jesse Schultz and Patrick Verhey from the Washington Department of Fish and Wildlife (WDFW), Jenifer Parsons and Breean Zimmerman from the Washington Department of Ecology (WDOE), Marcie Clement from Chelan PUD, and lastly Nate Dietrich, Chris Mott, and Carson

[1] 123 FERC ¶ 61,049 (2008)
[2] 157 FERC ¶ 62,067 (2016)

ADDRESS PO Box 878
Ephrata, WA 98823
PHONE 509 766 2505
FAX 509 754 6770
grantpud.org

Keeler from Grant PUD. A brief review of the 2020 AIS activities was presented to the group, during which the stakeholders and Grant PUD engaged in conversations and provided feedback on any updates and/or new AIS threats and concerns. Comments were received from WDFW and are noted in Appendix E, with Grant PUD comments/responses found within Appendix F of this annual report.

FERC staff with any questions should contact me at 509-753-1468 or email rhendr1@gcpud.org.

Sincerely,

Ross Hendrick

Ross Hendrick

Senior Manager – Environmental Affairs

CC: Breann Zimmerman – WDOE
Jenifer Parsons – WDOE
Patrick Verhey – WDFW
Jesse Schultz – WDFW
Marcie Clement – Chelan PUD

ADDRESS PO Box 878
Ephrata, WA 98823
PHONE 509 766 2505
FAX 509 754 6770
grantpud.org

Priest Rapids Hydroelectric Project (P-2114)

2020 AQUATIC INVASIVE SPECIES CONTROL AND PREVENTION PLAN ANNUAL REPORT

License Article 401(a)(22)

By Carson Keeler

Public Utility District No. 2 of Grant County, Washington
Priest Rapids Hydroelectric Project
FERC Project No. 2114

May 2021

Executive Summary

The Aquatic Invasive Species Control and Prevention Program (AISP Program) activities for 2020 were conducted per the management plan titled, *Aquatic Invasive Species Control and Prevention Plan* (AISP; Grant PUD 2010)[1] and associated amendments (Keeler 2016)[2]. Key components of the AISP include education, monitoring, local and regional coordination, and rapid response that are designed to help manage, regulate, and potentially prevent the introduction and/or spread of existing/new aquatic invasive species (AIS) within the Priest Rapids Hydroelectric Project (Project).

Monitoring activities for 2020 consisted of zebra/quagga mussel (*Dreissena polymorpha*/*Dreissena rostriformis bugensis*) sampling (artificial substrate, plankton tows, and shoreline monitoring), aquatic submergent plant surveys both Project-wide and at boat launches, and the use of environmental DNA (eDNA) as an early monitoring method for the presence/absence of northern pike (*Esox lucius*). Educational activities for 2020 included AIS informational signage displayed at Project boat launches. Local coordination included hosting Grant PUD's annual AIS meeting and participation in a flowering rush (*Butomus umbellatus*) monitoring exercise in the Rocky Reach Reservoir.

No northern pike was detected with the use of eDNA within the Project. Additional results from other AIS monitoring efforts in 2020 included no zebra/quagga mussel veliger identified in any plankton tow samples and no presence of zebra/quagga mussels or other macroinvertebrates AIS including New Zealand mudsnail (NZMS; *Potamopyrgus antipodarum*) on any artificial substrates or shoreline monitoring sites within the Project.

A part of the associated amendments to the AISP adopted in 2015 (Keeler 2016)[2] Grant PUD was to complete both the Project-wide aquatic submergent vegetation surveys and voluntary boater surveys on the same five-year schedule. For 2020, the voluntary boater surveys were not performed due to health and safety concerns stemming from the Covid-19 pandemic and several pandemic-related restrictions. Voluntary boater surveys will be conducted during major recreational weekends when health and safety mandates have diminished to better ensure surveys can be performed in a safe and viable manner for both Grant PUD and the general public who are visiting Grant PUD recreation sites.

Results from the 2020 boat launch and Project-wide aquatic submergent plant surveys were comparable to prior years' results in some respects and different in others. For example, results in the Wanapum Reservoir for the Project-wide aquatic plant surveys were similar in total area, but different in the primary dominant species noted (native vs. milfoil). In 2020, the boat launch aquatic vegetation survey results mirrored the boat launch surveys from prior years' in that the boat launch areas have mostly been recolonized by native species overall, but do contain either Eurasian watermilfoil (*Myriophyllum spicatum*) and/or curlyleaf pondweed (*Potamogeton crispus*) to a lesser extent.

Grant PUD's annual AIS meeting was held virtually via the Microsoft Teams app on April 29, 2021. Participants included Jesse Schultz and Patrick Verhey from the Washington Department of Fish and Wildlife (WDFW), Jenifer Parsons and Breean Zimmerman from the Washington Department of Ecology (WDOE), Marcie Clement from Chelan PUD, and lastly Nate Dietrich,

[1] 132 FERC ¶ 62,016 (2010)
[2] 157 FERC ¶ 62,067 (2016)

Chris Mott, and Carson Keeler from Grant PUD. A brief review of the 2020 AIS activities was presented to the group, during which the stakeholders and Grant PUD engaged in conversations and provided feedback on any updates and/or new AIS threats and concerns. Comments were received from WDFW and are noted in Appendix E, with Grant PUD comments/responses found within Appendix F of this annual report.

Table of Contents

List of Figures

List of Tables

List of Appendices

Terms and Abbreviations

AIS	Aquatic Invasive Species
AISP	Aquatic Invasive Species Control and Prevention Plan
AISP Program	Aquatic Invasive Species Control and Prevention Program
CDFG	California Department of Fish and Game
FERC	Federal Energy Regulatory Committee
Grant PUD	Public Utility District No. 2 of Grant County, Washington
GIS	Geographic Information Systems
GPS	Global Positioning System
MW	Megawatt
NZMS	New Zealand Mudsnail
PRFB	Priest Rapids Fish Bypass
PRFF	Priest Rapids Fish Forum
PRRA	Priest Rapids Recreation Area
Project	Priest Rapids Hydroelectric Project
RM	River Mile
USFWS	United States Fish and Wildlife Service
WFB	Wanapum Fish Bypass
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology
WQC	Water Quality Certification

1.0 Introduction

Public Utility District No. 2 of Grant County, Washington (Grant PUD) owns and operates the Priest Rapids Hydroelectric Project (Project), located along the mid-Columbia River in central Washington State. The Project is authorized by the Federal Energy Regulatory Commission (FERC) under Project No. 2114[3] and includes the Wanapum and Priest Rapids developments. A 401 Water Quality Certification (WQC) for the operation of the Project was issued by the Washington Department of Ecology (WDOE) on April 3, 2007, amended on March 6, 2008 (WDOE 2007), and directly incorporated into the FERC license to operate the Project on April 17, 2008 (FERC 2008).

The Aquatic Invasive Species Control and Prevention Program (AISP Program) activities for 2020 were conducted in accordance with the management plan titled, *Aquatic Invasive Species Control and Prevention Plan* (AISP; Grant PUD 2010) and associated amendments (Keeler 2016). The AISP was initially developed by Grant PUD in consultation with the Priest Rapids Fish Forum (PRFF), the WDOE's Freshwater Aquatic Weed Control Program, the Washington Department of Fish and Wildlife's (WDFW's) Aquatic Invasive Species Program, and in accordance with Section 6.6.4 of the 401 WQC (WDOE 2007) and Article 401(a)(22) of the FERC license (FERC 2008). The original AISP was submitted to FERC on March 3, 2010 and was approved on July 7, 2010. In June of 2016, Grant PUD requested an amendment to the 2010 AISP to incorporate modifications to the monitoring frequencies, which was approved by FERC in October of 2016[4].

This annual report summarizes activities conducted in implementation year 2020 under the AISP Program.

1.1 Objectives

As identified in the AISP, the primary objective is to address methods to monitor and manage aquatic invasive flora and fauna in the Project. Key components of the AISP include education, monitoring, local and regional coordination, and rapid response that are designed to help manage, regulate, and potentially prevent introduction and/or spread of new/existing aquatic invasive species (AIS) into or within the Project.

1.2 Priest Rapids Hydroelectric Project Description

The downstream boundary of the Project is located approximately three miles below Priest Rapids Dam (river mile [RM] 397.1) and extends upriver to the Rock Island Dam tailrace at RM 453.5 (Figure 1).

The Priest Rapids development consists of a 7,725-acre reservoir and a 10,103-foot-long by 179.5-foot-high dam spanning the Columbia River. The dam consists of left and right embankment sections; left and right concrete gravity dam sections; a left and right fish passage structure, each with an upstream fish ladder; a gated spillway; a downstream fish passage structure (the Priest Rapids Fish Bypass (PRFB)); and a powerhouse containing ten vertical shaft integrated Kaplan turbine/generator sets with a total authorized installed capacity of 675 MW (best gate) (Figure 2).

[3] 123 FERC ¶ 61,049 (2008)
[4] 157 FERC ¶ 62,067 (2016)

The Wanapum Development consists of a 14,680-acre reservoir and an 8,637-foot-long by 186.5-foot-high dam spanning the Columbia River. The dam consists of left and right embankment sections; left and right concrete gravity dam sections; a left and right fish passage structure, each with an upstream fish ladder; a gated spillway; a downstream fish passage structure (the Wanapum Fish Bypass (WFB)); and a powerhouse containing ten vertical shaft integrated Kaplan turbine/generator sets with a total authorized installed capacity (best gate) of 735 MW (Figure 3).

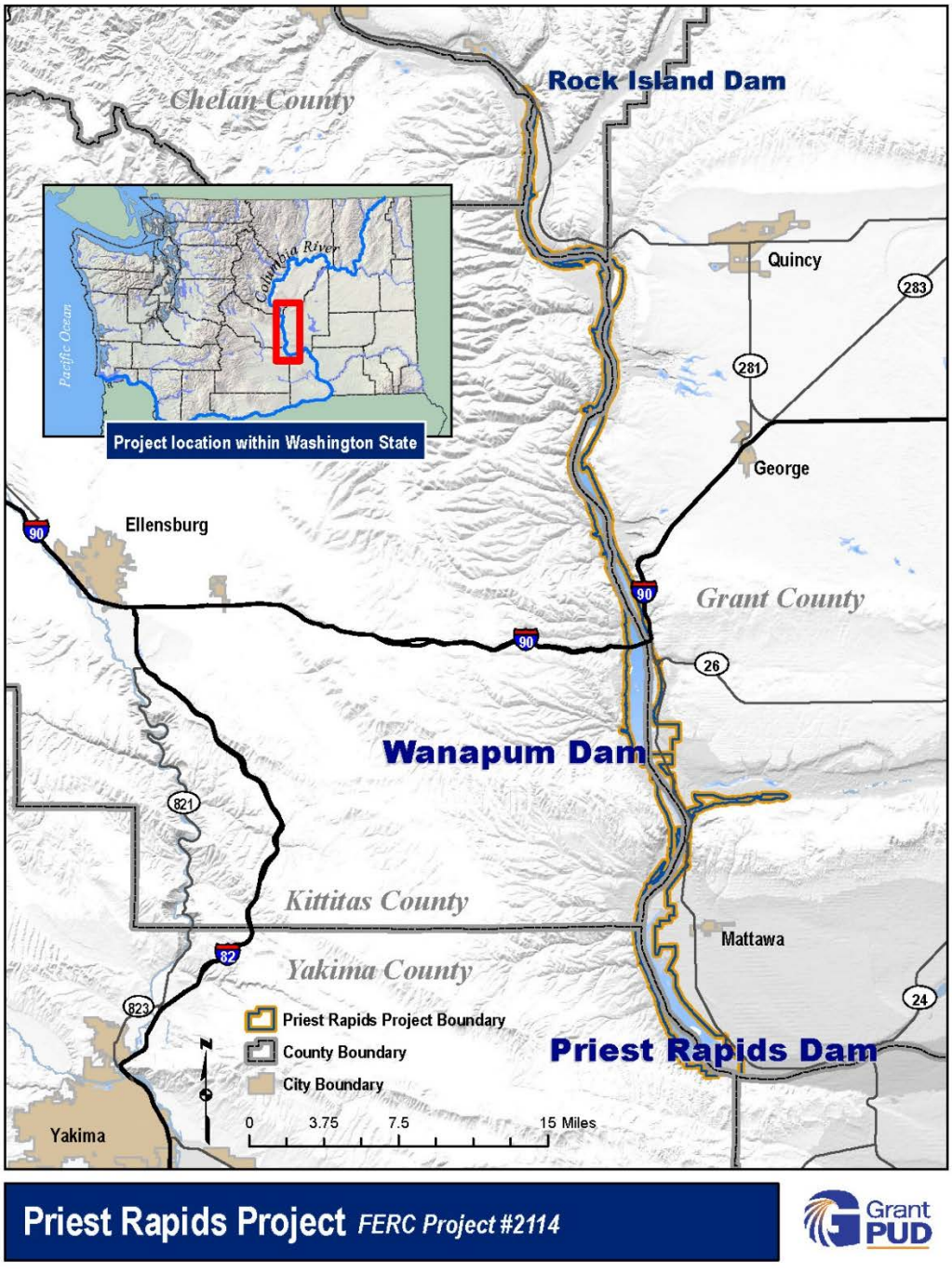


Figure 1 **The Priest Rapids Hydroelectric Project with Project Boundary, mid-Columbia River, WA.**

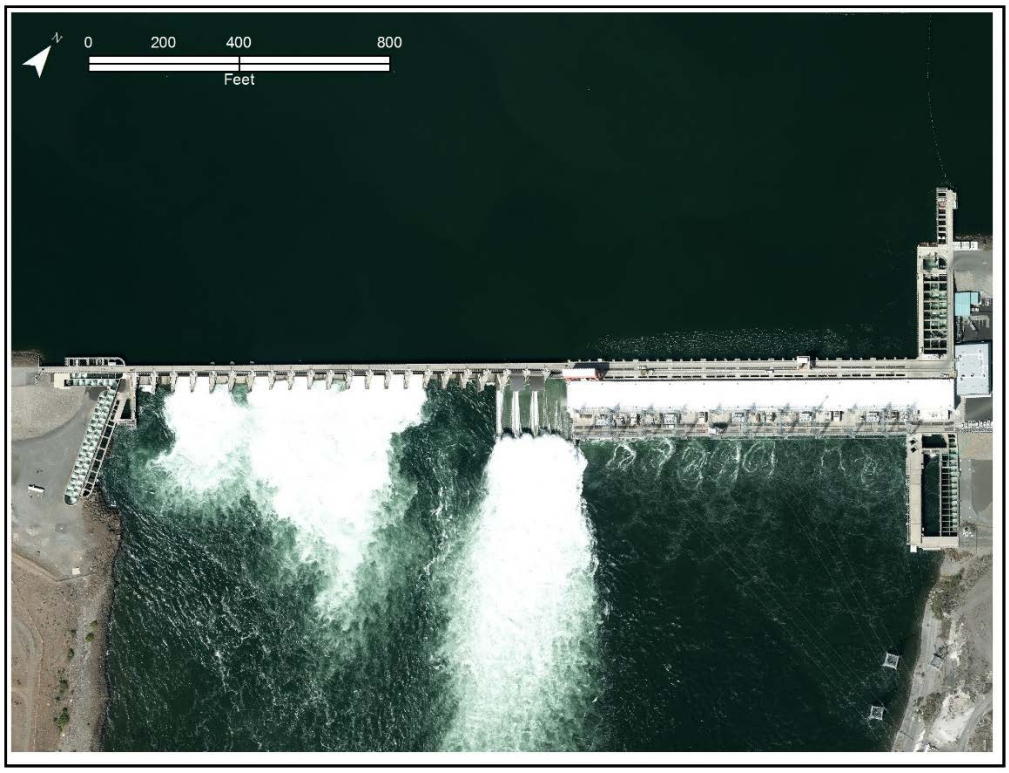


Figure 2 **Aerial photograph of Priest Rapids Dam, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.**

Figure 3 **Aerial photograph of Wanapum Dam, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.**

2.0 Activities

The following sections provide a summary of the activities conducted in 2020 for the AISP. These activities include elements of education, monitoring, and local and regional coordination. Each of these activities are discussed in more detail below.

2.1 Education

The educational activities implemented as part of the AISP for 2020 included placing educational signage at Project boat launches.

2.1.1 Educational Signage

Project boat launches outfitted with informational/educational signage during 2020 included Apricot Orchard, Crescent Bar (both on-island and off), Frenchman Coulee, Kittitas County (Vantage), Wanapum State Park, and Upper Wanapum on the Wanapum Reservoir, and Lower Wanapum, Huntzinger, Buckshot, and Desert Aire (Priest Rapids Recreation Area (PRRA)) on the Priest Rapids Reservoir.

All Project boat launches during 2020 consisted of the approximate configuration of informational and educational signage as the example displayed in Figure 4 below. The newest boat launch at Crescent Bar (Riverbend Park on-island boat launch) was officially completed in the winter of 2018 and was outfitted with signage before the 2019 recreation season.

Figure 4 Informational/Educational signage configuration at the Crescent Bar Riverbend Park boat launch, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

2.2 Monitoring

The monitoring activities implemented as part of the AISP for 2020 included zebra/quagga mussel sampling (including plankton tows, artificial substrates, and shoreline surveys), aquatic plant surveys Project-wide and at boat launches, and northern pike early detection monitoring. Descriptions of the monitoring activities applied during 2020 are presented in the following sections.

2.2.1 Zebra/Quagga Mussel Sampling

Zebra/quagga mussel(s) presence/absence were monitored throughout the Project by use of a plankton tow net and inspection of artificial substrates and visual shoreline surveys adjacent to artificial substrate locations. Each of these monitoring methods is covered in the following sections.

2.2.1.1 Plankton Tow Net

Horizontal and vertical plankton tow net samples were collected throughout the Project. Samples were collected at Crescent Bar, Sunland Estates, Wanapum forebay, Crab Creek, and the Priest Rapids forebay. Samples were collected two times throughout the monitoring season (once in July and August of 2020, respectively).

Sample methods included the use of a Wisconsin plankton net (363µ mesh net) drifted for 40-100 ft. at a depth of approximately 20 ft. for each location. The plankton tow net was thoroughly rinsed, and all sample materials were transferred to a 250 ml Teflon bottle and preserved with 70% isopropyl alcohol. A label was affixed to the sample bottle and appropriately filled out. Methods for collecting vertical tow samples were almost identical to the horizontal tow sampling method as described above, except that samples were taken from one meter above the bottom of the river up through the entire water column without drifting. The sampling procedures followed protocols developed by WDFW (Jesse Schultz, WDFW, pers. com).

After collection, samples were cataloged and shipped to Cameron Lange, a Senior Environmental Scientist located in the Great Lakes region of the United States familiar with the identification of zebra/quagga mussel veliger, for analysis. Results and more information of these analyses are presented in Section 3.1.1 and Appendix A.

2.2.1.2 Artificial Substrates

Grant PUD deployed artificial substrates at some Project boat launch areas as an additional monitoring technique during 2020 to monitor for zebra and quagga mussels (and other AIS) near areas with high boater traffic. Boat launches selected for substrate deployment included Huntzinger and Desert Aire (PRRA) in the Priest Rapids Reservoir and Kittitas County (Vantage) and Crescent Bar (off-island) in the Wanapum Reservoir. Grant PUD followed the artificial substrate monitoring protocols as established by the California Department of Fish and Game (CDFG 2008) and provided by the WDFW (Jesse Schultz, WDFW, pers. com). One substrate was deployed at each site. The substrates were kept at least one meter above the bottom of the river and were examined on the same schedule as the plankton tow net samples. Results from the artificial substrate monitoring are presented in Section 3.1.2.

2.2.1.3 Shoreline Surveys

A brief (~10 minute) shoreline survey occurred adjacent to the same high-traffic boat launches visited for the artificial substrate sampling schedule (see Section 2.2.1.2 above), and followed

protocols developed by the 100th Meridian Initiative – Columbia River Basin Team (WDFW Personal Comm.) to briefly survey the shoreline near boat launches for adult zebra/quagga mussels, or other adult AIS. Results from these surveys are presented in Section 3.1.3.

2.2.2 Aquatic Plant Surveys

Aquatic vegetation surveys conducted in 2020 focused on assessing aquatic submergent plant distribution and species dominance within the Project and at boat launches. Aquatic submergent plant assessment Project-wide polygons and boat launch transect locations were established during previous years' surveys (2011, 2013 and 2015). These locations were visited via boat-based surveys during 2020 to reassess aquatic submergent plant distribution and species dominance. Before the initial surveys, bathymetric data was used to identify a "threat zone," for the Project which was further defined as those areas with potential habitat for submergent aquatic vegetation and is, therefore, limited to the littoral portions of the Project reservoirs (open waters up to 20 feet deep) based on light availability for aquatic vegetation to grow. These areas where the focus of the Project-wide aquatic vegetation surveys conducted during 2020.

For the aquatic vegetation surveys, geospatial data layers were compiled into a geodatabase, which included: the Project boundary, aerial imagery, bathymetric data (i.e. "threat zone"), Project boat launch locations, and survey results from past efforts, including the aquatic vegetation community polygons and transects. The geodatabase was uploaded on to an iPad running geographic information systems (GIS) and Global Positioning System (GPS) and taken into the field to perform the surveys for 2020. Field surveys were completed in late August and early September of 2020. Methods used to complete these surveys are described below.

2.2.2.1 Boat-Based Surveys Methods

Survey dates were consistent with surveys from prior years (August/September). These survey efforts fulfilled the following objectives:

1). Examine aquatic vegetation areas within the Project to verify and/or modify the polygon results from the prior years' survey efforts.
2). Collect species composition data to determine dominant species within polygons (either native or AIS).
3). Revisit transects at Project boat launches to collect sample data for species along the transects.

Boat-based survey methods employed during 2020 were consistent with methods used in prior surveys, as described in more detail in the 2011, 2013 and 2015 AIS Annual Reports (Keeler 2012, 2014, 2016). In general, these surveys were conducted using a small field crew of Grant PUD biologists travelling in a motorized vessel within the "threat zone", as previously defined. The field crew visited areas identified with aquatic vegetation to verify approximate location, extent, and species composition of the polygon communities. Modifications to the polygons were edited as needed within a GIS to produce maps illustrating the final AIS polygons as seen below in Appendix D of this annual report.

Transect methodology generally followed the same protocol in 2020 as was completed during previous monitoring events, which were modified slightly from the original protocol of 2011 (Keeler 2012-2019), but consistent with AISP requirements (Grant PUD 2010). The AISP states that boat launch surveys will:

> *"…be conducted by traveling three 50-meter transects out from the boat launch, or until visual contact with the macrophytes is lost. The first transect will be 30m upstream of the launch, the second will be even with the middle of the launch, and the third transect will be 30 meters downstream of the launch."*

In practice, transect configurations were adapted to local conditions based on the presence of adjacent shorelines, jetties and/or other structures.

In accordance with the AISP, three transects were surveyed at each boat launch; however, four transects were surveyed at the Desert Aire (PRRA) boat launch due to its reconfiguration. Other boat launches have been reconstructed since surveys began (Frenchman Coulee, Vantage, Wanapum State Park, Wanapum Forebay, and Huntzinger) but not substantially reconfigured; therefore, transect locations were not modified at these boat launches. During surveys, aquatic vegetation was sampled periodically along each transect, and dominance or occurrence of AIS species (e.g., Eurasian watermilfoil or curlyleaf pondweed), native species, or no vegetation was recorded at each sample point. Boat launches surveyed within the Wanapum Reservoir included the following:

> Apricot Orchard, Crescent Bar, Sunland Estates, Frenchman Coulee, Kittitas County (Vantage), Wanapum State Park and Upper Wanapum.

Boat launches surveyed within the Priest Rapids Reservoir included the following:

> Lower Wanapum, Huntzinger, Buckshot and Desert Aire (PRRA).

Aquatic vegetation sampling was conducted either visually or using a sampling rake to collect from either points along each transect, or within the aquatic vegetation areas. At each of the sampling locations, a GPS point with associated aquatic plant presence/absence and species composition data was recorded using the iPad. Rake samples were also examined for presence of potential macroinvertebrate AIS including quagga/zebra mussels and/or New Zealand mudsnails.

During the 2020 surveys, aquatic vegetation presence was recorded at each location as follows:

- Dominant species at each location was recorded as Eurasian milfoil, curlyleaf pondweed, native species, or no vegetation.
- Secondary and/or tertiary sub-dominant species, if present, were also recorded (Eurasian milfoil, curlyleaf pondweed, and/or native species).

Results for the 2020 aquatic submergent vegetation surveys are discussed in detail in Section 3.2 and displayed in Figures C-1 through C-11 in Appendix C and Figures D-1 through D-10 in Appendix D.

2.2.3 Northern Pike Early Detection Monitoring

Grant PUD conducted activities for a northern pikeminnow removal program in 2020 that utilized set lines, beach seining, and angling. These efforts provided a potential avenue for early detection of northern pike within the Project. Additional activities conducted by Grant PUD which also served as a potential early detection method for northern pike include: video fish count systems (Wanapum and Priest Rapids dams), dewatering of fish ladders and turbines (during maintenance), and a White Sturgeon Monitoring and Evaluation Program (i.e. set line fishery). The primary early detection technique that was first implemented during the 2019 season was the use of eDNA technology. This technology was continued during the 2020 season.

More details on these potential early monitoring techniques are provided in the following sections.

2.2.3.1 Setlines

Set lines are approximately 500 feet in length with hooks attached at equidistant intervals (approximately 5-ft. Each set line is composed of tarred Power Braided Twine No. 84. Both ends of the set line are equipped with an 8-lb cylindrical lead anchor, and 150-foot buoy lines which is attached upon deployment to mark the location and allow retrieval of the set line. Set line buoys are labeled with contact information and the current scientific collection permit number. The hook clips used on the set line consisted of a single-loop ground clip, a swivel, one foot of 10-lb test monofilament line, a size-10 winner day-glow float, and a No. 10 treble hook baited with a cricket. Light-weight monofilament is used to allow inadvertently caught larger non-target fish such as white sturgeon (*Acipenser transmontanus*) to break away. Set lines are fished over a 24–48-hour period (typically) and recovered daily (depending on river/weather conditions).

2.2.3.2 Beach Seining

A beach seine fishery is conducted in the late summer and early fall annually. A 80-ft long, 6-ft deep beach seine with 1/8th in. mesh is used to remove age three and younger non-native piscivorous fish. Beach seining activities generally occurs in the Wanapum reservoir where juvenile northern pikeminnow and non-native piscivorous fish have been collected in previous years.

2.2.3.3 Angling

Angling efforts are conducted in the tailrace directly below the transformer deck of Wanapum Dam using 8’6” spinning rods spooled with 30lb test and 10lb test leaders. Plastic fishing lures resembling juvenile salmonids are used.

2.2.3.4 Video Fish Counting

Annual adult fish-counting equipment at both Wanapum and Priest Rapids to provides reliable fish count to track trends for both resident and anadromous species and serves as an early detection or monitoring system for non-native species. The video fish-counting (VFC) system configuration at each dam has digital video cameras in each fishway streaming data to digital video recorders (DVRs) at each dam. These DVRs are networked and accessed by fish counters via PCs from the fish-counting room at Wanapum Dam. Data from the DVRs are played back, and fish are identified and counted by the fish counters via a separate tallying program. Fish counting runs April 15 through November 15 of each year.

2.2.3.5 Fish Ladder and Turbine Dewatering

Dewatering of the fishways at Wanapum and Priest Rapids dams for inspection and maintenance is conducted annually during the periods of minimum fish migration (November 15 – March 31). Although infrequent, turbine dewatering for maintenance or rehabilitation occurs which allows Grant PUD staff to access and perform fish salvage activities within the dams. If northern pike were present within the fishways during salvage they would be observed and collected.

2.2.3.6 Environmental DNA

The use of environmental DNA (eDNA) was first implemented during the 2019 season within the Project and was continued during the 2020 season. The protocols followed for eDNA sample

collection were established by the Rocky Mountain Research Station (Carmin et. al 2016). A total of four sample stations were established in 2019 and revisited in 2020 at the following locations: Crescent Bar on-island boat launch and the Rattlesnake Cove day-use area adjacent to Sunland Estates in the Wanapum Reservoir, and the mouth of Crab Creek and Buckshot boat launch in the Priest Rapids Reservoir. Results from these efforts are noted within Section 3.3 below and in Appendix B.

2.3 Local and Regional Coordination

Local and regional coordination activities in 2020 involved hosting Grant PUD's Annual Aquatic Invasive Species meeting (virtually for 2020) and participation with local stakeholders in a flowering rush monitoring event that took place on the Rocky Reach Reservoir.

2.3.1 Annual Aquatic Invasive Species Meeting

On April 23, 2020 and in accordance with the AISP, Grant PUD hosted its annual AIS meeting virtual in 2020 because of health and safety concerns stemming from the Covid-19 pandemic. Per the AISP, the purpose of this meeting is to discuss the upcoming monitoring and educational season, any needed/warranted changes to AIS education, monitoring, and/or control methods or other changes to the AISP based on results from the previous year, new technologies, new AIS threats and/or introductions, new AIS pathways, etc. Attendees included Carson Keeler (Grant PUD), Jesse Schultz (WDFW via WebEx/conference line), Marcie Clement (Chelan PUD via WebEx/conference line) and Jenifer Parsons/Breean Zimmerman (WDOE via WebEx/conference line). A PowerPoint was presented by Grant PUD on the results from the 2019 season along with a brief overview of the AISP activities to date. Comments were received from both WDFW and WDOE and were incorporated into the final AIS report for 2019 (Keeler 2020).

2.3.2 Flowering Rush Monitoring

Grant PUD participated in a flowering rush monitoring event that occurred on August 12, 2020 within the Rocky Reach Reservoir. The event was attended by members of the WDOE Freshwater Aquatic Weed Control Program, Douglas PUD, and the Chelan County Weed Board. This event was held to conduct surveys to evaluate the potential spread of the flowering rush species and to mark areas for a removal team to visit and aid in the eradication effort. Grant PUD was involved with the process to better understand potential habitat types and to help in identification of the species.

3.0 Results

The following sections provide results from activities conducted as part of the AISP in 2020, which includes outcomes from the zebra/quagga mussel sampling (plankton tows and artificial substrate/shoreline surveys), Project-wide aquatic vegetation and boat launch transect surveys and northern pike monitoring.

3.1 Zebra/Quagga Mussel Monitoring

As stated above in Section 2.2.1, zebra/quagga mussels were monitored by use of plankton tow nets, artificial substrates, and shoreline surveys throughout the Project. Results from each method are discussed in the following sections.

3.1.1 Plankton Tow Net Results

A total of 12 samples were collected from July – August, cataloged, and sent to Cameron Lange, a Senior Environmental Scientist located in the Great Lakes region of the United States whom is familiar with the identification of zebra/quagga mussel veliger and is recognized as an expert by WDFW (Jesse Schultz, WDFW, pers. com), for analysis. The 12 samples were analyzed using standardized techniques that are accepted for zebra mussel analyses. These techniques included the use of a dissecting style microscope fitted with polarizing filters used to examine the samples under 40x-120x magnification. Since zebra mussels have not previously been found at the sample locations within the Project, the entire settled contents of each sample were examined. If samples contained a lot of phytoplankton or plankton, they were prescreened through a 425-micron mesh sieve (Lange 2020).

No zebra mussels were found in any of the samples analyzed. A copy of each analysis was sent via email to WDFW during the 2020 season. See Appendix A of this annual report for results from samples analyzed during 2020.

3.1.2 Artificial Substrate/Shoreline Survey Results

During the same timeframe as the plankton tow samples were collected (July and August), artificial substrates and shoreline areas around the substrate locations were checked for presence/absence of zebra/quagga mussels or other AIS macroinvertebrate. A standard form was supplied by WDFW to check for presence/absence of mussels (WDFW 2016). No presences of zebra/quagga mussels on any other macroinvertebrate AIS during the 2020 season were detected. Results were documented, scanned, and sent via email to WDFW during 2020.

3.2 Aquatic Plant Survey Results

Results from the survey efforts put forth for mapping and tracking submergent aquatic vegetation within the Project and along transects at each boat launch are depicted in the following sections. Survey efforts during 2020 concentrated on submergent aquatic vegetation areas and boat launch transects that were recorded during previous survey efforts (Keeler 2012-2020).

3.2.1 Dominant Aquatic Plant Communities

A total of 224 distinct communities of submergent aquatic vegetation were mapped in 2020 during boat-based surveys, as depicted in Figures D-1through D-10 in Appendix D of this annual report and summarized below in Table 1 and Table 2.

Table 1 2020 Summary Results for Dominant Aquatic Vegetation Communities within the Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

Dominant Community Type	No. of Patches Mapped	Average Patch Size (acres)	Total Cover (acres)
Curlyleaf/Milfoil	46	4.7	217
Milfoil	59	12	709
Native	119	5.3	626
Totals	**224**	**7.3**	**1,552**

Similar to what was documented during pre-drawdown (2014) conditions within Wanapum Reservoir, the aquatic vegetation communities were divided into two general types both occupying the same overall areas. The first type of community includes sites dominated by the Eurasian watermilfoil (*Myriophyllum spicatum*). Patches of this type were either monocultures or

dominated by more than seventy-five percent of the species. Another AIS species, curlyleaf pondweed (*Potamogeton crispus*), was a sub-dominant species in many of these patches and were found at lower densities distributed throughout the Wanapum Reservoir and Project. The second type of community observed included areas with dense aquatic plant growth dominated by more than seventy-five percent native pondweed species (primarily *Potamogeton* spp.). There were limited amounts of Eurasian watermilfoil and/or curlyleaf pondweed in these communities as well but were not dominant compared to the native pondweed species. Dissimilar to what was documented during pre-drawdown conditions in Wanapum Reservoir was a larger majority of the aquatic vegetation communities where filled with native pondweed species and less overall with AIS Eurasian watermilfoil and/or curlyleaf pondweed. This same general trend has been witnessed at the Project boat launch transects in the Wanapum Reservoir during more recent survey efforts (2018 and 2019). Conversely, the Priest Rapids Reservoir was much more dominated by aquatic vegetation communities consisting of AIS Eurasian watermilfoil and/or curlyleaf pondweed, and less by native aquatic vegetation overall. Table 2 below depicts a summary of the aquatic vegetation communities mapped both within the Wanapum and Priest Rapids reservoirs during 2020.

Table 2 2020 Summary Results for Dominant Aquatic Vegetation Communities within the Wanapum and Priest Rapids Reservoirs, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

Reservoir	Dominant Community Type	No. of Patches Mapped	Average Patch Size (acres)	Total Cover (acres)
Wanapum	Curlyleaf/Milfoil	20	5.5	109.6
Wanapum	Milfoil	40	12.5	499.8
Wanapum	Native	99	5.2	516.6
Total		**159**	**7.7**	**1,126**
Priest Rapids	Curlyleaf/Milfoil	26	4.1	107.7
Priest Rapids	Milfoil	19	11.0	209.4
Priest Rapids	Native	20	5.5	109.8
Total		**65**	**6.9**	**426.9**

3.2.2 Boat Launch Transect Results

Figures C-1 – C-11 illustrate results of aquatic vegetation mapping along transects established at each Project boat launch within Appendix C of this annual report. Each GPS point location along these transects represents a single sampling location where dominance, presence and/or absence of AIS and native aquatic vegetation were recorded based on visual observations and/or rake sampling within an approximate 4 meter by 2 meter plot located at the front of the boat. Where multiple species were present, the dominant species was recorded, and additional species were noted as sub-dominant. In some cases, transects were terminated early because of loss of contact with aquatic vegetation, which was often correlated with a water depth greater than 20 feet. This is consistent with the protocol for these surveys described in the AISP (Grant PUD 2010).

Results from the 2020 boat launch aquatic plant surveys within the Priest Rapids Reservoir mirrored the results from 2018 and 2019, with some minor differences. Differences noted included both Huntzinger and Buckshot boat launch areas dominated by Eurasian watermilfoil, whereas during the past couple of seasons they primarily consisted of native species. Results for

the Wanapum Reservoir continued to differ widely from prior years' surveys but continued to imitate results from post-drawdown conditions (i.e. areas more dominated by native vs AIS). In 2020, five of the six of the Wanapum Reservoir boat launches had been recolonized with primarily native species, but also contained either Eurasian watermilfoil and/or curlyleaf pondweed (Table 3) to a lesser extent. The boat launch at Crescent Bar was found to be dominated/sub-dominated by either Eurasian watermilfoil, or curlyleaf pondweed. Previous results had been dominated by native species. Project-wide boat launch results indicated a slight change in dominant/sub-dominant species noted, with the presence of both Eurasian watermilfoil and curlyleaf pondweed. Table 3 includes a summary of results for each boat launch. Figure 5 and Figure 6 display a visual representation of dominant and sub-dominant species found at each transect sample point for each boat launch.

Table 3 Summary Results for Boat Launch Transect Monitoring, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

	Apricot Orchard			Crescent Bar			Sunland			Frenchman Coulee			Vantage			Wanapum State Park			Upper Wanapum			Lower Wanapum			Huntzinger			Buckshot			Desert Aire		
Year	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS	EM	CP	NS
2011				x	x		x			x	x		x	x		x	x		x	x								x			x		
2012				x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x							x	x	x	x	x	x
2013				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x							x	x	x	x	x	x
2014																									x	x	x	x		x	x	x	x
2015						x	x	x	x						x		x	x			x				x		x	x	x	x	x	x	x
2016				x		x	x		x	x	x	x	x	x	x		x	x			x				x		x	x		x	x		x
2017	x		x	x		x	x		x	x		x	x		x			x			x				x		x	x	x	x	x	x	x
2018	x		x	x		x	x		x	x	x	x	x	x	x	x	x	x			x				x		x	x	x	x	x	x	x
2019	x		x	x		x	x		x	x	x	x	x	x	x	x	x	x			x				x		x	x	x	x	x	x	x
2020	x		x	x		x	x		x	x	x	x	x	x	x	x	x	x			x				x		x	x	x	x	x	x	x

Notes:

1. EM = Eurasian watermilfoil; CP = curlyleaf pondweed; NS = native species.
2. Native species were not recorded in 2011.
3. The following boat launches were not surveyed in 2014 due to the Wanapum drawdown: Crescent Bar, Sunland, Frenchman Coulee, Vantage, Wanapum State Park and Upper Wanapum.
4. Huntinger boat launch was formally established between the 2013 and 2014 survey seasons and therefore was not sampled prior to 2014.
5. Apricot Orchard boat launch was formally established between 2016 and 2017 survey seasons, and therefore was not sampled prior to 2017.

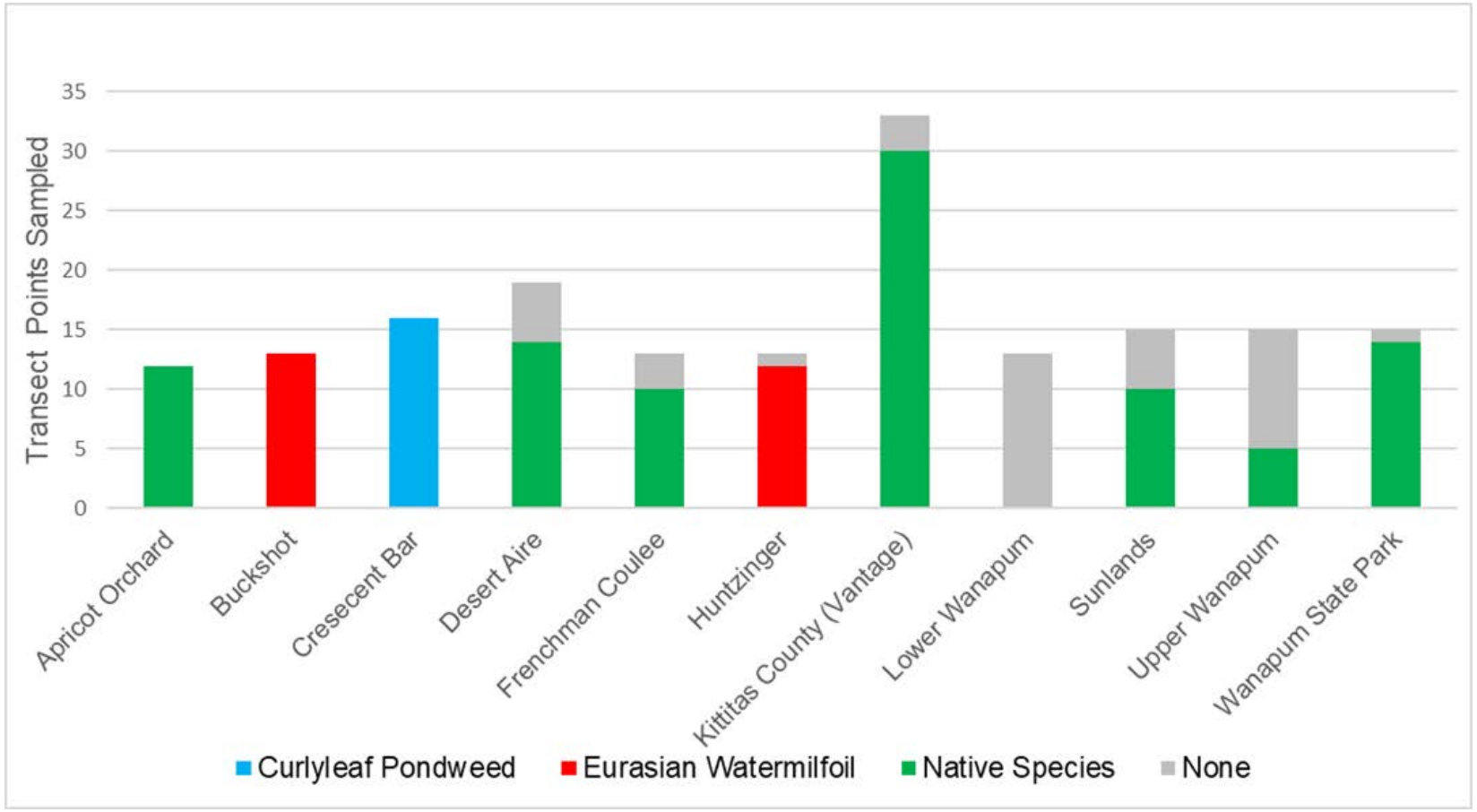


Figure 5 Dominant species noted along transect points at Priest Rapids Project boat launches in 2020.

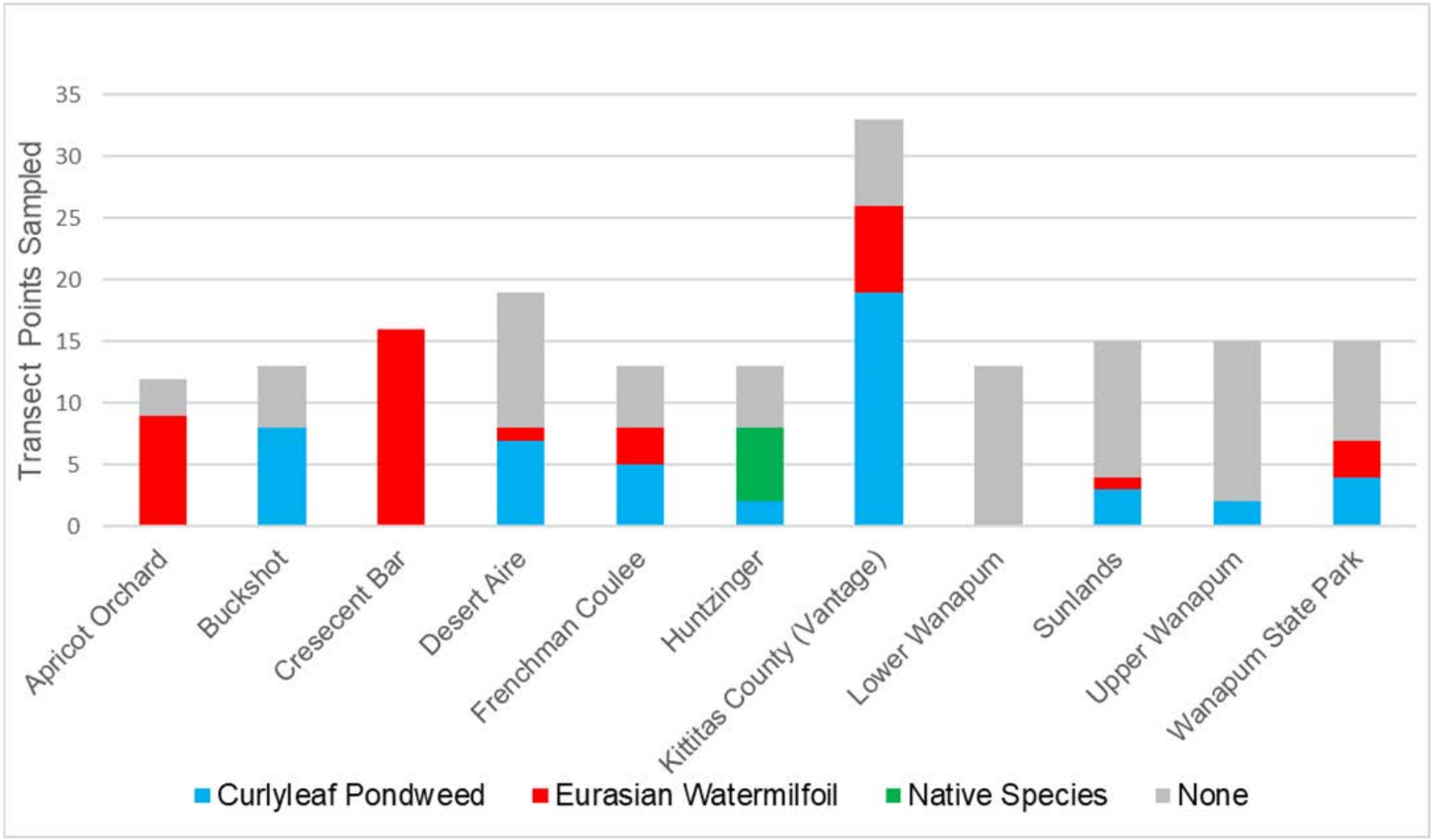


Figure 6 Sub-dominant species noted along transect points at Priest Rapids Project boat launches in 2020.

3.3 Northern Pike Monitoring Results

During 2020, various fish collection techniques (beach seining, setlines, and angling) were employed over differing habitat types within the Project and no northern pike were collected. Additionally, no northern pike were noted during the fish ladder and/or turbine maintenance or were observed passing through the fishways via the video fish counting system in 2020.

Lastly, as noted above in section 2.2.3.7, eDNA was collected eight times at four locations during 2020. No northern pike eDNA were detected in any of the eight samples analyzed. A copy of each analysis was sent via email to WDFW during the 2020 season. See Appendix B of this annual report for eDNA results from samples analyzed during 2020.

4.0 Conclusion/Summary

Educational activities for 2020 included providing signage at Project boat launches and updating the signage to match current WDFW AIS boat launch signage statewide. This effort will be continued and completed during 2021. Monitoring activities during 2020 consisted of zebra/quagga mussel sampling, aquatic plant surveys both Project-wide and at boat launches, and northern pike monitoring. Results from the monitoring efforts in 2020 reported no zebra/quagga mussel veliger identified in any samples and no presence of zebra/quagga mussels or other macroinvertebrate AIS including New Zealand mudsnail (NZMS) on any artificial substrates within the Project. Results for both the Project-wide and boat launches aquatic submergent vegetation surveys within the Project were consistent with results from prior years, with some minor deviations. Lastly, the efforts, which included the use of eDNA sampling, employed for early detection of northern pike within the Project did not detect the occurrence of the species within the Project. These efforts will be continued for 2021.

Literature Cited

CDFG (California Department of Fish and Game). 2008. Zebra and Quagga Mussel Artificial Substrate Monitoring Protocol. Adopted from the California Department of Water Resources Monitoring Instructions for Zebra/Quagga Mussel Plate Samplers, April 2, 2008.

Carim, Kellie J., McKelvey, Kevin S., Young, Michael K., Wilcox, Taylor M., Schwartz, Michael K. 2016. A protocol for collecting environmental DNA samples from streams. Gen. Tech. Rep. RMRS-GTR-355. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 18 p.

FERC (Federal Energy Regulatory Commission). 2008. Order Issuing New License for Public Utility District No. 2 of Grant County, 123 FERC ¶ 61,049, Washington D.C.

Grant PUD (Public Utility District No. 2 of Grant County, Washington). 2010. Aquatic Invasive Species Control and Prevention Plan. Public Utility District No. 2 of Grant County, Ephrata, Washington. Accessed at http://www.grantpud.org/environment/water-quality/aquatic-invasive-species

Keeler, C. 2012-20. Aquatic Invasive Species Control and Prevention Plan Annual Report. Priest Rapids Hydroelectric Project (P-2114), License Article 401(a)(22). Public Utility District No. 2 of Grant County, Washington. May 2012-20.

Lange, C. 2020. Letter to Mr. Carson Keeler, Grant County PUD, Wanapum Dam, Beverly, Washington.

Schultz, J. 2010-2020. Aquatic Nuisance Species Management Program Biologist. Washington Department of Fish and Wildlife. Personnel Communication.

Washington Department of Ecology (WDOE). 2007. Water Quality Certification for the Priest Rapids Hydroelectric Project. Order No. 4219 dated April 2007 amended March 6, 2008 (Order 5419). http://www.ecy.wa.gov/programs/wq/ferc/existingcerts.html#G.

WDFW. (Washington Department of Fish and Wildlife). 2016. Artificial Substrate Monitoring Data Collection Form. Olympia, Washington.

Appendix A
Zebra/Quagga Mussel veliger sample results during 2020 Priest Rapids Hydroelectric Project, mid-Columbia River, WA

Table A-1 Zebra/Quagga Mussel Veliger Sampling Results, Priest Rapids Project, mid-Columbia River, WA.

	Reservoir	Location	Zebra Mussels	*Corbicula*	Prescreened	Comments
7/16/20	Wanapum	CB	No	Few	No	
7/16/20	Wanapum	SE	No	No	No	
7/20/20	Wanapum	WF	No	No	No	
7/20/20	Priest Rapids	CC	No	No	No	
7/20/20	Priest Rapids	LG	No	Few	No	
7/20/20	Priest Rapids	PRF	No	Few	No	Heavy Phytoplankton
8/19/20	Wanapum	WF	No	No	No	
8/19/20	Wanapum	SE	No	Few	No	Heavy Phytoplankton
8/19/20	Wanapum	CB	No	Few	No	
8/19/20	Priest Rapids	CC	No	Few	No	Heavy Phytoplankton
8/19/20	Priest Rapids	LG	No	Few	No	
8/19/20	Priest Rapids	PRF	No	Few	No	Heavy Phytoplankton

Notes:
CB=Crescent Bar, SE=Sunland Estates, WF=Wanapum Forebay, CC=Crab Creek, LG= Lake Geneva, PRF=Priest Rapids Forebay

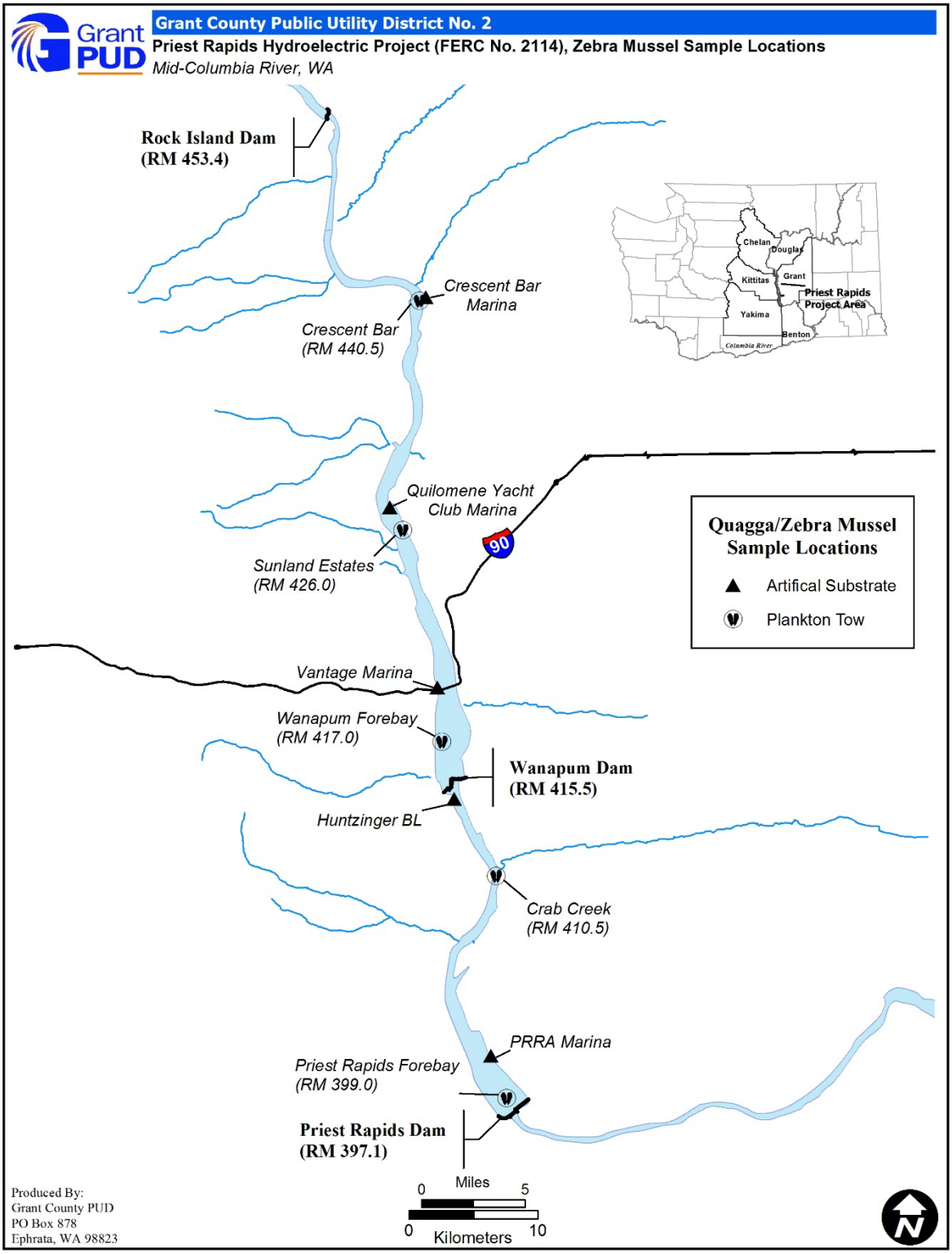


Figure A-1 Quagga/Zebra Mussel Sample Locations, Priest Rapids Project, mid-Columbia River, WA.

Appendix B
2020 eDNA Northern Pike Results

Table B-1 Results of eDNA analysis for detection of Northern Pike in samples collected by Grant PUD. All samples were processed at the National Genomics Center for Wildlife and Fish Conservation. Samples were analyzed in triplicate. PCR reactions using an eDNA assay developed by Carim et al. (2019). "#Filters" refers to the number of filters used to obtain the sample. "Filter volumes" refers to the volume of water in liters that was pumped through each filter. "Positive Wells" refers to the number positive reactions in each triplicate analysis. No samples in this dataset showed signs of PCR inhibition.

Waterbody	Site ID	Site Description	NGC Sample ID	Latitude	Longitude	Date Collected	# Filters	Filter Volume (L)	Northern Pike Detected?	Positive Wells
Columbia River (Wanapum Reservoir)	CB-01	Taken from the on-island boat launch dock	WA_062920_COLR_01	47.2145	-119.9922	6/29/2020	1	5	N	0/3
Columbia River (Wanapum Reservoir)	SL-02	Taken at Rattlesnake Cove basalt shoreline	WA_062920_COLR_02	47.0669	-120.0243	6/29/2020	1	5	N	0/3
Columbia River (Priest Rapids)	CC-03	Taken at Crab Creek day use park shoreline	WA_062920_COLR_03	46.8151	-119.9215	6/29/2020	1	5	N	0/3
Columbia River (Priest Rapids)	BK-04	Taken from Buckshot Boat Launch	WA_062920_COLR_04	46.7107	-119.9533	6/29/2020	2	a: 3.5, b: 1.5	N	0/3
Columbia River (Wanapum Reservoir)	CB-01	Taken from the on-island boat launch dock	WA_072820_COLR_01	47.2145	-119.9922	7/28/2020	1	5	N	0/3
Columbia River (Wanapum Reservoir)	SL-02	Taken at Rattlesnake Cove basalt shoreline	WA_072820_COLR_02	47.0675	-119.9510	7/28/2020	1	5	N	0/3
Columbia River (Priest Rapids)	CC-03	Taken at Crab Creek day use park shoreline	WA_072820_COLR_03	46.8151	-119.9215	7/28/2020	1	5	N	0/3
Columbia River (Priest Rapids)	BK-04	Taken from Buckshot Boat Launch	WA_072820_COLR_04	46.7107	-119.9533	7/28/2020	1	5	N	0/3

Carim, K. J., Caleb Dysthe, J., McLellan, H., Young, M. K., McKelvey, K. S., & Schwartz, M. K. (2019). Using environmental DNA sampling to monitor the invasion of nonnative Esox lucius (northern pike) in the Columbia River basin, USA. Environmental DNA, 1(3), 215-226.

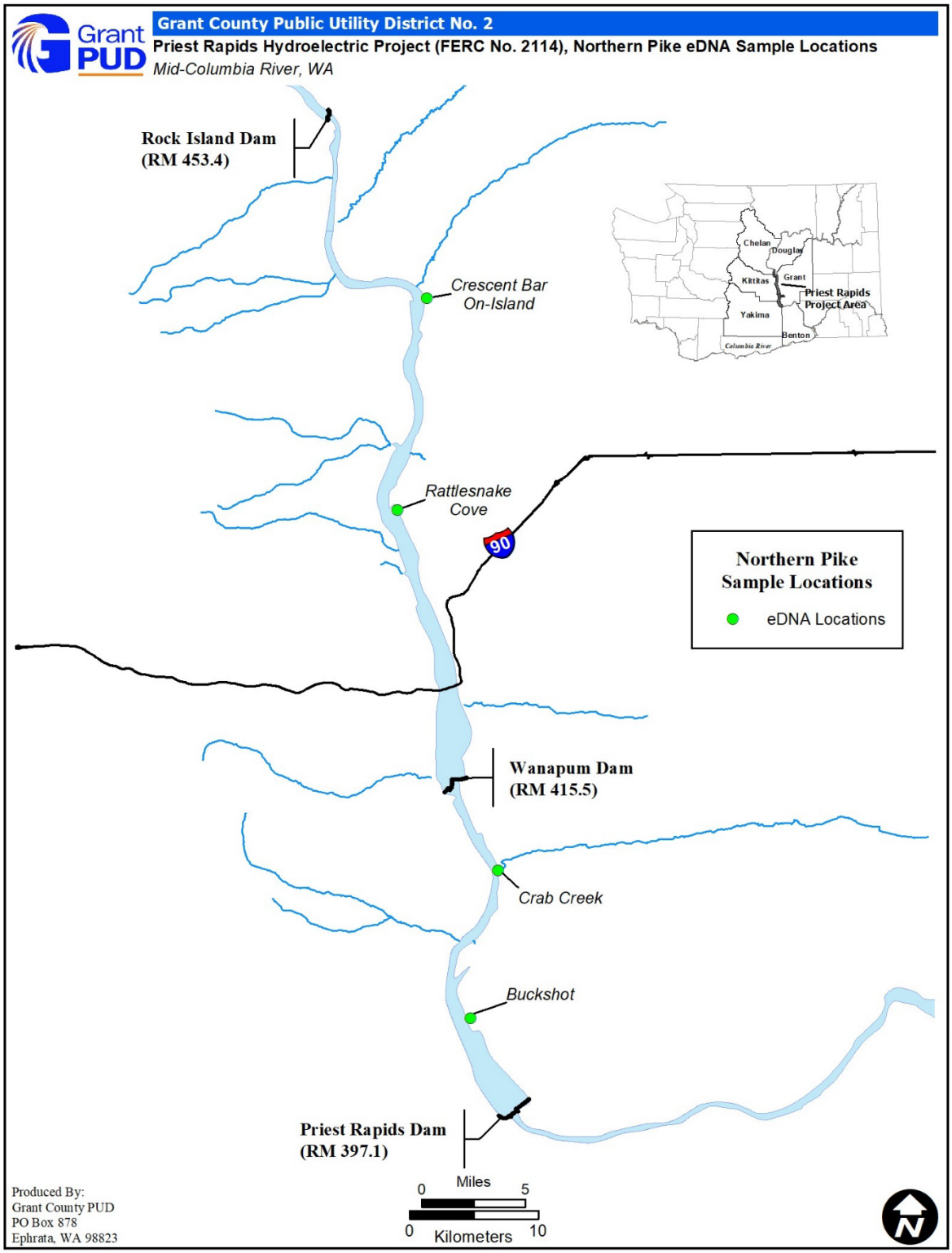


Figure B-1 Northern Pike Environmental DNA (eDNA) Sample Locations, Priest Rapids Project, mid-Columbia River, WA.

Appendix C
Boat Launch Map Series for 2020

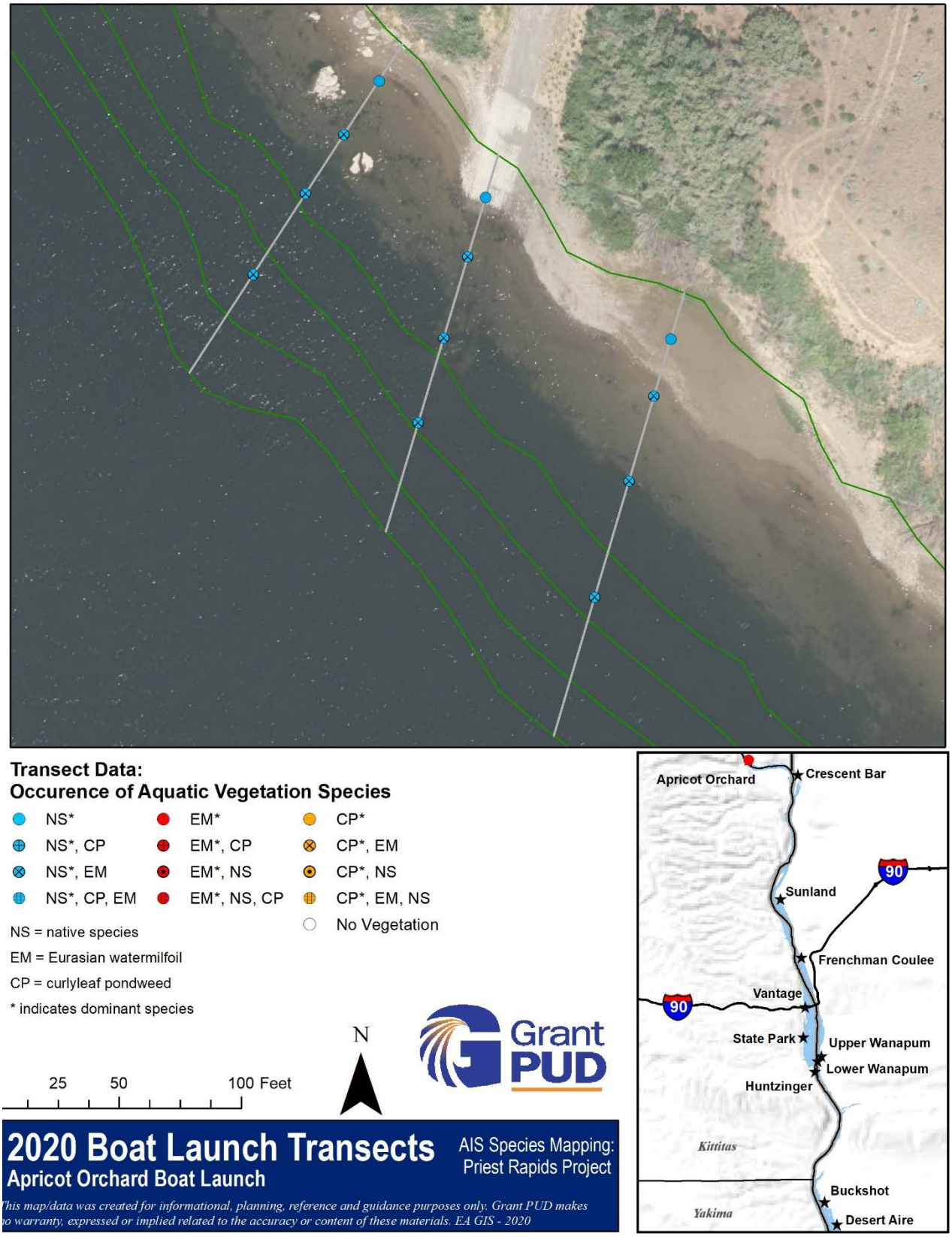


Figure C-1 Apricot Orchard Boat Launch Transects, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

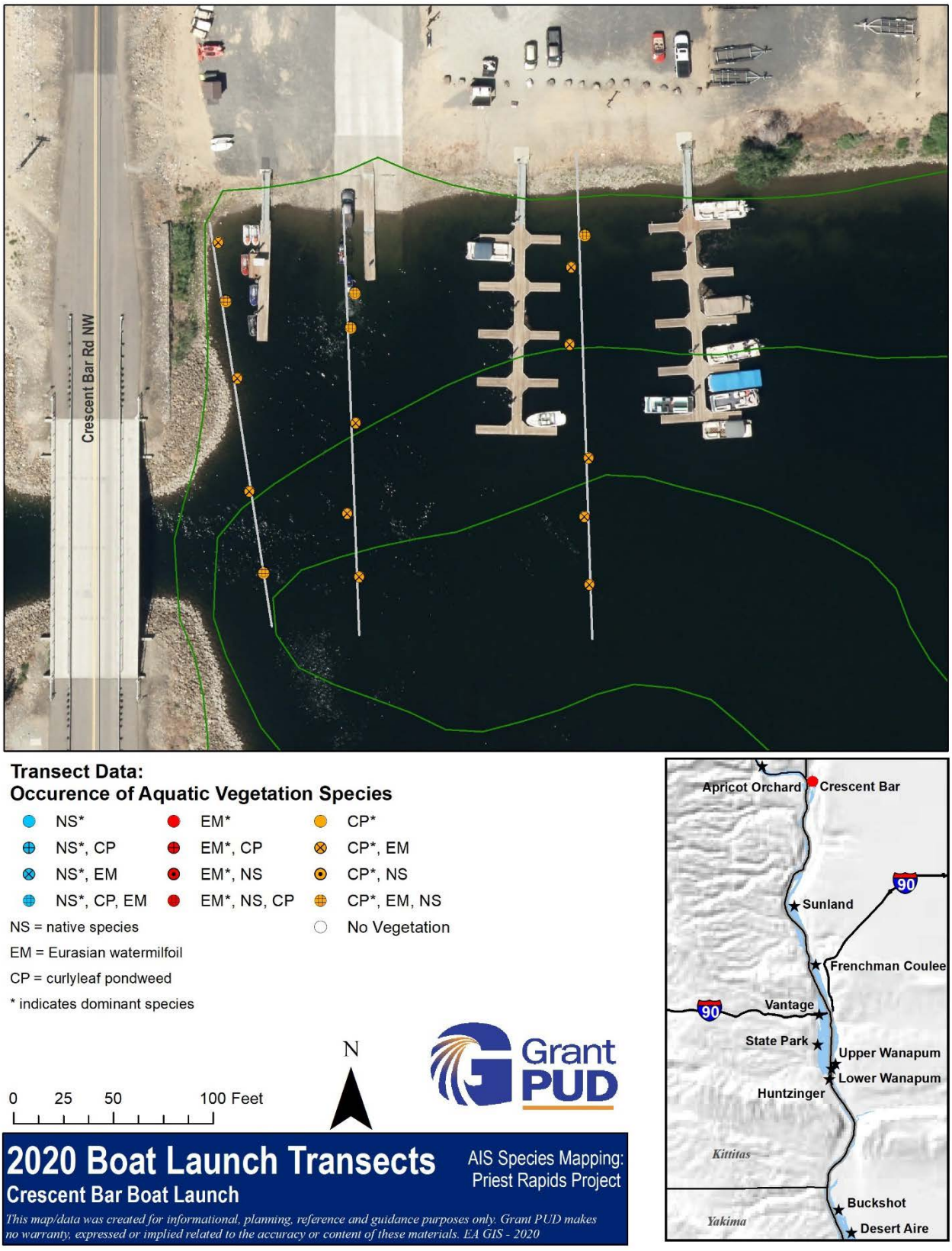


Figure C-2 Crescent Bar Boat Launch Transects, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

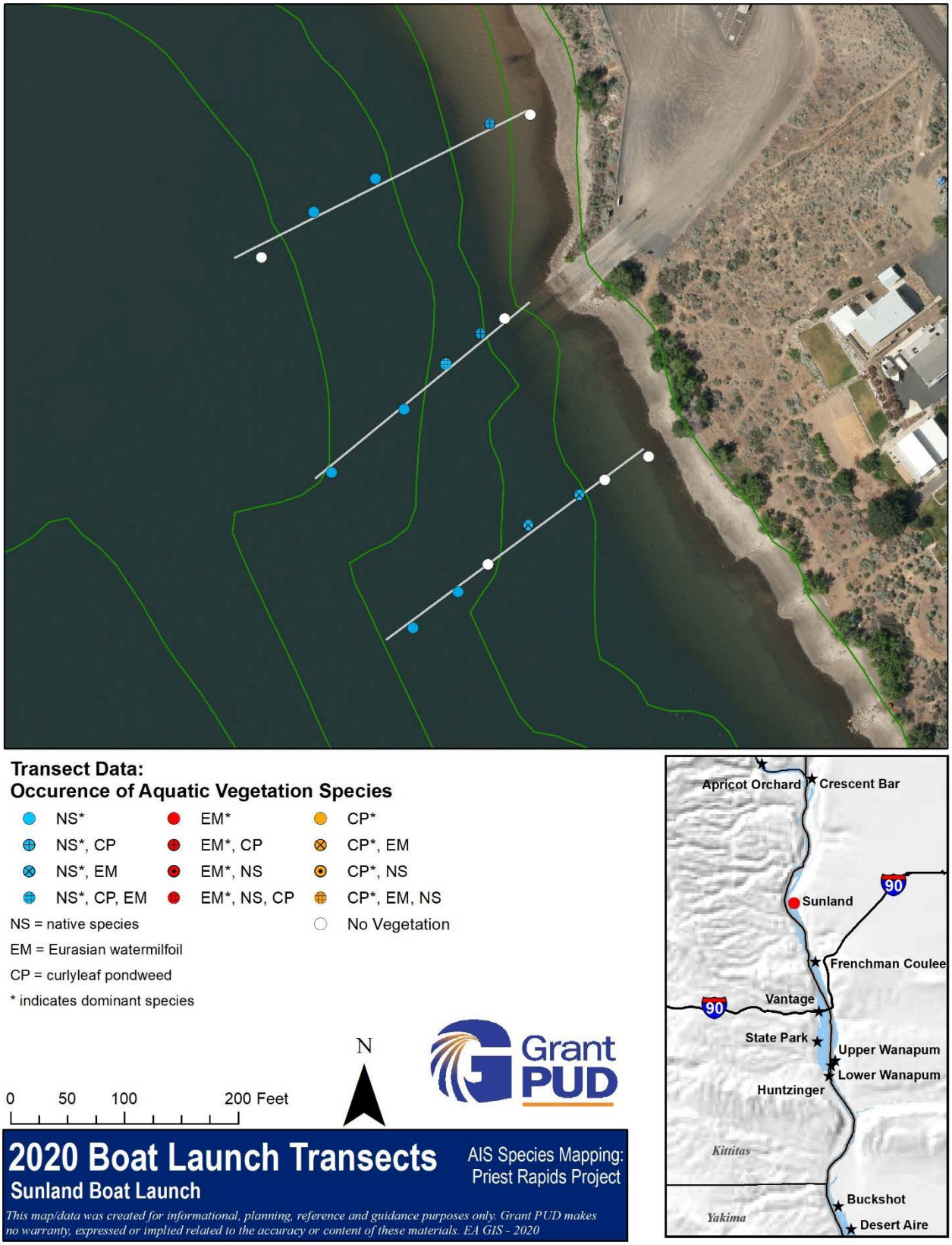


Figure C-3 Sunland Boat Launch Transects, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

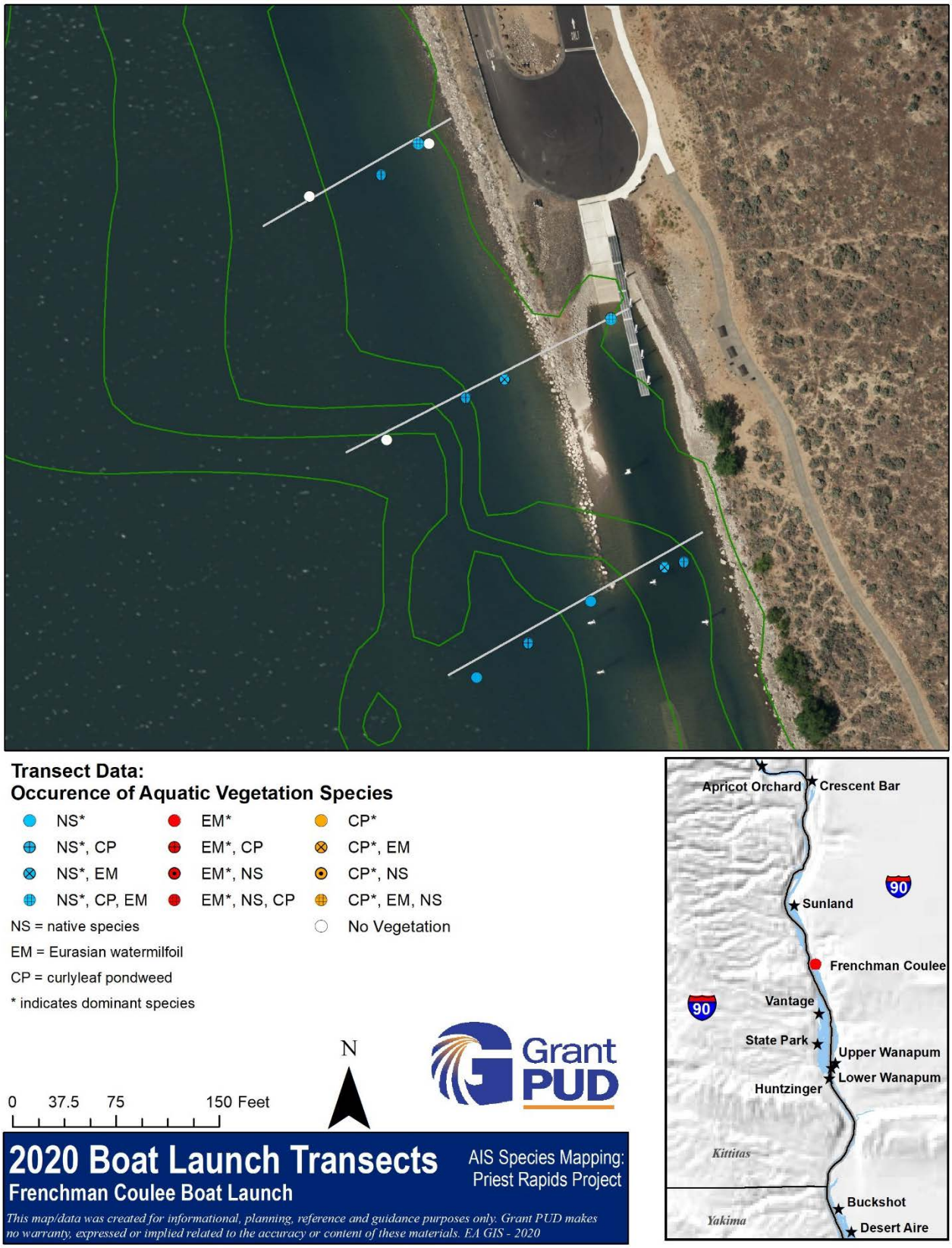
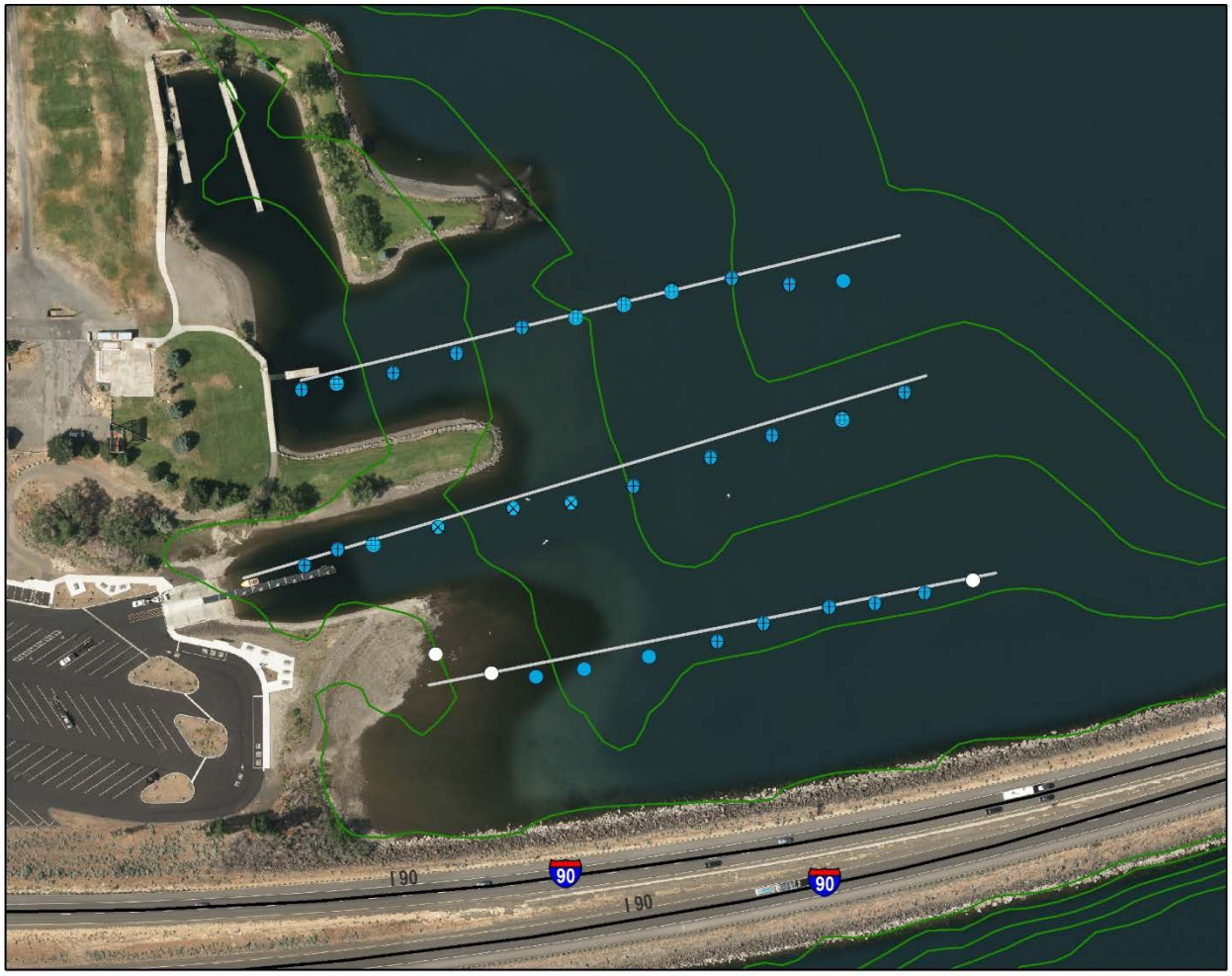


Figure C-4 Frenchman Coulee Boat Launch Transects, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.



Transect Data:
Occurence of Aquatic Vegetation Species

NS*	EM*	CP*
NS*, CP	EM*, CP	CP*, EM
NS*, EM	EM*, NS	CP*, NS
NS*, CP, EM	EM*, NS, CP	CP*, EM, NS
		No Vegetation

NS = native species

EM = Eurasian watermilfoil

CP = curlyleaf pondweed

* indicates dominant species

N

0 62.5 125 250 Feet

Grant PUD

2020 Boat Launch Transects
Kittitas (Vantage) Boat Launch

AIS Species Mapping:
Priest Rapids Project

This map/data was created for informational, planning, reference and guidance purposes only. Grant PUD makes no warranty, expressed or implied related to the accuracy or content of these materials. EA GIS - 2020

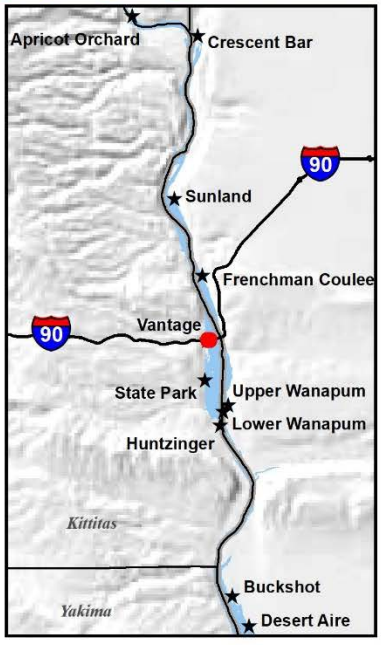


Figure C-5 Kittitas County (Vantage) Boat Launch Transects, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

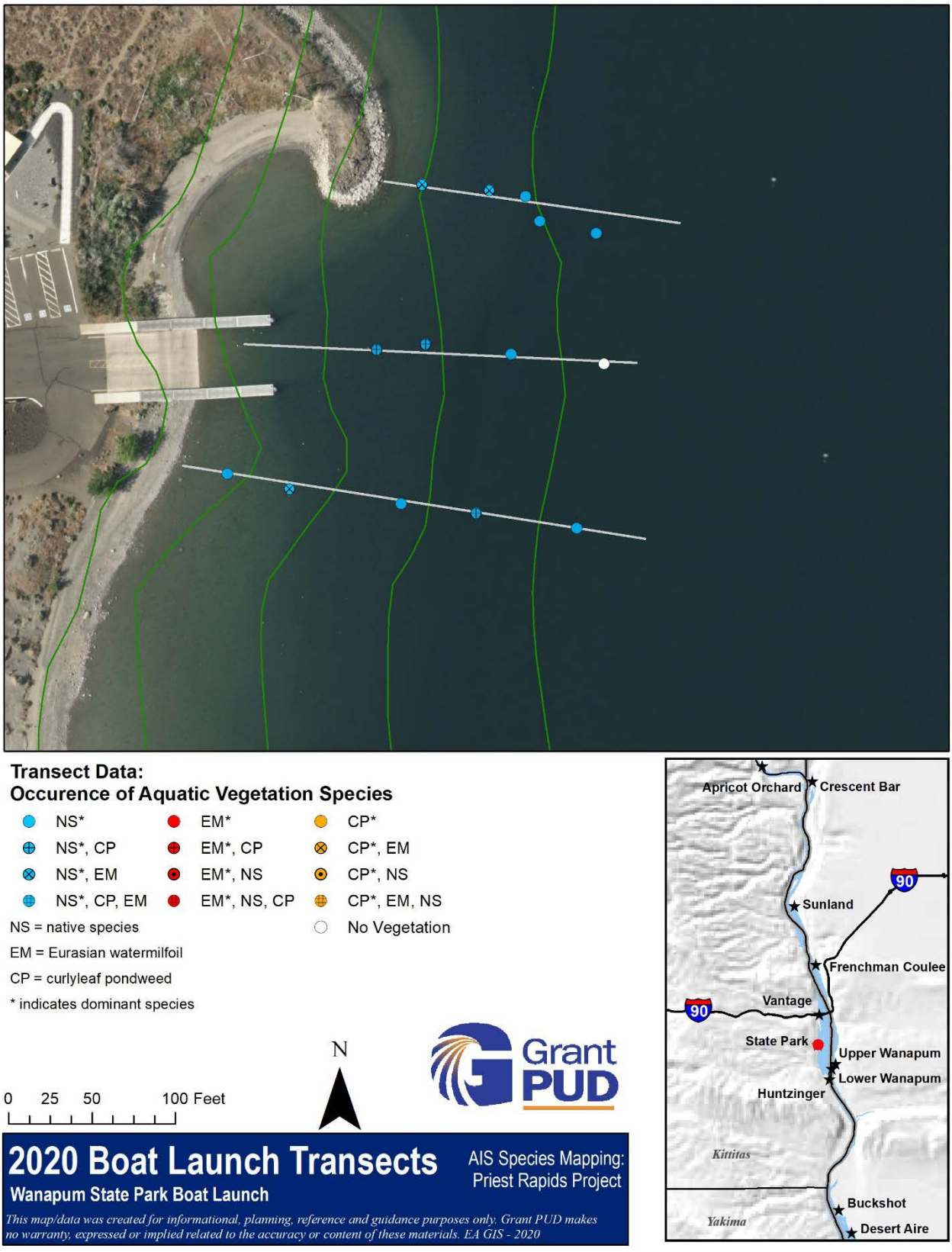


Figure C-6 Wanapum State Park Boat Launch Transects, Wanapum Reservoir, Priest Rapids Project, mid-Columbia River, WA.

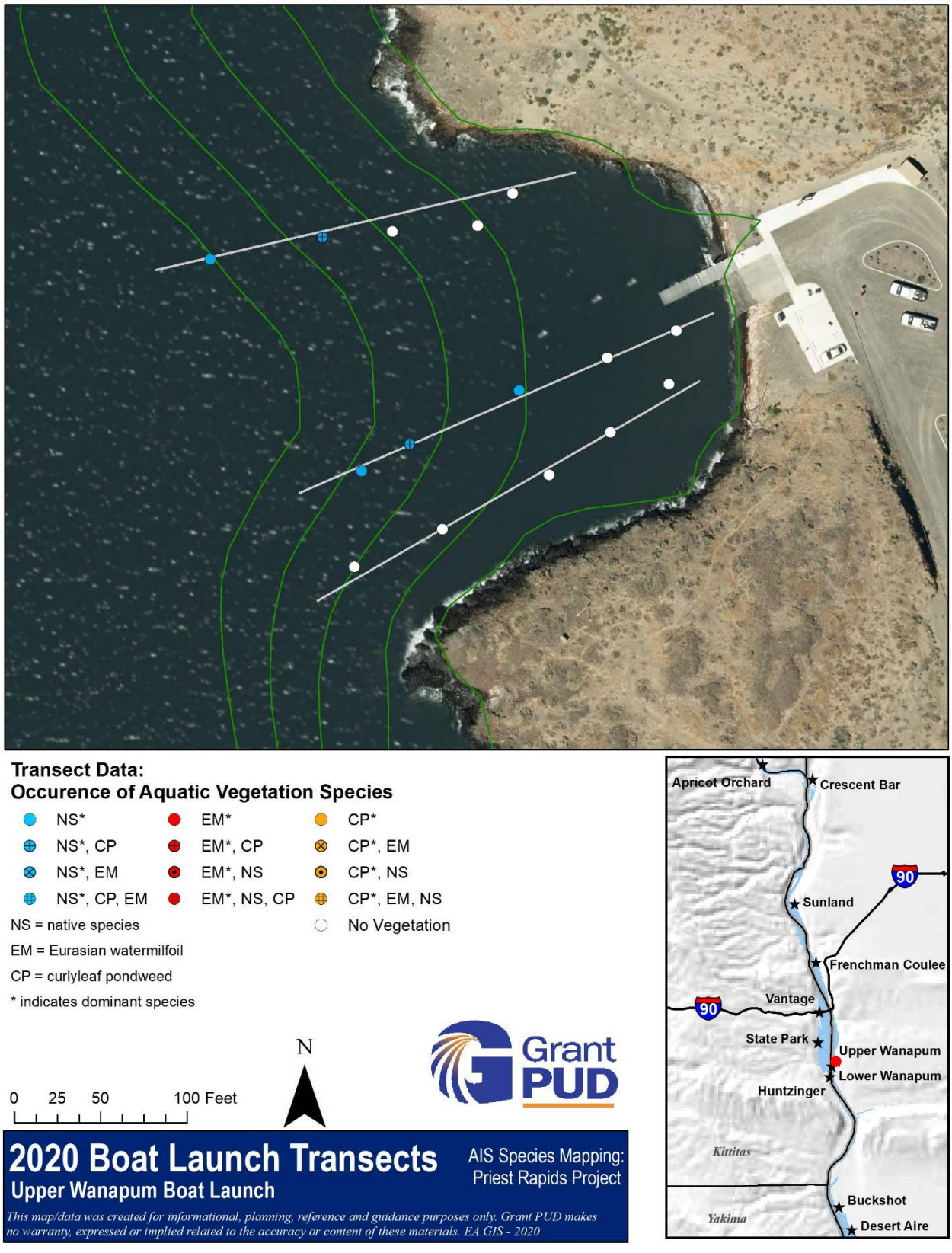


Figure C-7 Upper Wanapum Boat Launch Transects, Wanapum Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

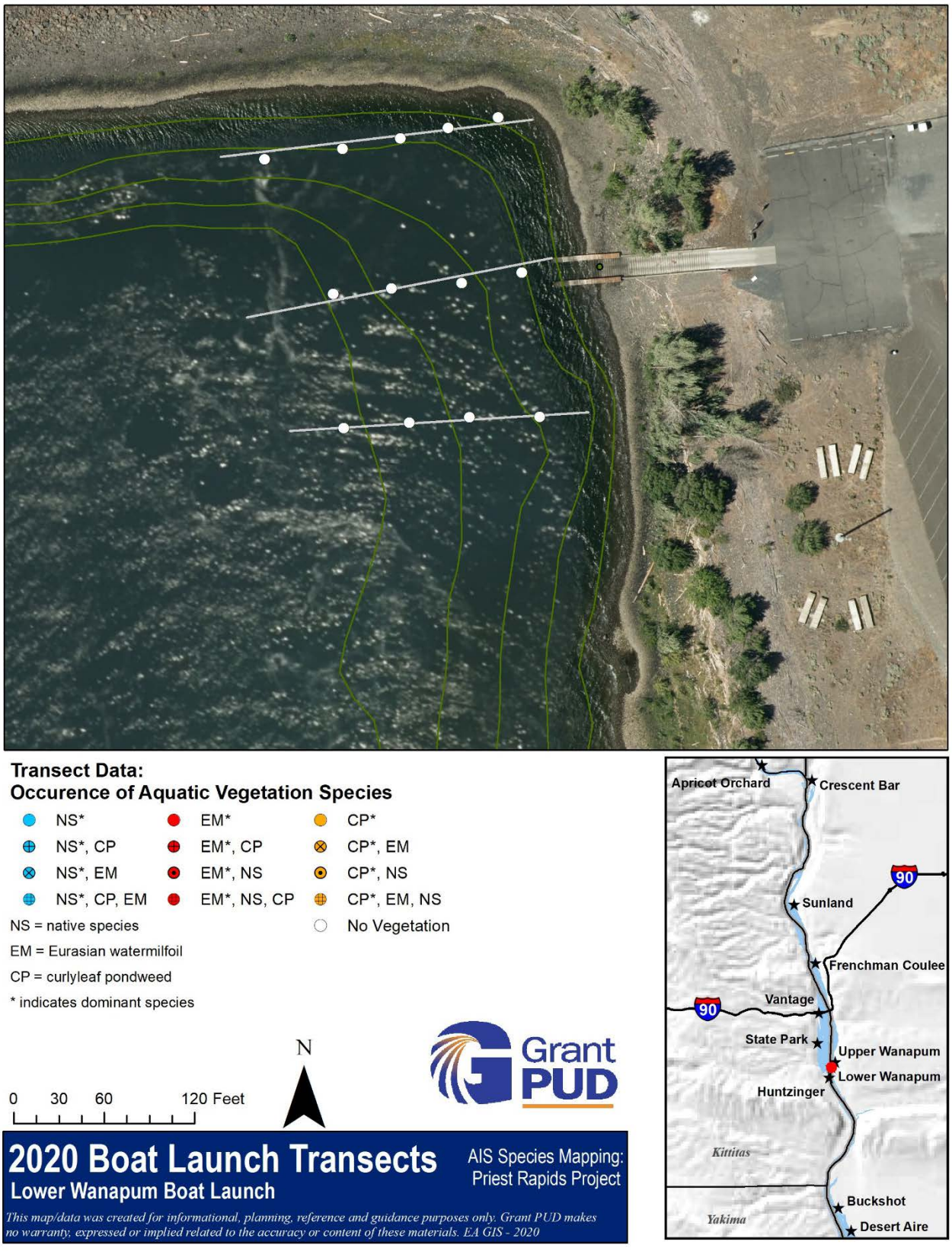
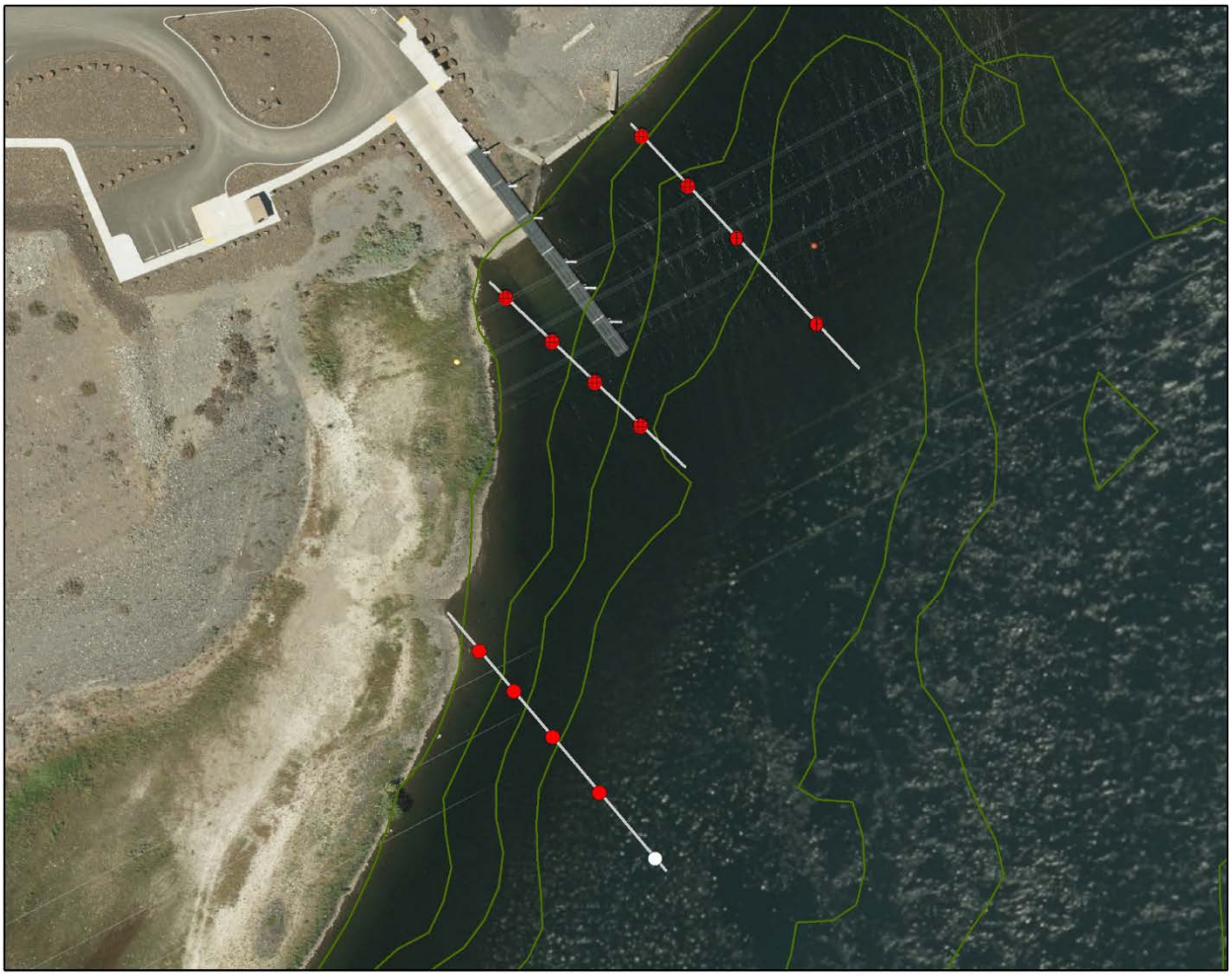


Figure C-8 Lower Wanapum Boat Launch Transects, Priest Rapids Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.



Transect Data:
Occurence of Aquatic Vegetation Species

NS*	EM*	CP*
NS*, CP	EM*, CP	CP*, EM
NS*, EM	EM*, NS	CP*, NS
NS*, CP, EM	EM*, NS, CP	CP*, EM, NS
		No Vegetation

NS = native species

EM = Eurasian watermilfoil

CP = curlyleaf pondweed

* indicates dominant species

N

0 37.5 75 150 Feet

Grant PUD

2020 Boat Launch Transects
Huntzinger Boat Launch

AIS Species Mapping:
Priest Rapids Project

This map/data was created for informational, planning, reference and guidance purposes only. Grant PUD makes no warranty, expressed or implied related to the accuracy or content of these materials. EA GIS - 2020

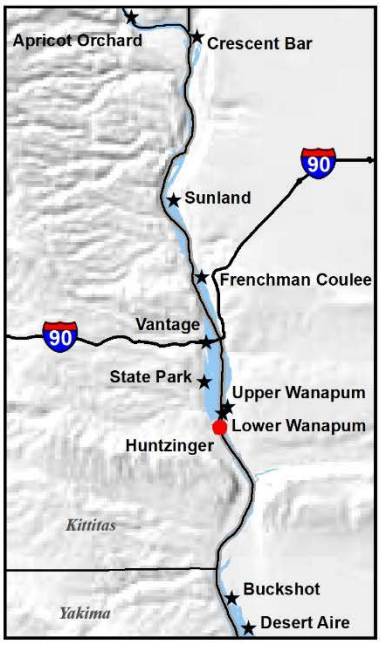


Figure C-9 Huntzinger Boat Launch Transects, Priest Rapids Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

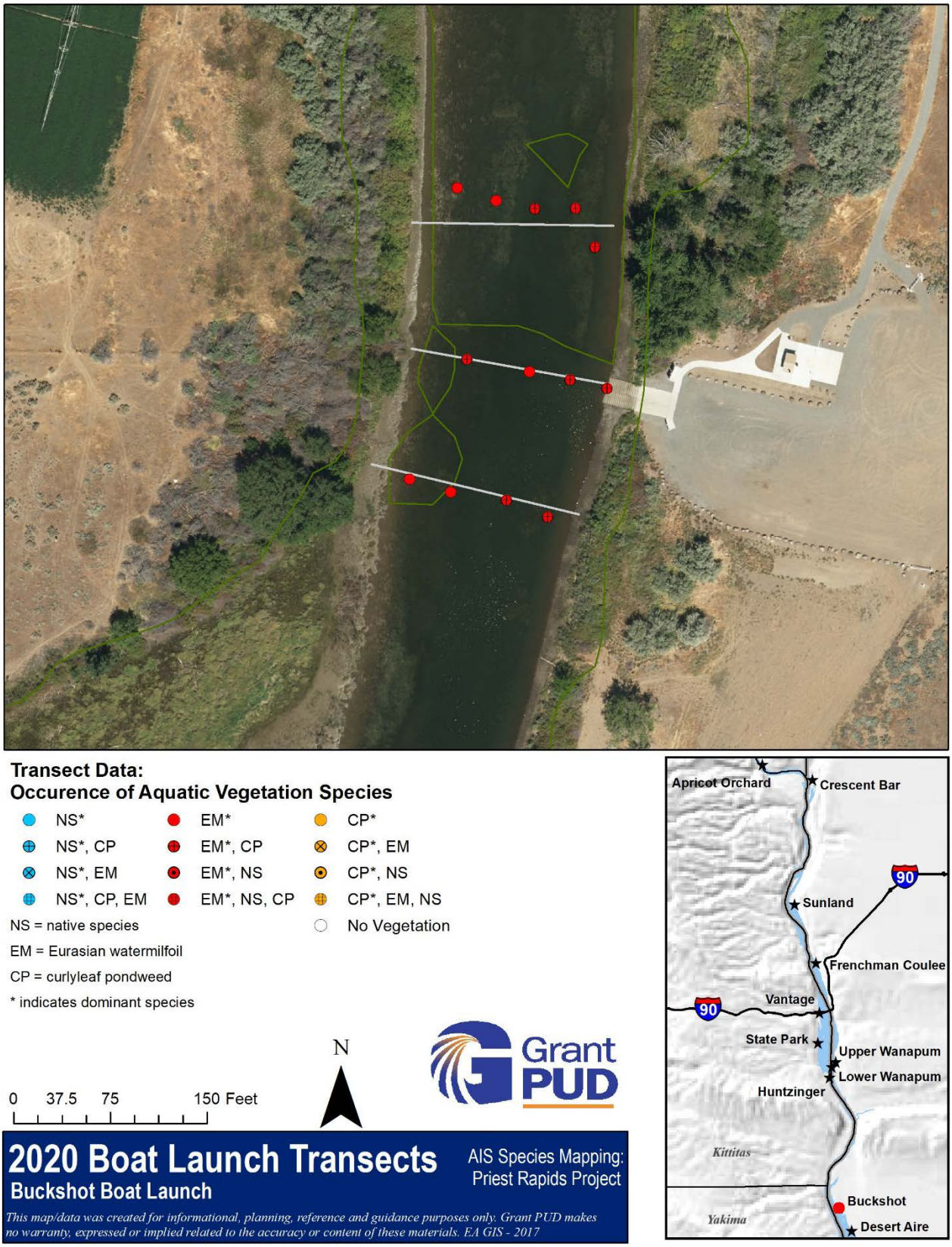


Figure C-10 Buckshot Boat Launch Transects, Priest Rapids Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

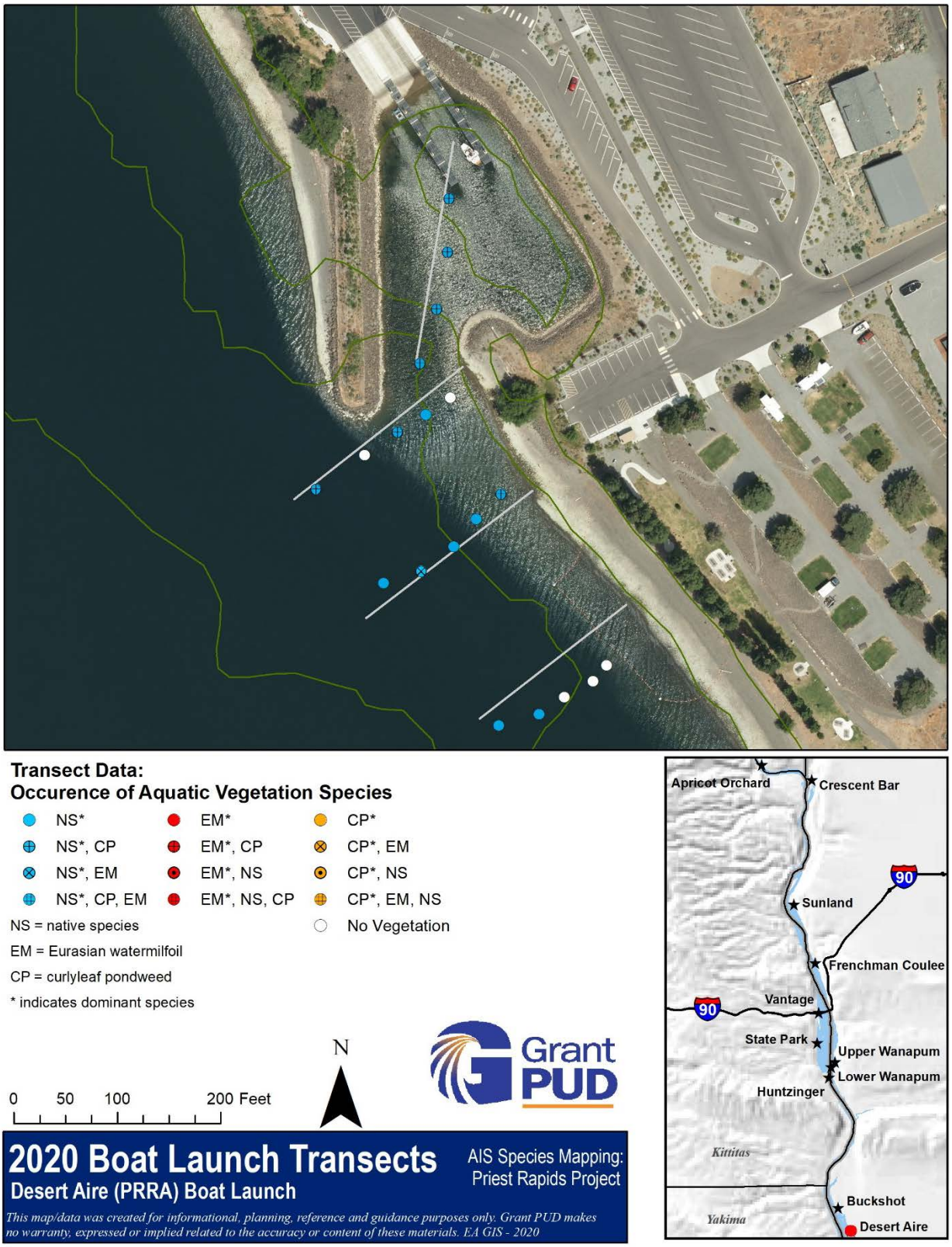


Figure C-11 Desert Aire (PRRA) Boat Launch Transects, Priest Rapids Reservoir, Priest Rapids Hydroelectric Project, mid-Columbia River, Washington.

Appendix D
Priest Rapids Project Aquatic Submergent Vegetation Maps for 2020

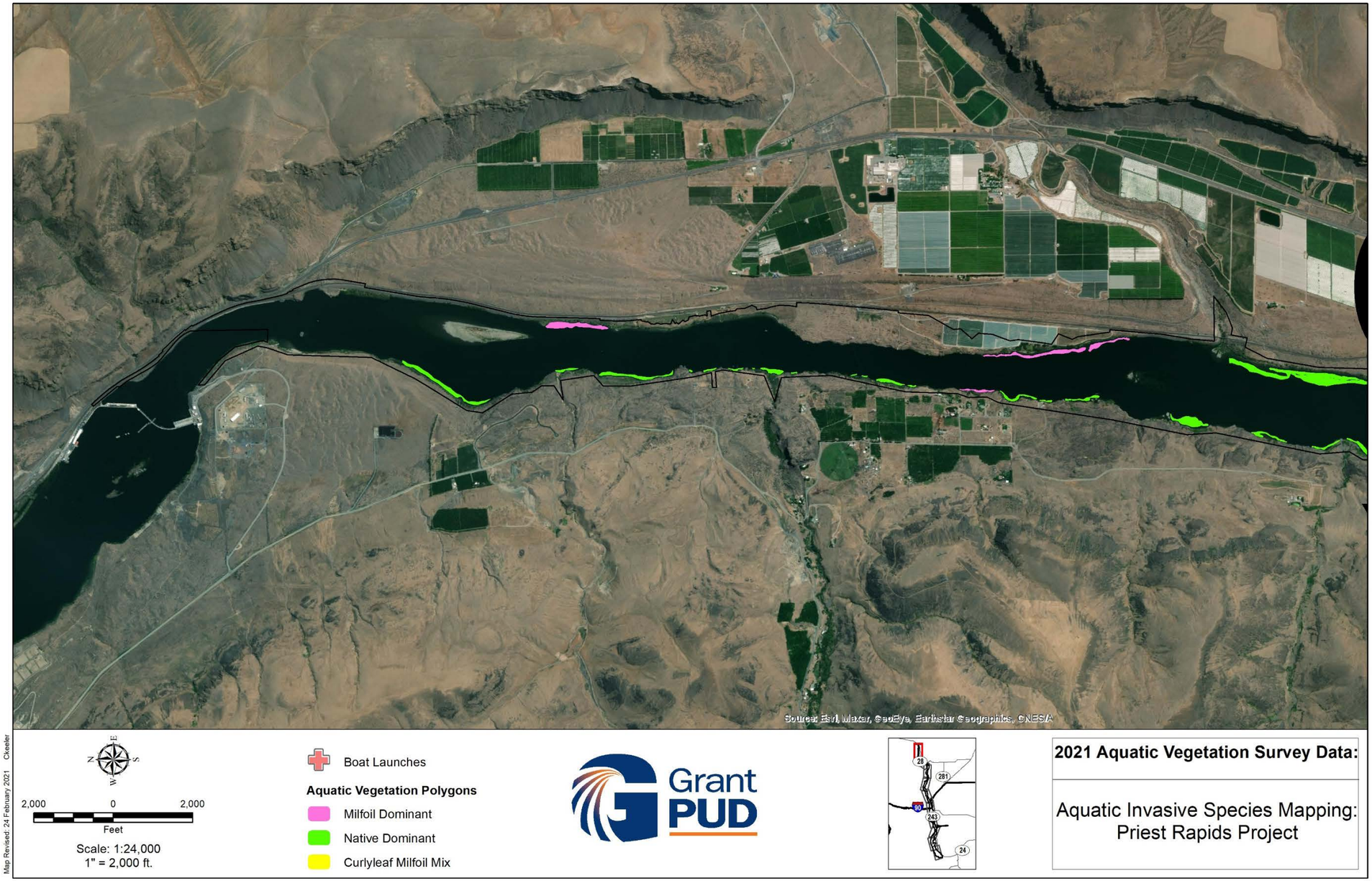


Figure D-1 Upper Wanapum Reservoir (~RM 452-448) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

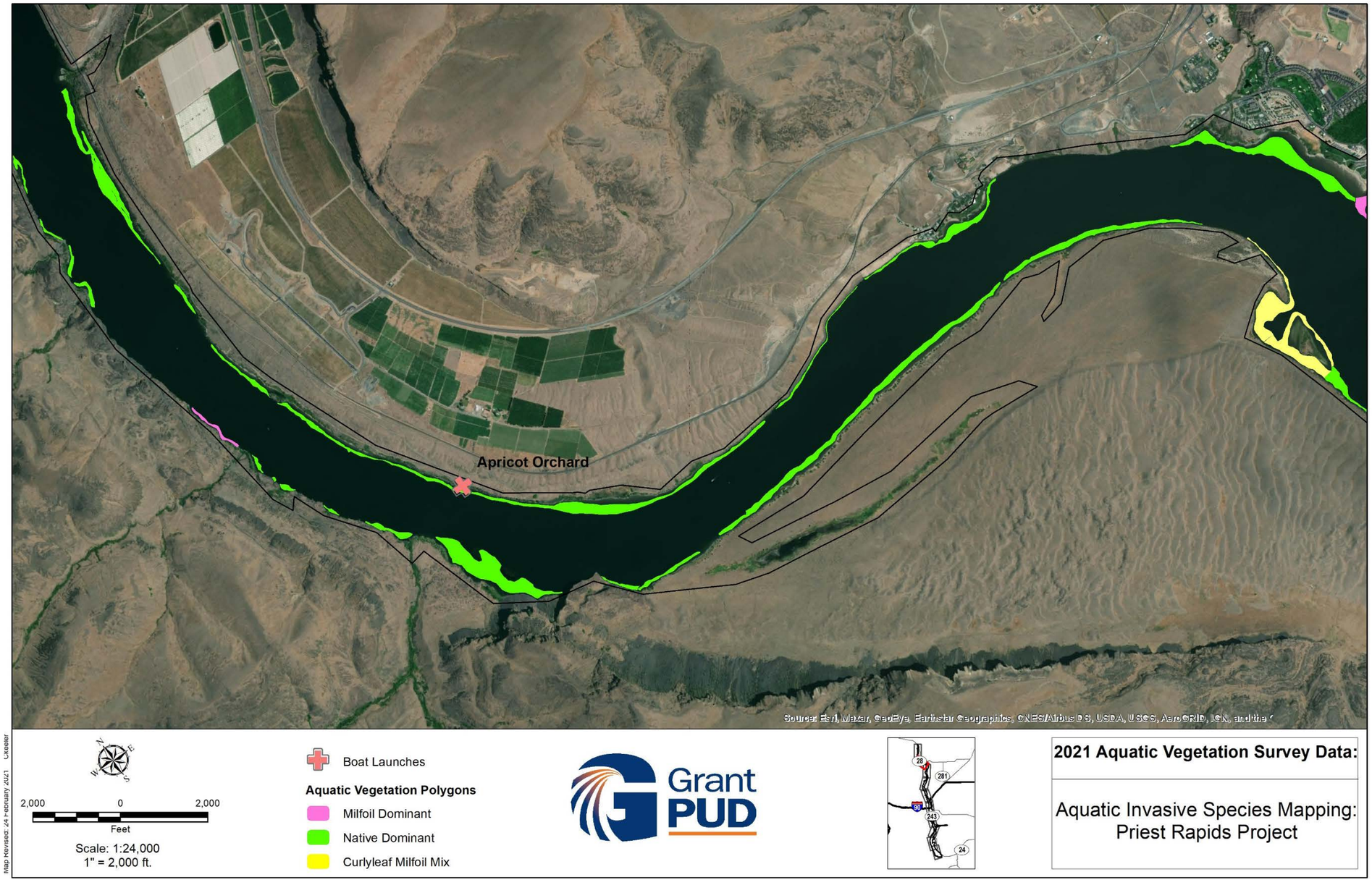


Figure D-2 Upper Wanapum Reservoir (~RM 448-441) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

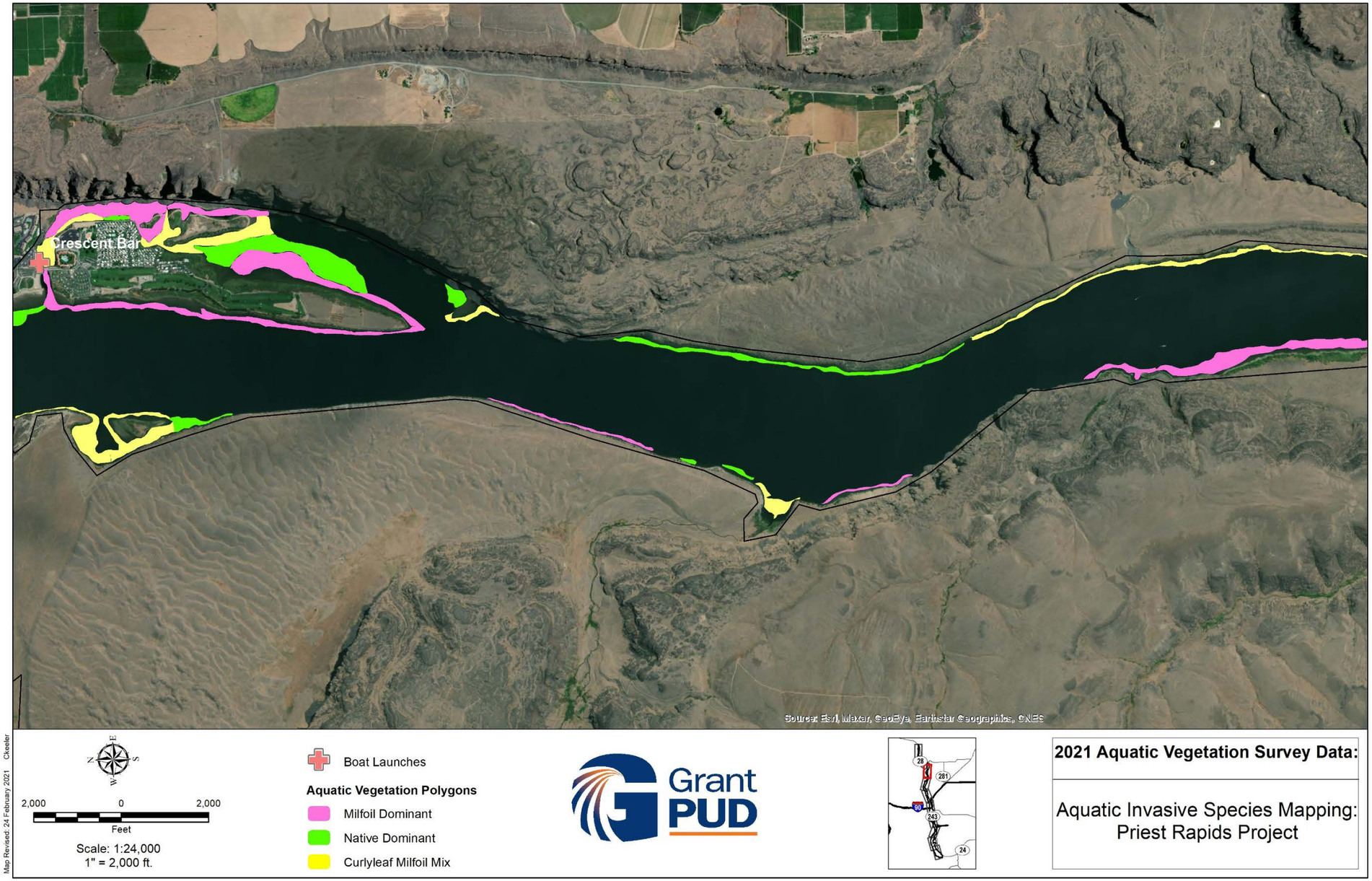


Figure D-3 Upper/Mid-Wanapum Reservoir (~RM 441-436) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

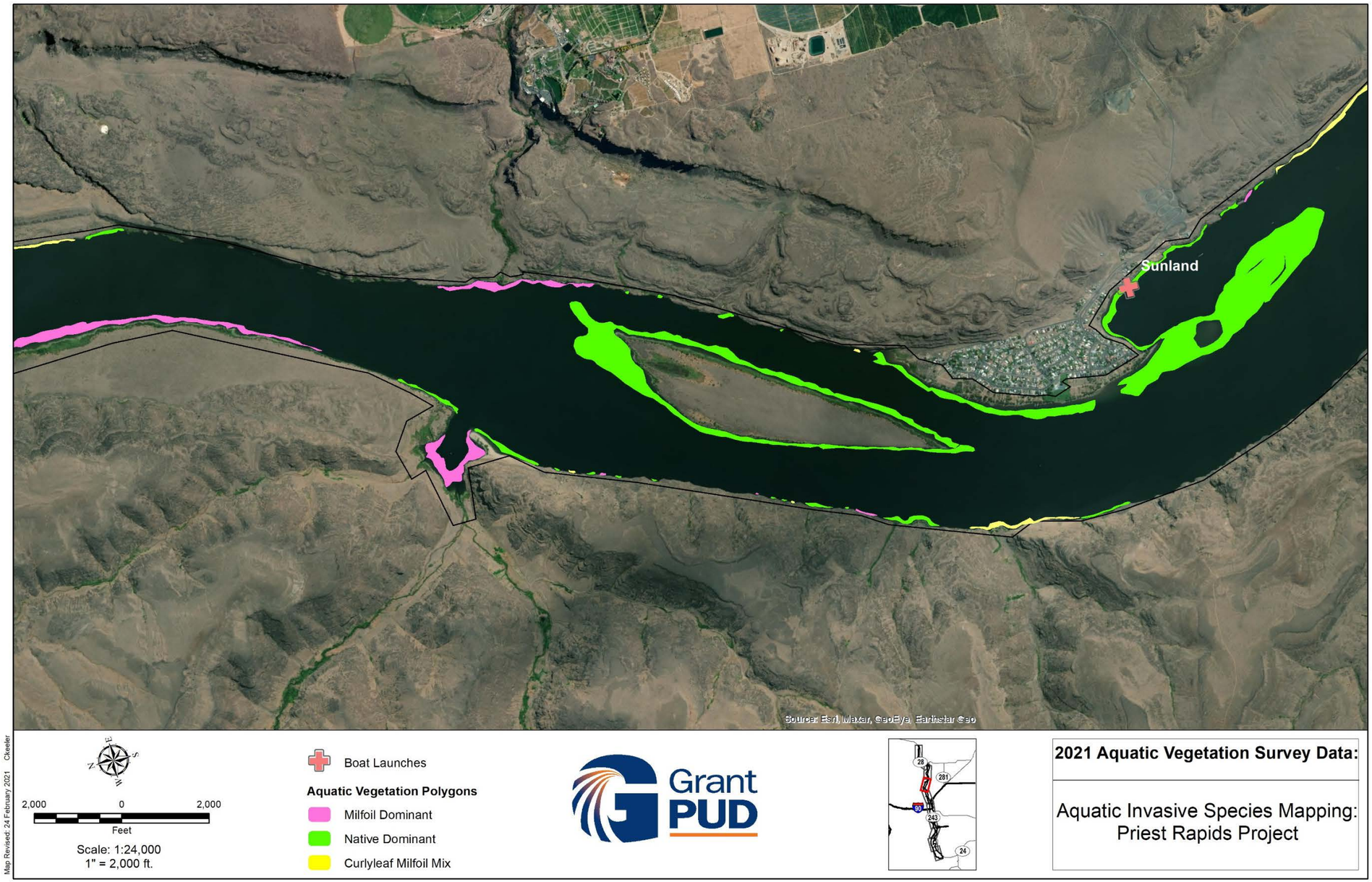


Figure D-4 Mid-Wanapum Reservoir (~RM 436-430) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

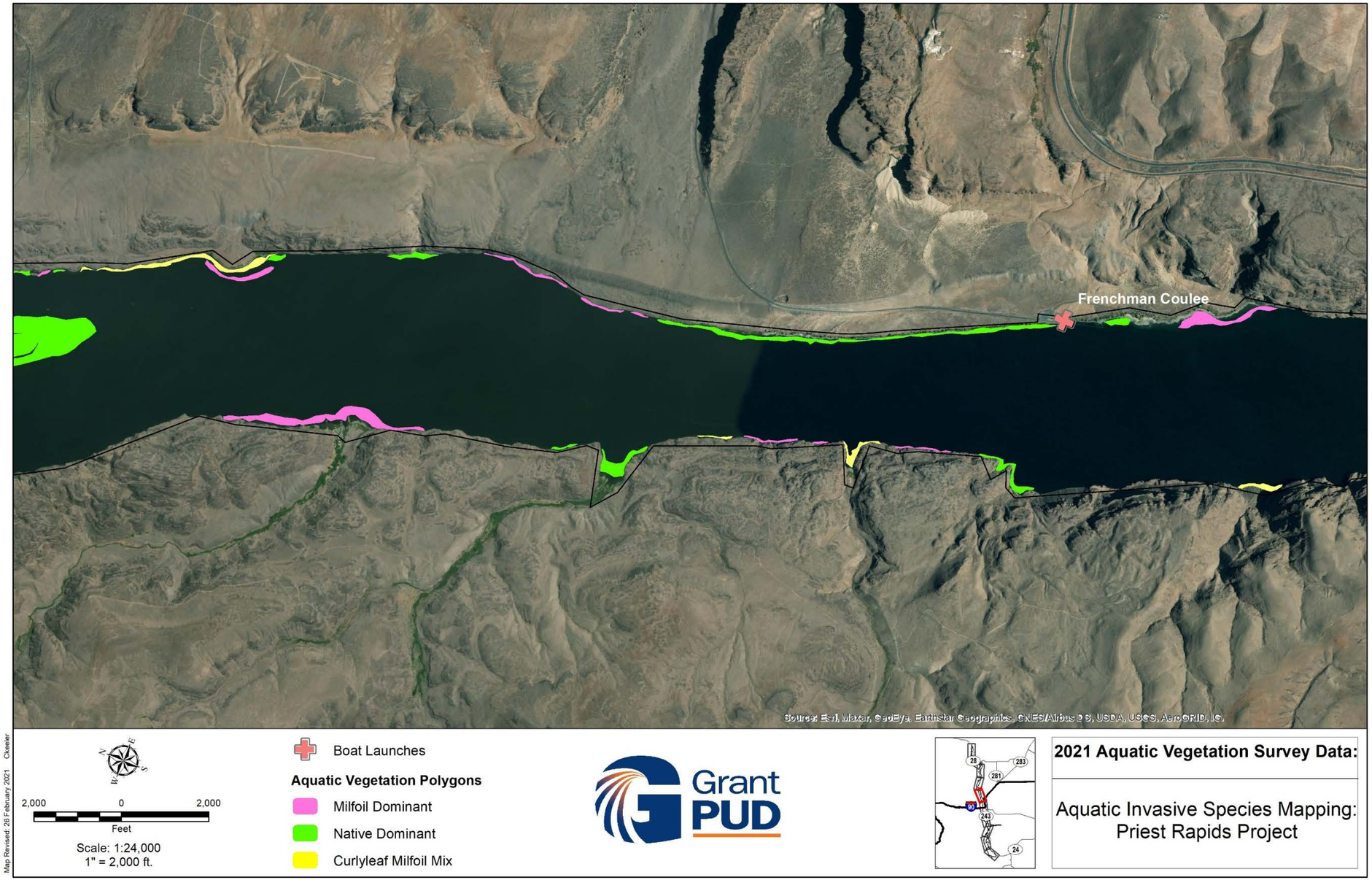


Figure D-5 Mid-Wanapum Reservoir (~RM 430-424) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

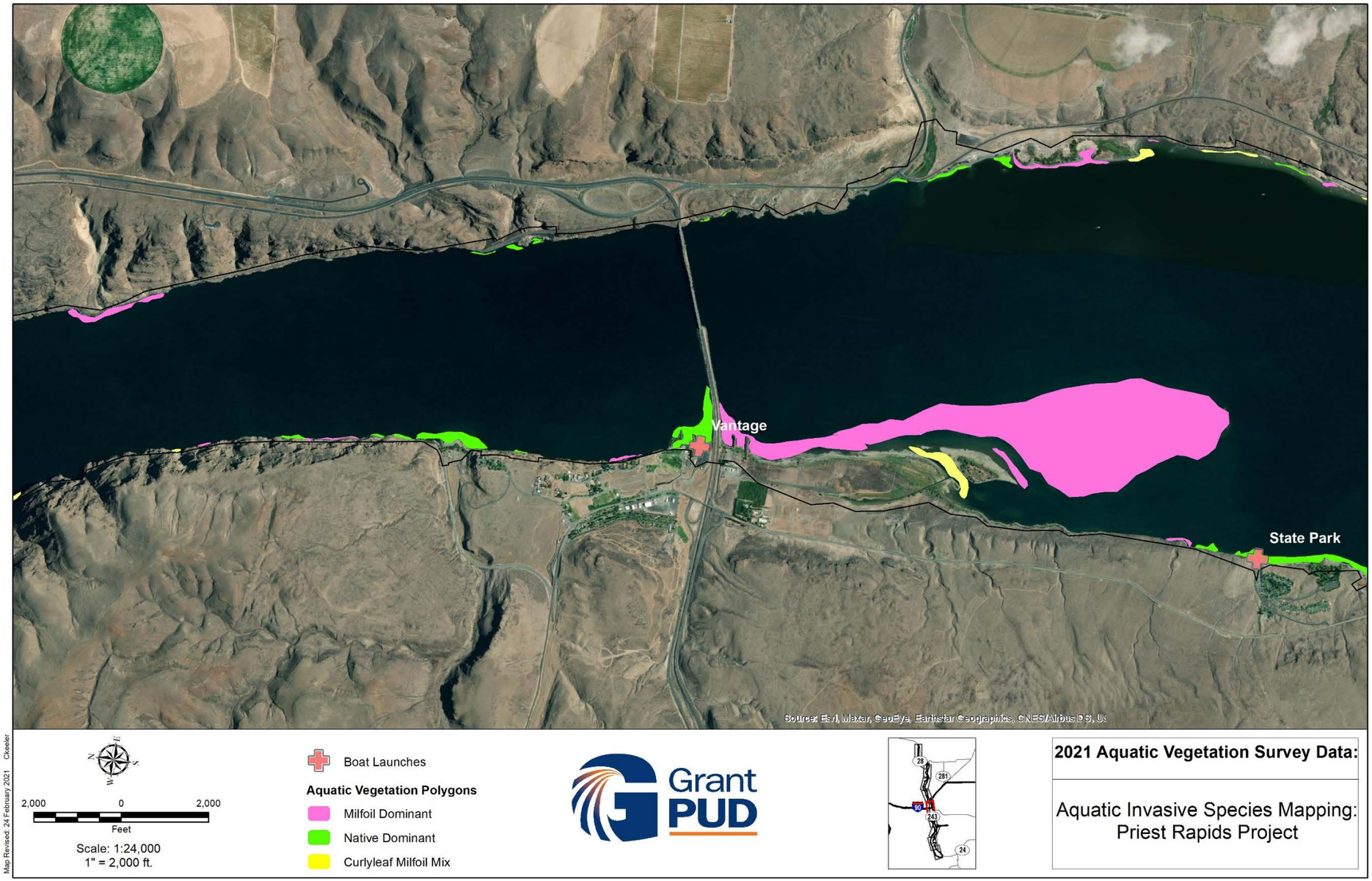


Figure D-6 Mid/Lower Wanapum Reservoir (~RM 424-418) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

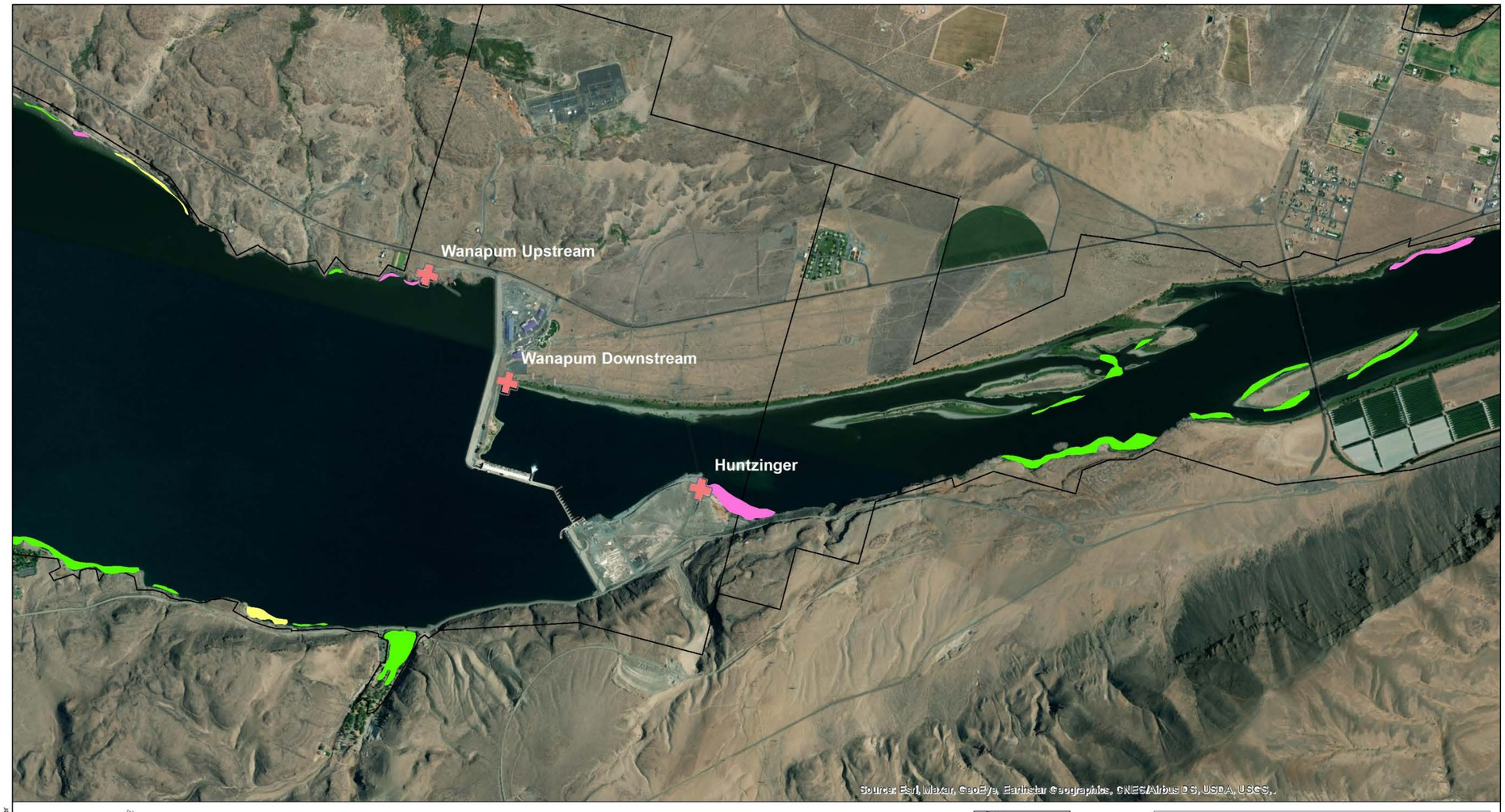


Figure D-7 Lower Wanapum and Upper Priest Rapids Reservoirs (~RM 418-412) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

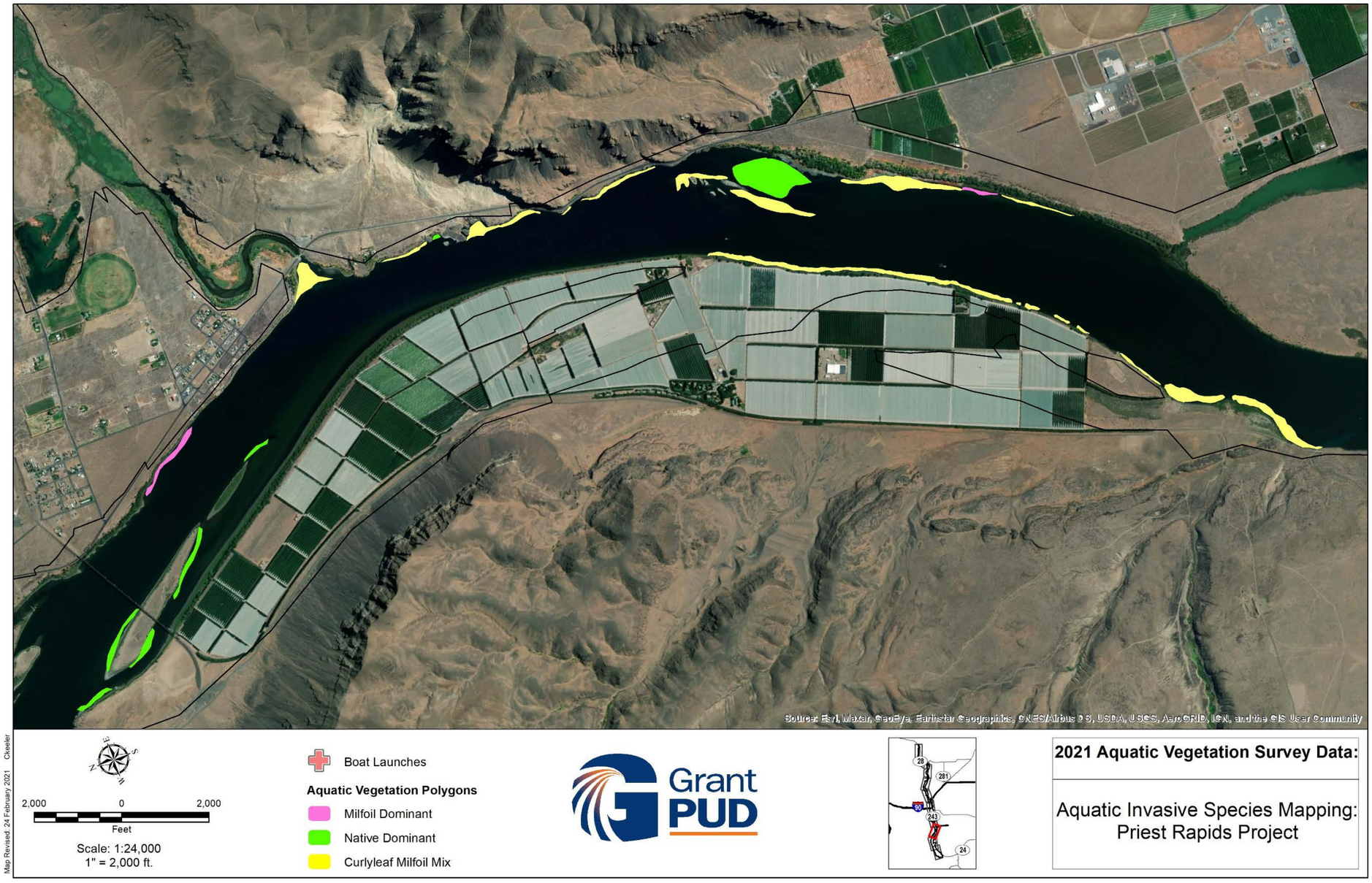


Figure D-8 Upper/Mid-Priest Rapids Reservoir (~RM 412-407) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

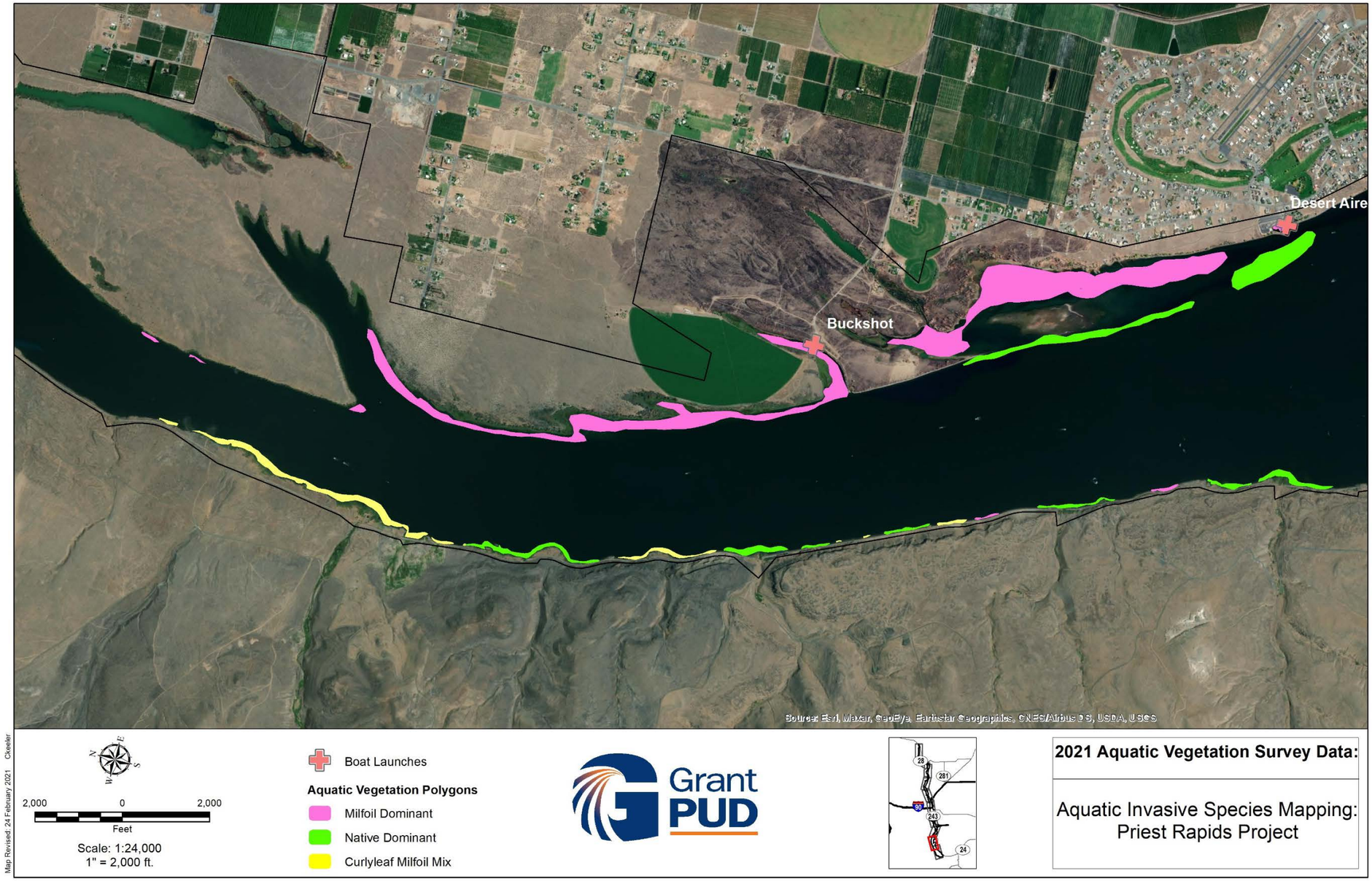


Figure D-9 Mid/Lower Priest Rapids Reservoir (~RM 407-400) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

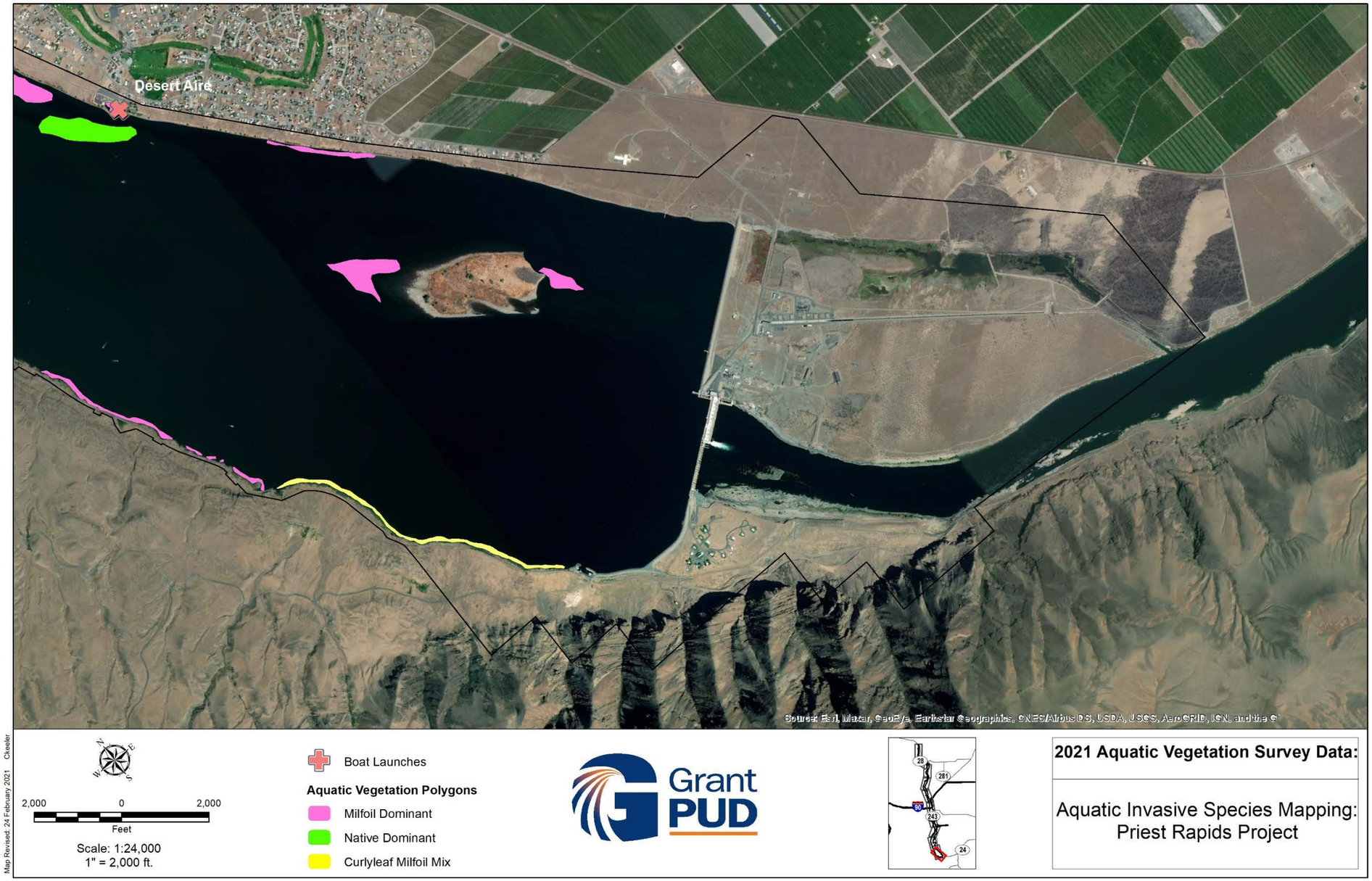


Figure D-10 Lower Priest Rapids Reservoir (~RM 400-397) Aquatic Submergent Vegetation Survey Data, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.

Appendix E
Agency Comments Received

Carson Keeler

From:	Verhey, Patrick M (DFW) <Patrick.Verhey@dfw.wa.gov>
Sent:	Monday, March 1, 2021 2:55 PM
To:	Carson Keeler
Cc:	Zimmerman, Breean (ECY)
Subject:	FW: Grant County PUD's Aquatic Invasive Species Control & Prevention Plan Report - FOR REVIEW
Attachments:	2021_03_01 AIS Control & Prevention Plan Report CONSULTATION_DRAFT.pdf

Hi Carson. Hope you are staying healthy during this pandemic.

In Figure D-10 of the 2021_03_01 AIS Control and Prevention Plan Report CONSULTATION_DRAFT it appears aquatic plant shoreline surveys were not conducted below Priest Rapids Dam and in areas immediately upstream of the dam. I imagine it is possible that surveys were conducted but no aquatic plants were detected. Let me know if this is the case. Although this is unlikely. Within the text of the document you referred to surveying the Priest Rapids Project. It is my understanding that the Project boundary extends three miles below Priest Rapids Dam. My recommendation is to either state in the text of the annual report the justification for not sampling below Priest Rapids or to conduct aquatic plant shoreline surveys in the future.

Patrick Verhey, WDFW Biologist
1550 Alder St. N.W.
Ephrata, WA 98823
Cell (509) 431-8296

Appendix F
Summary Table of Grant PUD Responses to Agency Comments

Submitting Entity	Date Received	Comment #	Agency Comment	Grant PUD Response
Washington Department of Fish and Wildlife (WDFW)	03-01-21 (e-mail from Patrick Verhey)	1	In Figure D-10 of the 2021_03_01 AIS Control and Prevention Plan Report CONSULTATION_DRAFT it appears aquatic plant shoreline surveys were not conducted below Priest Rapids Dam and in areas immediately upstream of the dam. I imagine it is possible that surveys were conducted but no aquatic plants were detected. Let me know if this is the case. Although this is unlikely. Within the text of the document you referred to surveying the Priest Rapids Project. It is my understanding that the Project boundary extends three miles below Priest Rapids Dam. My recommendation is to either state in the text of the annual report the justification for not sampling below Priest Rapids or to conduct aquatic plant shoreline surveys in the future.	Comment noted. Grant PUD will ensure it helps ease any confusion in future AIS Control and Prevention Plan reports by specifically addressing the areas surveyed for the aquatic submergent plant assessments within the Priest Rapids Project more clearly. Language was added to Section 2.2.2 to help clarify any confusion for the 2020 aquatic submergent plant surveys. Additionally, Figures D-7 through D-10 were improperly labeled which added to the confusion. These captions have been adjusted to reflect the proper survey language (submergent vs. shoreline) employed during the 2020 aquatic submergent plant survey effort.