



2018-19 Pigeon Lake Aquatic Invasive Species (AIS) Report

Why the concern?

- Once introduced many invasive species are impossible to fully eradicate. Prevention is key.
- Existing and new threats: Mussels (Zebra, Quagga); Plants (Flowering Rush, Eurasian Milfoil, Phragmites, Curly Leaf Pondweed); Fish (Prussian Carp, Goldfish); and Disease (Whirling disease).
- All aquatic invasive species can be a serious threat to the local aquatic ecosystem and native fish.
- A mussels' life cycle progresses from a microscopic phase (veliger), that is very hard to detect, to a thumb-sized adult. They impact the food web and fisheries, systems, equipment and much more. Property values decrease and boat maintenance increases.
- Once introduced the risk of spreading is far greater. Trying to keep invasive species in check costs all of us a lot of money. A mussel infestation is estimated to cost \$75,000,000 annually to fix systems / infrastructure (water, power, irrigation) and in lost revenue from recreational fishing. It would decrease property values and increase boat maintenance.

Threat to Pigeon Lake

Each year boats are stopped at the US border and Provincial highways headed for Pigeon Lake. In 2017, the Provincial AIS Program ran 11 Highway inspection stations and 2 roving crews staffed by 62 inspectors. 30,957 inspections were conducted, with 9,947 (32%) considered as high risk (last boating in water bodies outside of Alberta and B.C.) to be transporting AIS. The two AIS Dogs (sniffers) inspected 734 of the boats. There were 139 'late night' inspections.



The inspections resulted in 279 quarantine orders. Invasive mussels were verified on 19 boats, with 14 coming from Ontario, 2 from Quebec, 2 from Manitoba and 1 from Nevada. 1,932 hot washes were completed at inspection stations due to watercraft being too dirty to inspect. 290 watercraft were carrying AIS weeds into Alberta including Eurasian Milfoil, and 1 Curly Leaf Pondweed.

In 2018, the GoA repeated their 2017 AIS inspections, monitoring and Clean, Drain, Dry education programs and communications.

The APLM, PLWA and AEP have been working to keep AIS out of Pigeon Lake since the AIS threats surfaced. More recently, the AIS work was included in the PLWMP to recognize and keep this important work going. The PLWA Summer Staff are trained on AIS mussels along side AEP and ALMS Summer Staff. In 2017, the PLWA upped from 3 mornings to 7 1/2 days the time PLWA Summer Staff were at the Mulhurst boat launch giving AIS Quick Facts cards. In 2017, the summer staff asked people a few questions. This is what we learned:

- 38% had never heard of Aquatic Invasive Species or the CLEAN - DRAIN - DRY program.
- 87% of those who did not know about the program were seasonal or full-time lake residents.
- Of those who had heard of AIS Program - 60% appreciated the reminder.
- 43% where interested, very interested or grateful.
- 100% of the people took the Quick Fact cards.

In 2018, probably due to the time PLWA has spent at the boat launches, alongside AEP Provincial communications, an improvement was seen in the number of AIS informed people.

AIS Committee

Background: Late 2016 the APLM voiced a desire to be more involved with the AIS prevention. Given the past efforts of PL municipalities posting AIS signs, on-going PLWA AIS work, the AEP AIS Program, along with the PLWMP AIS recommendation, an AIS Committee was formed. The AIS committee included three representatives: Susan Ellis from the PLWA, Arin MacFarlane Dyer from AEP; Brian Waterhouse from the APLM .

AIS Committee Mandate: To review current efforts, investigate and report (to APLM and PLWA Board) on any other AIS prevention options, pull together a coordinated strategy that would fulfill the PLWMP AIS recommendations and coordinate efforts of the GoA, the APLM and the PLWA.

The PLWMP AIS recommendations:

- **In-Lake - Invasive Species:** Complement the Government of Alberta’s province-wide efforts with local initiatives to improve education and build local defenses to keep out aquatic invasive species. Measures include monitoring, public education, signage, and other initiatives
- **Shoreline - Invasive Species:** Ongoing monitoring is necessary to prevent the infestation of aquatic and riparian invasive species.

AIS Committee Work To Date:

1. Reviewed the PLWA strategy to complement the GoA AIS Program

- A good variety of methods (detailed in the strategy below) are used to reach, educate and motivate municipalities, communities and individuals to be part of AIS prevention, keeping residents and visitors informed and vigilant; to practice Clean, Drain, Dry, and to inform and ask guests to keep potentially contaminated boats and equipment out of Pigeon Lake.
- Identified potential areas to strengthen the strategy.
- Recommended the continuation and enhancement of a collaborative, communication approach.



2. Reviewed the following potential prevention options and identified challenges:

- **A car wash to Clean, Drain, Dry boats.** This instilling practices that minimize the risk of spreading AIS upon exiting a water body. There would have to be a retrofit and certification on a car wash, to ensure that any contaminated water from local car wash could not reach and contaminate waterbodies. One reason, this idea has been discouraged to date is that if a boat has mussels, a wash is simply not good enough, the AIS hotline would need to be called and the boat would need to go through the free, provincial decontamination. Car wash personnel/owners do not have the authority to make this happen.
- **A hot pressure washer vs decontamination.** Decontamination is different from a hot wash. Decontamination is for contaminated or potentially contaminated boats or equipment including the interior and mechanical portions of complex boats (i.e. engines, ballasts etc.). Trained decontamination technicians do the work, the organization (to date the GoA), takes on the health and safety risks, and the potential liabilities for damages. A simple hot wash of a “dirty boat” would not decontaminate a boat and risks damaging personal property. Therefore, the Clean, Drain, Dry actions should be the main focus for the PLWA and APLM.
- **The inspection and certification of every boat and denying access to all boats that could be contaminated.** The Boat Launch Inspectors would need to be AIS trained, at the launches, and have full authority to deny access, to require proof of inspection, as well as to enforce decontamination. Pigeon lake has many launches at Summer Villages with the main ones at Mulhurst, Gilwood and the Provincial Park. This would making the coordination and coverage difficult.

3. Drafted Recommendations and AIS Strategy – See below.

AIS Committee Recommendations

The AIS Program distinguishes between the Clean, Drain, Dry practices and decontamination:

- **Clean, Drain, Dry** is good practice for lake users to minimize the possibility of the transfer of AIS from one water body to another but, if a boat has AIS (especially mussels) only a thorough decontamination can ensure that the boat is AIS free.
- **Decontamination** uses very hot water, goes into the bilge and mechanics of a boat and uses specific techniques by trained technicians to ensure any invasive species is removed without damage is done to the boat, and is done at a site with the infrastructure and protocols to be safe and to contain and dispose of the water.

Increase the local AIS knowledge and maintain a high level of AIS prevention vigilance via:

- **Continued and Additional Education, Communication and Outreach Efforts:**
 - **Maintain Current Signage**
 - AEP AIS Clean, Drain, Dry Signs have been posted at the Mulhurst, Guildwood and Provincial Park. Many Summer Villages have posted AIS signs either at their entrances or at their boat launch to help encourage their residents to be an on-going part of the prevention of AIS in Pigeon Lake, concerning their visitors and their own boats and equipment.
 - **Recommended Signage** (note some challenges / decisions are yet to be determined):
 - Piloting 3 or 4 highway size signage on main roads headed towards the lake to ensure readability at speeds of 60-100 km/hr. AEP will probably design them to ensure consistency with other AEP messaging, and with AEP, APLM & PLWA logos to show a united effort.
 - Note: AB Transportation approvals are difficult to get. Municipalities have concerns about the number of signs so while these may best be posted along municipal roads, failing this, private fields may be needed.
 - Costs – 4 by 12' signs able to last a few years could cost \$1000 or so each, plus private land owners may require a payment. An initial PLWA grant application was unsuccessful; a second is in the works as of November 2018. Some grants require matching funds.
- **Continued and expanded PLWA Communications / Community Outreach/Events and Municipal AIM distribution of AIS education materials.** (See Strategy below) including:
 - **Boat launch & Community Events** – Continue the PLWA Summer Staff at the main boat launches, Farmer Market and AIM booths highlighting AIS (plants, fish and mussels), plus the typical non-invasive aquatic plants people find and worry about in Pigeon Lake (Arrowhead, Northern Milfoil, Richardson Pondweed, Widgeon Grass).
 - **Expanded Social Media efforts** – Launch an on-line AIS Program / Campaign linked with AEP on-line information and specific Pigeon Lake information that both increases the reach and awareness and helps us to benchmark and track AIS knowledge and actions over time.

- **Potential Additional Items to Explore Further**

- **Boat Launch Inspections:**

- **Municipal Policies** – Work with municipalities & GoA who have the main Pigeon Lake boat launches to determine if we want to put in place policies / bylaws for the owners of boats to have to show an inspection certificate from over at least 30 days (the length of time veligers can live). Boaters returning from ‘out of Province’ would need a mandatory inspection. Policies would have to be determined to give allowances for locals whose boats never leave the lake.
 - **Boat Launch Inspections** – PLWA Summer Staff (to-date workshops have happened before summer staff start) and /or community volunteers could be trained as boat inspectors (versus trained technicians who do the more complex decontaminations) and to use simple questionnaires, and outreach techniques to educate boaters on AIS protocols (what the PLWA staff do now). However, the Boat Launch Inspectors would have to have the training and authority to direct any out-of-province or other high-risk boaters, to a AEP inspection station.

- **Explore Interest and Practicality in having Roving GoA AIS Check Stations (Before going into the lake)** – These were done in the past but stopped in favour of other use of AEP Resources. If funds could be found, due to the high cost and coordination this possibility might need to be shared with other lakes, as a joint regional program. It requires hiring 2-person GoA crew to conduct inspections on key dates. It would work best if crews spent one whole day at each launch but rotated through the summer.

- **Wash Station(s) for people to use upon exiting the lake:** Give people the means to take action and complete the Clean, Drain, Dry protocols themselves by establishing and marketing one of the following options. Note each option would require a weed bin and Low Impact features and pull the plug materials, to do and to collect and keep potentially contaminated runoff from entering lake. While less expensive than a roving crew, still expensive. Options:

- **Local car wash retrofit.** One designated, certified, local boat wash retrofitted to Clean, Drain, Dry boats (not decontamination) have trained staff / volunteers on-site to demonstrate / teach proper ‘how to’.
 - **Community wash station at the boat launches** – would also require a pull out area at each boat launch away from the lake.

- Continue and Enhance the Current Monitoring Programs: **Continue the Monitoring Programs** in Place (See further details in table below):

- PLWA’s annual implementation of the **ALMS PVC Mussels Citizen Science Monitoring Program**. Educating and coordinating different shoreline residents each year, who are strategically spaced out around the lake. 10 PVC cement filled pipes are hung off piers (or at Ma-Me-O) a boat hoist, and checked monthly for mussels. Completed since 2014, about 36 citizens have participated. See blog and options to monitor launches: <https://albertaep.wordpress.com/2018/08/30/its-all-hands-on-deck-to-protect-albertas-waters/> .
 - Annual **Lakewatch Program** - ALMS technicians monitor for AIS while they take water samples.
 - Education and promotion of EDDMaps (Early Detection & Distribution Mapping System) to map and track invasives.
 - **Provincial Legislation** – Investigate and if warranted, encourage the Province to ban the sale of invasive / potentially invasive species (e.g. Gold Fish).



2018-19 Pigeon Lake Aquatic Invasive Species (AIS) Strategy

Goal: Protect Pigeon Lake by Keeping (AIS) Out.


PLWMP Recommendation: Complement the Government of Alberta's province-wide efforts with local initiatives to improve education and build local defenses to keep out aquatic invasive species. Measures include monitoring, public education, signage, and other initiatives.


AIS Good, Better, Best.



- **Good:** Continued implementation of the AIS Strategy described below.
- **Better:** The continued implementation of the AIS Strategy outlined below with the addition of Clean, Drain, Dry AIS Tools / infrastructure (a retrofitted car wash and/or Community Wash Station at one or more of the main boat launches) to promote clean, drain, dry practices as boats come out of water to promote proper boat launch etiquette.
- **Best:** The addition of all the AIS Committee recommendations to help ensure that high risk boats (if they've left the province within the last 30 days) have been inspected. See example at Lake Minnewanka - <https://calgaryherald.com/news/local-news/boats-must-be-mussel-free-before-launching-at-lake-minnewanka.ca>. For boats leaving the lake purchase chamois and pull the plug materials and have volunteers or staff on site to teach people how to clean, drain, dry after they are leaving the waterbody. Build and maintain plant material disposal bins. Signage: Do we need signs on all main roads going into a boat launch, even when there is multiple boat launches? Signs could be GoA's Clean Drain Dry road signs.

Any of the additional recommendations (pg 3) will be added to this strategy if agreed on and will be flagged until funding and capacity are secured.

	Programs Initiatives	Actions (What)	When	Who Lead	Who Support (S) & Consult (C)	Who to Inform (At Pigeon Lake)
AEP Provincial AIS Work						
1. Policies & Legislation	Coordination across borders	<ul style="list-style-type: none"> • Clarified Fed vs Prov Roles • Inter-Provincial /Territorial Agreements 	On-going	AEP AIS Program under Fish & Wildlife Policy Division	Fed, Provinces/Territories, USA	APLM & PLWA
	AB Weed Control Act	Updating to include all aquatic & riparian invasive plants	Working on	AEP AIS Program as above	AB Invasive Species Council (AISC)	APLM & PLWA
	Decontamination policy for Oil & Gas +		Working on	AEP AIS Program as above		APLM & PLWA
2. Watercraft Inspections	Highway & Board Crossings	<ul style="list-style-type: none"> • Inspections • Decontaminations • Education 	US / Canada Border – Ongoing Provincial Highways	AEP AIS Program as above	AEP Operations & Alberta Support and emergency Response Team (ASERT)	Annual reports to the APLM & PLWA

	Programs Initiatives	Actions (What)	When	Who Lead	Who Support (S) & Consult (C)	Who to Inform (At Pigeon Lake)
AEP Provincial AIS Work Continued						
3. Education & Outreach	Annual Updates (At conferences, on-line)	E.g. # of Stations/Crews Canines, Inspections done, etc.	Over Summer	AEP AIS Program as above		PLWA Spring email watershed residents re: findings. APLM? Municipalities?
	Consistent AIS Messaging	<ul style="list-style-type: none"> • AIS highway & lake signs • AIS Ads–TV, websites+ • AIS Quick Ref Cards • AIS Emailed Updates 		AEP AIS Program as above	Respect Our Lakes +	Materials made available to the PLWA & each PL Municipality
	EDDMaps	Created / Promoted App to identify & report weeds		AEP AIS Program as above	AB Invasive Species Council (AISC)	Everyone
	Workshops, Events, Conferences	AIS Boat Inspection AIS booth at PLWA Love the Lake	Spring	AEP AIS Program	PLWA Provincial Park (Love the Lake Fun Day) AB Invasive Species Council (AISC) (Conferences)	Everyone
4. Monitoring	Lake Monitoring	Lakewatch	Over summer Report late spring+	ALMS – Does AEP – some \$\$\$ for some recreation lakes – generally every 3 years	PLWA coordinates with ALMS (volunteers & payment) Municipalities \$ to PLWA	PLWA Spring email, FB & ALMS table at AGM APLM? Municipalities?
5. Response	<ul style="list-style-type: none"> • Fish - Whirling Disease • Aquatic Plants - Flowering Rush - Eurasian Milfoil • Mussels 	Initiative appropriate responses	ASAP	AEP AIS Program under Fish & Wildlife Policy Division	AEP Operations & Alberta Support and emergency Response Team (ASERT)	As appropriate
	<ul style="list-style-type: none"> • Response Line 1-855-336-BOAT 	Ensure reporting and response to potential threats of any invasive	On-going	AEP AIS Program under Fish & Wildlife Policy Division	AEP Operations & Alberta Support and emergency Response Team (ASERT)	AEP to inform: APLM & PLWA, ALMS, each PL Municipalities and the 4 Maskwacis Cree Nations if any threat investigation confirms an invasive species found in the lake.
	<ul style="list-style-type: none"> • Decontamination of mussel fouled boats 	Step 2 of Highway Inspections when a contaminated boat found.	Primarily Seasonal	AEP AIS Program under Fish & Wildlife Policy Division	Alberta Support and emergency Response Team (ASERT)	Part of Annual Reports/ Updates at AB Recreational Lakes Conferences, etc.

	Programs Initiatives	Actions (What)	When	Who Leads	Who Support (S) & Consult (C)	Who to Inform (At Pigeon Lake)
Municipal / PLWA / Community AIS Contributions						
1. Education & Outreach	AIS Signage posted at SVs & at County boat launches AEP Prov Park Signs	Were design, Leduc County to have low cost for all	2014 - 2016	Municipalities & PLWA 1 st 3 years AEP / ROL with municipalities now.	AEP Designed Leduc – Production Individual Municipalities bought & posted signs.	PLWA informed watershed residents (PLWA database) of AIS Signs – applauded municipalities.
	Continue AEP AIS Program Info Distribution.	AIS Quick Reference Cards Distribution <ul style="list-style-type: none"> • Many SV's give out at their AIMS • PLWA – hand out at Farmer Markets, MMO Craft Fair, Mulhurst Boat Launch & occasionally at Gilwood. • PLWA adds in the New Comer Pkgs 	Summer Summer On-going	Individual Municipalities	Summer Village (SV) get and bring AIS info to their AIMS. SV Admin personnel give out the Newcomer pkgs.	Everyone
	AIS Outreach / Education	PLWA Summer Staff r trained and engage watershed residents and boat launch users in AIS conversations at the PLWA public booths; at boat launches (4 – 7 ½ days).	Late Spring / Summer	PLWA	AEP – Ron Zurawell (Trains PLWA Staff); AEP – supplies signage & Info Some SVs invite PLWA to their AIMS and other events.	PLWA & Local Media (e.g. Pipestone Flyer Article)
		AIS & Clean, Drain, Dry featured at key PLWA events: AGM and Love the Lake Fun Family Day (LtL) Maybe: Add interactive features like at Love the Lake. C,D, D demo – microscope of veligers etc.	Summer	PLWA	ALMS – aquatic plants invasive & good consultation / training / LtL Booth. ROL & AIS Program LtLBooth c AIS games & boat to demo Clean, Drain, Dry	Everyone
		PLWA AGM had AEP AIS Program Lead as guest speaker at AGM) (maybe do again?)	August - 2015	PLWA	AEP AIS Lead	Everyone
		PLWA reports on Prov & Local AIS work at PL at AGM, in Annual Report, in a couple of Annual AIS email updates, via FB posts.	Spring, Summer & Fall	PLWA	AIS Program or ROL supplies Prov content. PLWA supplies rest of content.	Most info distributed to all watershed residents in PLWA database.
		On-line AIS Awareness Program AIS Educational materials, questionnaire	Spring Blitz Early Summer	PLWa	Summer Villages help market i.e. post on websites	Everyone

  <small>Alliance of Pigeon Lake Municipalities</small>	Programs Initiatives	Actions (What)	When	Who Lead	Who Support (S) & Consult (C)	Who to Inform (At Pigeon Lake)
Municipal / PLWA / Community AIS Contributions						
2. Monitoring	Lakewatch	ALMS Monitor Lake for AIS Plants alongside of the water samples.	Over summer Report following spring+	PLWA <ul style="list-style-type: none"> • Initiates / confirms program each year • Calls for and provides volunteers boaters • Receives, posts and makes annual Lake-watch reports available to watershed residents. 	Most municipalities contribute to cost &/or PLWA finds grants / other donations to fund . ALMS – Provides the trained technicians, do sample analysis, writes and posts reports	PLWA Spring email, FB & ALMS table at AGM APLM? Municipalities?
	ALMS Citizen Science PVC Mussel Monitoring & Education	Shoreline watershed residents hang, check & report on PVC mussel monitoring monthly.	Starts beginning of June Runs to end of August	PLWA <ul style="list-style-type: none"> • Calls for volunteers • Selects based on location & getting new people each year except for Gilwood pier. • PLWA Staff bring PVC pipes to residents and explain program / what they have to do. • Collect and clean PVC pipes each year. • Review reports 	All municipalities with coordinated communications, marketing, incentives for attending (?)	Results of program reported to Lake Partners and watersheds each year. If anything suspicious found PLWA would call / report to AEP AIS hotline, and AIS Response Team & report to ALMS. If anything confirmed it would be reported

**Report it!! If you spot any invasive species in Alberta, call 1- 855 - 336 - BOAT (2628)
or use EDDMapS, an app for your cell phone.**

Get further information on watercraft inspections, response efforts, education and more at the Alberta AIS Program website:

<http://aep.alberta.ca/fish-wildlife/invasive-species/aquatic-invasive-species/default.aspx>.

Thanks for being part of the protection of Pigeon Lake.