Appendix B
KBIC NRD Historic AIS Collection Information
(as collected by Gene Mensch)

KBNRD Focal Fisheries Research Activities With AIS Encounter Potential.

Map Icon/ Table Label	Target Species	Survey Title	Methods/ Primary Gear	Effort
LT-A	Lake trout	Spring Adult Lake Trout Survey	Gillnets (4.5" stretch multi-filament)	Two- 1,000ft gangs deployed 1-3 nights
LT-B	Lake trout	Summer Juvenile Lake Trout Survey	Gillnets (2.0", 2.5" and 3.0" stretch multi-filament)	Three- 750ft gangs deployed 1-3 nights
LT-C	Lake trout	Fall Spawning Lake Trout Survey	Gillnets (4.5", 5.0" and 5.5" stretch multi-filament)	Three- 750ft gangs deployed 1-3 nights
ST-A	Lake sturgeon	Lake Sturgeon Survey (Juv. And Adult)	Gillnets (4.5", 8", 10" stretch mono-filament)	Three- 400-600ft gangs deployed 1 night
SL-A	Sea Lamprey	Adult Sea Lamprey Assessment	Riverine Fyke Net (modified small openings)	One- riverine migration fyke net
WE-A	Walleye	Adult Walleye Survey	Lake/ Near shore Fyke Nets (large openings)	One to 3- lake/ near shore fyke net
CS-A	Coaster brook trout	Coaster Absence/ Presence Surveys	Electro-Shocking (Boat/ Boomshocking)	6ft depth maximum shoreline surveying
CS-B	Coaster brook trout	Coaster Absence/ Presence Surveys	Gillnets (variable mesh sizes; typically 2.0", 2.5", 3.0" and 4.5")	One- 500ft-1,000ft gang deployed 1 night
FC-A	Fish Community	Fish Community Assessment	Lake/ Near shore Fyke Nets (large openings)	One to 3- lake/ near shore fyke net

AIS CODE TABLE

1	Alewife	13	VHSv
2	Rainbow Smelt	14	Brown Trout
3	Eurasian Ruffe	15	Rainbow Trout
4	Rusty Crayfish	16	Splake
5	Sea Lamprey	17	Pacific Salmon sp.
6	3 Spine Stickleback	18	Atlantic Salmon
7	Round Goby	19	Common Carp
8	Eurasian Watermilfoil	20	Other?
9	Zebra/ Quagga Mussel		
10	New Zealand Mudsnail		Note: Species/ AIS 13-20 are suggested additional items for consideration
11	Spiny Waterflea (Byth. Long)		
12	Purple Loosestrife		

Note: These focal species (of 89 non-native documented, 2007) listed per USEPA lake Superior AIS Complete Prevention Plan, January 2014.

YEAR	LT-A	LT-B	LT-C	ST-A	SL-A	WE-A	CS-A	CS-B	FC-A	OTHER	
2001	4	7	4		.	.		.	.	.	
2002	5	6	4	14	.	.		.	.	.	
2003	6	9	4	5	.	.		.	.	.	
2004	4	6	3	11	.	.		.	.	.	
2005	6	5	3	32	.	.	20	.	.	.	
2006	6	6	6	28	.	.	20	.	.	.	
2007	6	6	2	27	20	.	20	.	.	.	
2008	4	6	2	9	20	.		.	.	.	
2009	6	6	3	9	20	.		.	.	.	
2010	6	6	4	9	20	.	20	.	1	.	
2011	6	6	4	9	20	.	20	.	0	.	
2012	6	6	4	9	20	9		.	1	.	
2013	6	6	4	9	20	24		.	15	.	
2014	2	6	4	9	20	18		.	3	.	
Totals	73	87	51	180	160	51	100	0	20		722

LT-A	Spring Adult Lake Trout Survey
LT-B	Summer Juvenile Lake Trout Survey
LT-C	Fall Spawning Lake Trout Survey
ST-A	Lake Sturgeon Survey (Juv. And Adult)
SL-A	Adult Sea Lamprey Assessment
WE-A	Adult Walleye Survey
CS-A	Coaster Absence/ Presence Surveys
CS-B	Coaster Absence/ Presence Surveys
FC-A	Fish Community Assessment

KBNRD Fisheries Survey AIS Encounter (or suspect encounter) Summary. Coded by number. Numbers indicated ***red*** represent written accounts of that particular AIS, for that year. ***Green*** numbers denote we suspect we may have encountered AIS, but have no proof or confirmation they are/were indeed present that year. ***Black*** numbers are indicative of species we encounter often and do not consider special circumstance.

YEAR	LT-A	LT-B	LT-C	ST-A	SL-A	WE-A	CS-A	CS-B	FC-A	OTHER
2001	2, 5	2, 5	*	?	4, 5			?		*
2002	2, 5	2, 5	*	?	4, 5			?		*
2003	2, 5	2, 5	*	?	4, 5			?		*
2004	2, 5	2, 5	*	?	4, 5			?		*
2005	2, 5	2, 5	*	?	4, 5		1,2,3, 8	?		*
2006	2, 5	2, 5	*	?	4, 5		1,2,3, 8	?		*
2007	2, 5	2, 5	*	?	4, 5		1,2,3, 8	?		*
2008	2, 5	2, 5	*	?	4, 5			?		*
2009	2, 5	2, 5	*	?	4, 5			?		*
2010	2, 5	2, 5	*	?	3, 4, 5		1,2,3, 8	?	?	*
2011	2, 5	2, 5, 11	*	?	4, 5		1,2,3, 8	?	?	*
2012	2, 5	2, 5	*	?	4, 5	3, 5, 4		?	?	*
2013	2, 5	2, 5	*	?	3, 4, 5	3, 5, 4		?	6	*
2014	2, 5	2, 5	*	?	3, 4, 5	3, 5, 4		?	?	*

AIS CODE TABLE
(with focus on 12 major AIS species listed as per EPA)

1	Alewife
2	Rainbow Smelt
3	Eurasian Ruffe
4	Rusty Crayfish
5	Sea Lamprey
6	3 Spine Stickleback
7	Round Goby
8	Eurasian Watermilfoil
9	Zebra/ Quagga Mussel
10	New Zealand Mudsnail
11	Spiny Waterflea (Byth. Long)
12	Purple Loosestrife

LT-A	Spring Adult Lake Trout Survey
LT-B	Summer Juvenile Lake Trout Survey
LT-C	Fall Spawning Lake Trout Survey
ST-A	Lake Sturgeon Survey (Juv. And Adult)
SL-A	Adult Sea Lamprey Assessment
WE-A	Adult Walleye Survey
CS-A	Coaster Absence/ Presence Surveys
CS-B	Coaster Absence/ Presence Surveys
FC-A	Fish Community Assessment

Appendix C
Aquatic Invasive Species Distribution in the 1842 Ceded Territory

AIS Distribution in the 1842 Ceded Territory.	Lake Superior	1842 Ceded Territory	KBIC Home Territory	L'Anse Reservation	Ontonagon Reservation	AIS on the Horizon	Comments on Distribution (County)
Alewife	X	X	X	X			Keweenaw Bay (Baraga)
Asian carp						X	Present in Mississippi River
Asian clam	X	X					Effluent of UPPCO water (Marquette)
Banded mystery snail		X					Multiple source waters
Bloody red shrimp						X	Present in Lake Michigan
Brazilian waterweed						X	Found in lakes in Minneapolis Metro Area
Brittle water nymph						X	Found in lakes throughout Wisconsin
Chinese mitten crab	X						Present in Thunder Bay, Ontario
Chinese mystery nail		X	X				Beaufort Lake (Baraga) , multiple source lakes
Curly-leaf pondweed	X	X					Multiple source waters
Eurasian ruffe	X	X	X				Portage Lake (Houghton) and Torch Lake (Houghton)
Eurasian watermilfoil	X	X	X	X			Keewaydin Lake (Baraga), Sand Point Pond (Baraga), Prickett Lake (Houghton), Pike Bay (Houghton), Torch Lake (Houghton), Gene Pond (Dickinson), Sawyer Lake (Dickinson), Sixmile Lake (Dickinson), Solberg Lake (Dickinson), multiple source waters
European frogbit						X	Found in Eastern Upper Peninsula and Lower Peninsula of Michigan,
Faucet snail	X	X					Washburn Harbor (Bayfield)
Fishhook water flea	X						Found in Lake Superior (Alger Co.) in 2003, also Present in Lake Michigan
Flowering rush		X					Lake Minocqua (Oneida)
Hydrilla						X	Small, private pond in Marinette County, WI
Narrow-leaved cattail	X	X	X				Wood Lake (Keweenaw), Otter Lake (Houghton), Beaufont Lake (Baraga),Beaufort Lake (Baraga), Bond Falls Flowage (Ontonagon), Lake Gogebic (Ontonagon), Isle Royale National Park, multiple source waters
New Zealand mudsnail	X						Duluth, MN
Northern snakehead						X	Found in Lake Michigan (Chicago, IL)
Parrot feather						X	Found in a few locations in in Mississippi River in Wisconsin and Minnesota
Purple loosestrife	X	X	X	X			Portage Lake (Houghton), Portage Entry (Houghton), James D Jeske Flooding (Marquette)
Quagga mussel	X	X					Fortune Pond (Iron, MI)
Rainbow smelt	X	X	X	X	X		Mountain Lake (Marquette)
Red swamp crayfish						X	Found in lower Wisconsin
Reed mannagrass		X					Sureshot Lake (Oneida)
Round goby	X	X					Marquette, MI
Rusty crayfish	X	X	X				Bond Falls Flowage (Ontonagon), Perch Lake (Iron, MI), multiple source waters
Sea lamprey	X	X	X	X	X		Present in many locations in Lake Superior
Spiny water flea	X	X	X	X	X		Lac La Belle (Keweenaw), Gratiot Lake (Keweenaw), Lake Medora (Keweenaw), Lake Fanny Hoe (Keweenaw), Lake Roland (Houghton), Gerald Lake (Houghton), Portage Lake (Houghton), South Entry Channel (Houghton), North Entry Channel (Houghton), Dead Lake (Marquette), Lake Michigamme (Marquette), present in many locations in Lake Superior
Starry stonewort						X	Found in Mackinac Co., and Lower Peninsula of Michigan
Threespine stickleback	X	X			X		Misery River (Ontonagon), Ontonagon River (Ontonagon), Firesteel River (Ontonagon), Mineral River (Ontonagon), Brule River (Iron, MI)
VHS	X	X					Present in many locations in Lake Superior
Water chestnut						X	Found in Lake Ontario
Water hyacinth						X	Found in a few locations in in Mississippi River in Wisconsin and Minnesota, also in Lower Peninsula of Michigan
Water lettuce						X	Found in lakes in Wisconsin and Minnesota (including Mississippi River)
Yellow floating heart		X					Lake Gordon (Forest)
Yellow iris	X	X					Multiple source waters
Zebra mussel	X	X	X	X			Ontonagon River (Ontonagon), Chicagon Lake (Iron, MI), Lake Emily (Iron, MI), Keyes Lake (Florence), Isle Royale National Park

Resources

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Appendix D
KBIC NRD
Decontamination Protocol

Preventing the unintentional spread of aquatic invasive plants, invertebrates, fish and pathogens is the first line of defense. It can be the most cost-effective approach because once a species becomes established controlling it may require significant and sustained efforts. Investment in prevention tools, resources, education, and infrastructure is indispensable in protecting human health, cultural resources, and natural resources. A long-term commitment to prevention will reduce the rate of introduction, the rate of establishment and the damage from additional invasive species in the KBIC Home Territory and the 1842 Ceded Territory.

While conducting field work, the KBIC NRD undoubtedly comes in contact with AIS. As professional environmental staff, it is important for the NRD to take precautions that help stop the spread of aquatic invasives species. All equipment that comes into contact with surface water should be sanitized before moving it to another water body. Such equipment includes nets, boats, anchors, buckets, waders, boots, all ropes and lines, tires, trailers, and more. Unfortunately, not all AIS are visible to the naked eye. Simple visual inspection, so important to the location and removal of larger AIS life forms, is inadequate to protect against smaller organisms such as zebra mussel veligers and spiny water flea resting eggs.

The majority of the field equipment used in aquatic ecosystems is susceptible to contamination from AIS. Fragments of curly-leaf pondweed and Eurasian water-milfoil can be entangled in nets. Microscopic AIS such as spiny water flea and zebra mussel larva can be hiding in stagnant water or attached to equipment. Resting eggs of the spiny water flea can be hiding in mud attached to an anchor, boot treads or inside the stomachs of fish. Anything that contacts the water should be considered a potential vector of AIS and warrants sanitation before moving to a new water body. A particular challenge is that there is a large variety of approaches to sanitizing against AIS and a great range of effectiveness with regard to individual aquatic invasive species. New research occasionally demonstrates that what was thought an effective decontamination procedure in the past is not working as well as was hoped. This situation demands rigorous protocols (that can be expensive and time consuming) coupled with a dose of common sense (that can make sanitation more efficient). Periodic review of the literature will reveal areas where new science can improve on sanitation practices.

There are many references in the literature for decontamination. Many are for specific organisms while others are broader in scope. We present a set of decontamination practices for possible use by the KBIC NRD that draws heavily from the proceedings of an AIS workshop hosted by the Ontario Federation of Anglers and Hunters (OFAH 2008) as it seemed a practical but thorough approach. We also have borrowed ideas from United States Forest Service guidelines for preventing AIS spread (USFS 2014), Wisconsin DNR Boat and Gear Disinfection Protocol (WDNR 2010), the AIS Hazard Analysis and Critical Control Point Training Curriculum (Sea Grant 2006), and the U.S. Fish and Wildlife Service National Conservation Training Center (USFWS-NCTC 2011). The procedures we outline could be used by others working in aquatic systems in the KBIC Home Territory and the 1842 Ceded Territory (e.g., commercial fisherman or private fish hatcheries). Recommended sanitation practices are always changing and adapting. Therefore, the protocols adopted by the KBIC-NRD need continual review and modification based on most current understanding.

In terms of assessing the risk of introduction of AIS, a basic question to ask is, “Do all activities take place within an immediate drainage area without barriers between sites?” If the answer to this is “yes” then sanitation practices can be less thorough or omitted all together. For example, if all activities using a

particular set of equipment take place in Lake Superior, there is no need to sanitize between field outings. On the other hand, if field activities with a given set of field equipment and gear will take place in several watersheds or isolated water bodies where there are known differences in species assemblages between sites, then sanitation between sites needs to be employed.

Four principles useful in framing robust sanitation practices include:

1. Assume every water body has AIS present.
2. Boats, trailers, and equipment that have come in contact with water should always be considered contaminated.
3. Treat equipment after each use even if you are not going directly to a new water body (unless equipment is dedicated to only that body of water).
4. Let the boat and equipment dry for as long as possible.

For the sanitation procedures we outline for the KBIC AIS Adaptive Management Plan, the gear is grouped into two categories: (1) Sampling gear and personal gear and (2) boat, motor, and trailer. Different field settings and available materials will dictate specific approaches. Always begin by conducting a thorough visual inspection of all gear. Drain and dry any standing water, and use a treatment to remove or kill anything not visible. The treatments described are the most current information to address water flea and zebra mussel contamination. When carrying out the sanitation of gear, keep in mind the following precautions:

- Wear appropriate personal protection equipment to prevent burns to self and others.
- Avoid or protect parts of equipment that might be damaged by hot water.
- Ensure that the water is at least 140° F at the discharge side of whatever's being treated.
- After treatment, ensure equipment drains and dries before re-stowing equipment.

The highest level of safety would come from using dedicated gear for each water body visited. Although this is the preferred practice, we recognize that it is not practical in many circumstances. This would require multiple sets of gear and would be costly. It might, however, be practical to dedicate gear for work on bodies of water where there are known AIS and/or for water bodies that are frequently visited (for example, Lake Superior).

For sanitizing sampling gear and personal gear between field trips, use high pressure water (>250 psi) and hot water (140° F water) or steam. Allow at least five minutes of exposure time for hot water and 30 minutes for steam. In addition, use a drying rack exposed to the sun for nets. Remove gear from vessels or containers to provide better access for cleaning. Visually inspect sampling equipment and personal gear, and remove all debris such as plant fragments, sticks, and mud. Roll out nets and other equipment (rope, anchor, buckets) and rinse with high pressure water or spray or submerge in hot water for at least five minutes or expose equipment for 30 minutes in a steam box. Allow equipment to dry completely and then remain dry for at least 12 hours prior to next use. Use rubber waders, boots, and gloves because they are the easiest to clean. Neoprene waders and gloves and felt soled boots entrap AIS more readily and are harder to decontaminate than rubber. Compact propane units could be used to heat water in the field to be used for emersion of specific equipment. Tag your equipment to identify decontaminated equipment from dirty equipment. For example, use green tags to indicate clean gear and red tags for dirty. A steam box can be made from an unused refrigerator or other insulated container. Drill a small hole in the side of the

fridge to fit the nozzle of a commercial steam cleaner. Gear can be placed on the shelves. A zip tie or a rope can be used to hold the trigger open on the steam cleaner. This method uses less hot water than a hot water wash method.

For sanitizing truck, boat, motor, and trailer between field trips, use high pressure water (>250 psi) and hot water (140° F water). Visually inspect and remove aquatic plants, animals and mud from inside and outside of boat (keel, trim tab, transducer, lower unit, propeller), trailer (rollers, lights, axle, fenders, etc.), and truck (tire treads, bumper, hitch). Don't forget to check any attached rope. Drain water from motor, live well (drain and dry with towel and spray with disinfectant or hot water), tanks and sampling equipment before leaving water boat access area. Also use an engine motor flusher (a.k.a. "muffs). Flush engine cooling system with water by using muffs and a garden hose (do not use hot water for this procedure; follow manual for best advice). If boat has been in water more than 24 hours, pressure wash boat (>250 psi) or wash with hot water (140° F) or leave in the sun to dry for a least five days. When sanitizing the vehicle, boat, motor, and trailer, pay particular attention to cracks and crevices that may hide unwanted organisms, plants and mud. Drain all water from motor starting with motor in operating position then manually tip or hydraulically trim motor up and down three times, and tip motor from side to side. If removing the motor from boat, stand it upright to allow water to drain prior to transporting. After the boat is placed in the water check the trailer for any AIS that may be attached. Some sources suggest spraying a chemical solution on the bunk trailer (carpeted) so that it can be disinfected, hot water treatment would be the best. The carpeted areas can be a vector for AIS if it remains damp. Wash down the boat working from bow to stern, and top to bottom. Raise bow of boat for effective draining of water and muck that gets into bilge. Try backwashing bilge pumps by introducing water into the bilge pump discharge port (on transom or hull exterior) and check to see if water flows through the bilge pump into the bilge.

For some species, it is possible to disinfect gear using chemicals. Chemicals, however, do not have the broad spectrum effectiveness of hot water, high pressure spray, and drying. Because of this chemical disinfectants have to be targeted toward known AIS. For example, zebra mussel life stages are successfully killed with 100% vinegar (20 minute exposure), 200-250 mg/L chlorine bleach (60 minute exposure), 500 mg/L hydrogen peroxide (60 minute exposure), or a 24 hour exposure to a 1% table salt and water solution. In contrast, these chemicals are not useful for disinfection against spiny water fleas. Branstator et al (2013) has found that spiny water flea resting eggs are particularly resistant and able to withstand prolonged exposure to both very low and very high pHs. Many of the aquatic invasive snail species are resistant to chemicals and can even withstand drying for long periods of time. In many instances the effectiveness of chemicals are unknown (e.g., VHS virus or other pathogens). The USFS Intermountain Region Technical Guidance reviews the efficacy of specific chemicals for aquatic invasive species (USFS 2014). With use of any chemicals, personal safety protection and environmental protection are of paramount concern.

Appendix E
KBIC NRD
AIS Rapid Response Strategy

If new populations of aquatic invasive species are discovered, a quick, coordinated response can eradicate or contain the AIS before it spreads. Rapid response to a new AIS introduction can also save on potential costs of long-term control. Implementing a rapid response plan is paramount for the KBIC. Coordinating and collaborating with other administrations (Objective 7) will help in creating the fastest response to new infestations of AIS.

If new AIS are sighted, a rapid response plan needs to be in place to take action. Setting the stage for effective rapid response involves education and awareness activities that serve to (1) engage volunteer lake monitors, (2) identify Rapid Response Coordinator(s) and form Rapid Response Team(s), (3) identify sources of funding, and (4) form new lake associations. The Rapid Response Strategy for the KBIC NRD is illustrated and described in outline form in this appendix. Having a rapid response strategy takes out the guess work in trying to determine what should be done next if a new AIS is found. It is essential that proper evaluation and notification is implemented in each situation. The Rapid Response Strategy is the road map for appropriate response to a suspected discovery of AIS. Here is how it goes:

1. AIS are suspected.
2. Collect the suspect AIS and contact the Rapid Response Coordinator (KBIC AIS Specialist). For proper collection and transport of the sample, follow the example incident forms in Appendix H. Attach to the specimen container the collector's name, water body and county name, GPS coordinates (if available), and a sketch map of where the specimen was found.
3. The Rapid Response Coordinator identifies the sample or sends it to an expert for identification.
4. If the sample is identified as AIS, complete an Aquatic Invasive Animal Incident Report form and/or an Aquatic Invasive Plant Incident Report form (Appendix H).
5. The Rapid Response Coordinator determines if the AIS has been reported on the water body in the past or if it is a new introduction.
6. The Rapid Response Coordinator informs responsible resource agencies.
7. The Rapid Response Coordinator convenes a Rapid Response Team to help respond to the situation. This could include lake association members, agency staff and others.
8. Conduct field studies to determine if AIS is established.
9. If not established – management, control, monitoring and reporting are necessary. Investigate the status of mechanical, biological or chemical control techniques and permitting requirements.
10. If established – follow the WDNR Aquatic Invasive Monitoring Protocol Citizen Lake Monitoring Network AIS Monitoring Procedures or USFWS Protocols; Inform Responsible Agencies; Call 877-STOPANS or enter information on http://nas.er.usgs.gov/sightingreports.asp and/or GLIFWC Invasives. Contact water body stakeholders, and review research, contact researchers.
11. Provide education
    a. Set up a Clean Boats, Clean Waters volunteer at the landing if there is one.

b. A boat wash would help eliminate any further invasive from entering the lake and leaving the lake.

c. Create species specific brochures. Create a map of where the AIS are in the area and how to help prevent the spread.

d. Place a notice sign stating that specific AIS are in the water. For example, "Zebra mussels are present in this lake. Take precautionary measures. Don't MOVE A Mussel." A sign when leaving that states, "Thank you for decontaminating your boat. You have helped stop the spread of zebra mussels to other lakes."

e. Develop a press release letting the public know that the invasive is spreading and we need to do something about it.

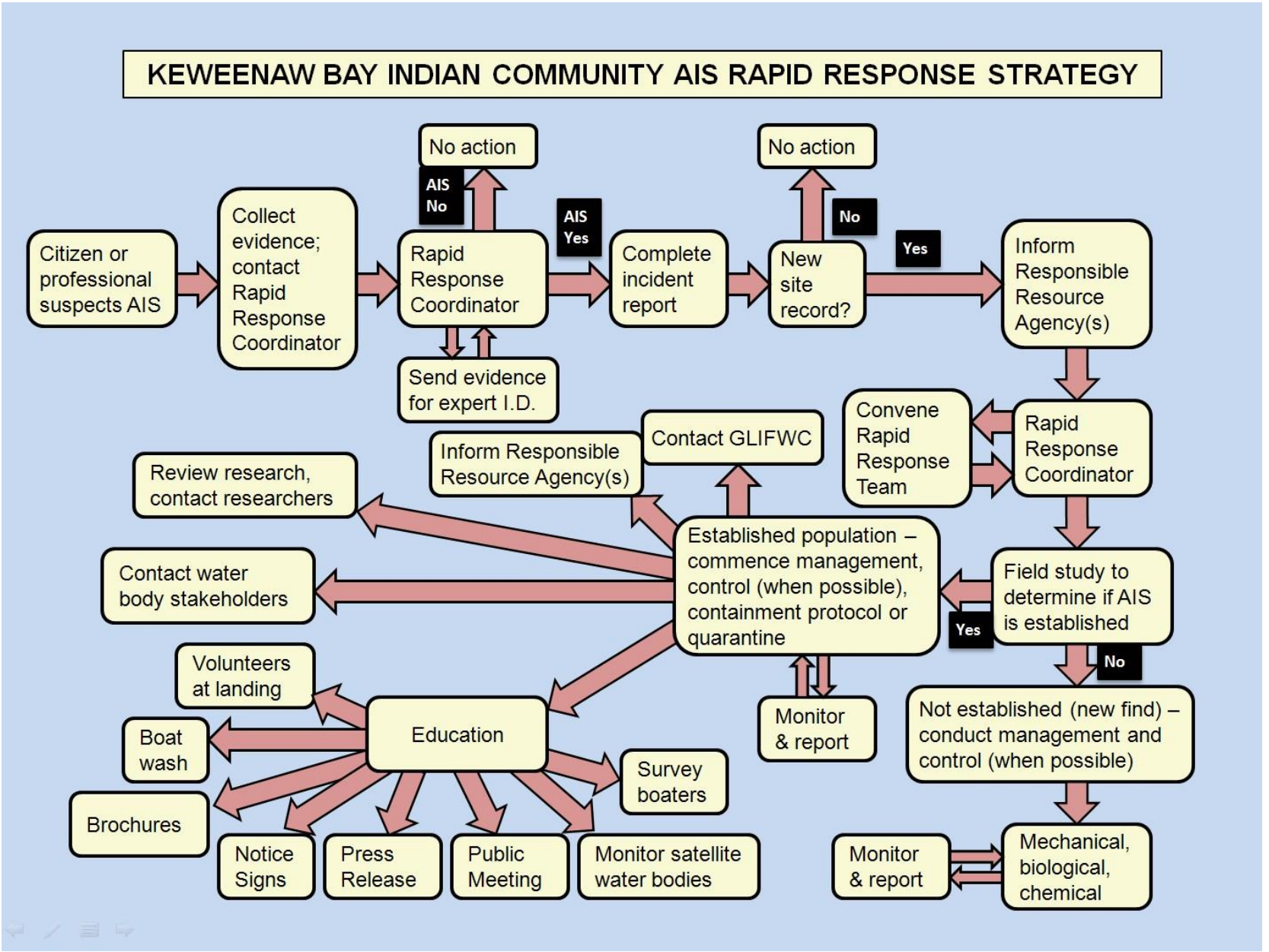
f. Conduct a public meeting for education, dealing with whether anything that can be done and addressing issues of how to help stop the spread of AIS.

g. Monitor satellite lakes – lakes in the area that maybe the same boat owner would frequent. Determine if those lakes have public boat accesses and if water chemistry allows for certain AIS. For example, determine if calcium levels are high enough to maintain a population of zebra mussels.

h. Survey boaters to see where they travel with their boats and if they are educated in watercraft inspections and decontamination procedures.

i. Determine a management plan and get proper permits and permission to begin when needed.

j. Document the response effort with pictures and routine reports.


KEWEENAW BAY INDIAN COMMUNITY AIS RAPID RESPONSE STRATEGY
Citizen or professional suspects AIS
Collect evidence; contact Rapid Response Coordinator
Rapid Response Coordinator
AIS No
No action
AIS Yes
Send evidence for expert I.D.
Complete incident report
New site record?
No
No action
Yes
Inform Responsible Resource Agency(s)
Rapid Response Coordinator
Convene Rapid Response Team
Contact GLIFWC
Inform Responsible Resource Agency(s)
Review research, contact researchers
Contact water body stakeholders
Established population – commence management, control (when possible), containment protocol or quarantine
Field study to determine if AIS is established
Yes
No
Monitor & report
Not established (new find) – conduct management and control (when possible)
Volunteers at landing
Boat wash
Brochures
Education
Survey boaters
Notice Signs
Press Release
Public Meeting
Monitor satellite water bodies
Monitor & report
Mechanical, biological, chemical

Appendix F
Aquatic Invasive Species and Their Possible Control Methods

Common Name	Possible Treatment/Control Method*
Alewife	N
Asian carp (bighead, silver, black and grass)	N
Asian clam	N
Bloody red shrimp	N
Brazilian waterweed	Ma, Me, C
Brittle water nymph	Ma, Me, C
Chinese mitten crab	Ma, Me
Curly-leaf pondweed	Ma, Me, C
Eurasian ruffe	N
Eurasian watermilfoil	Ma, Me, B, C
European frogbit	Ma, Me
Faucet snail	N
Fishhook water flea	N
Flowering rush	Ma, Me, B
Hydrilla	Ma, Me, C
Mystery snails (Chinese, Japanese and banded)	N
Narrow-leaved cattail	Ma, Me, C
New Zealand mudsnail	N
Parrot feather	Ma, Me, C
Purple loosestrife	Ma, Me, B, C
Quagga mussel	Ma, Me, C
Rainbow smelt	N
Red swamp crayfish	Ma, Me
Reed manna grass	Ma, Me, C
Round goby	N
Rusty crayfish	Ma, Me
Sea lamprey	Me, C
Snakehead	N
Spiny water flea	N
Starry stonewort (algae)	Ma, Me, C
Threespine stickleback	N
VHS	N
Water chestnut	Ma, Me
Water hyacinth	Ma, Me, B, C
Water lettuce	Ma, Me, B, C
Yellow floating heart	Ma, Me, C
Yellow iris	Ma, Me, C
Zebra mussel	Ma, Me, C

* Treatment methods include: **Ma –** Manual, **Me –** Mechanical, **B –** Biological, **C**- Chemical (used as a last resort), and **N –** No known treatment.

Appendix G
Aquatic Invasive Species and Supplementary Management Resources

Table 1. Aquatic Invasive Species and Supplementary Management Resources—AIS Present in 1842 Ceded Territory.

Michigan, Wisconsin and Minnesota each have statewide management plans for invasive species. For species in the table that do not have specific management or response plans, see the state plans for guidance. Links for these plans are provided below.

Michigan: *Michigan's Aquatic Invasive Species State Management Plan 2013 Update* and *Response Plan for Aquatic Invasive Species in Michigan.*
Wisconsin: *Wisconsin's Comprehensive Management Plan, To Prevent Further Introductions and Control Existing Populations of Aquatic Invasive Species.*
Minnesota: *A Minnesota State Management Plan for Invasive Species.*
Lake Superior: *Lake Superior Aquatic Invasive Complete Prevention Plan.*

Common Name	**Supplementary Resources**
Alewife	Alternative Strategies for the Management of Non-Indigenous Alewives in Lake St. Catherine, Vermont
Asian clam	Plan to Contain and Eradicate the Infestation of the Invasive Species Asian Clam in Lake George; U.S. Fish and Wildlife Service Fisheries Department eDNA website.
Curly-leaf pondweed	
Eurasian ruffe	Ruffe Control Program
Eurasian watermilfoil	Statewide Strategic Plan for Eurasian Watermilfoil in Idaho
Faucet snail	
Flowering rush	Biology, Ecology and Management of Flowering Rush (*Butomus umbellatus*)
Mystery snails (Chinese and banded)	
Narrow-leaved cattail	
Purple loosestrife	Purple loosestrife (*Lythrum salicaria*) in the Chesapeake Bay Watershed: A Regional Management Plan
Quagga mussel	Quagga-Zebra Mussel Action Plan for Western U.S. Waters
Rainbow smelt	
Round goby	
Rusty crayfish	
Sea lamprey	
Spiny water flea	A Strategic Plan to Address Spiny Water Fleas in the Northern Lakes Region
Threespine stickleback	
VHS	Emergency Prevention and Response Plan for Viral Hemorrhagic Septicemia
Yellow floating heart	Wisconsin Department of Natural Resources Response to Yellow Floating Heart and Red Swamp Crayfish
Yellow iris	Wisconsin DNR Yellow Iris Literature Review
Zebra mussel	Quagga-Zebra Mussel Action Plan for Western U.S. Waters

Table 2. Invasive Species and Supplementary Management Resources—AIS On the Horizon.

Common Name	Supplementary Resources
Asian carp (Bighead and Silver)	MDNRE Proposed Plan for the Prevention, Detection, Assessment, and Management of Asian Carps in Michigan Waters
Bloody red shrimp	
Brazilian waterweed	Wisconsin DNR Brazilian Waterweed Literature Review
Brittle water nymph	Wisconsin DNR Brittle Water Nymph Literature Review
Chinese mitten crab	National Management Plan for the Genus *Eriocheir* (Mitten Crabs)
European frogbit	Wisconsin DNR European Frog-bit Literature Review
Fishhook water flea	
Hydrilla	2014 Cayuga Lake Watershed Hydrilla Management Plan, Progress Report for Marinette County Hydrilla Rapid Response Project
New Zealand mudsnail	National Management and Control Plan for the New Zealand Mudsnail
Parrot feather	Wisconsin DNR Parrot Feather Literature Review
Red swamp crayfish	Wisconsin Department of Natural Resources Response to Yellow Floating Heart and Red Swamp Crayfish
Reed manna grass	
Snakehead	National Control and Management Plan for the Northern Snakehead (*Channa argus*)
Starry stonewort (algae)	A Decade of Starry Stonewort in Michigan: Observations and Operational Management Considerations
Water chestnut	Water Chestnut (*Trapa natans*) in the Chesapeake Bay Watershed: A Regional Management Plan
Water hyacinth	Wisconsin DNR Water Hyacinth Literature Review
Water lettuce	Wisconsin DNR Water Lettuce Literature Review

Appendix H
Example Incident Forms

State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Aquatic Invasive Animal Incident Report

Form 3200-126 (R 02/10)

The purpose of this form is to notify DNR of a new species of AIS in a waterbody. Only use if you found an aquatic invasive species on a lake where it hasn't been found previously.

To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/lakes/ais.

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Open Records laws, ss. 19.32 - 19.39, Wis. Stats.

Primary Data Collector

Name	Phone Number	Email

Monitoring Location

Waterbody Name	Township Name	County	Boat Landing (if you only monitor at a boat landing)

Date and Time of Monitoring or Discovery

Monitoring Date	Start Time	End Time

Information on the Aquatic Invasive Animal Found (Fill out one form for each species found.)

Which aquatic invasive did you find? ☐ Zebra Mussel ☐ Quagga Mussel ☐ Spiny Waterflea ☐ Freshwater Jellyfish
☐ New Zealand Mud Snail ☐ Banded Mystery Snail ☐ Chinese Mystery Snail ☐ Rusty Crayfish ☐ Red Swamp Crayfish

Where did you find the invasive animal?

Latitude:	Longitude:

Measurements from where the invasive was found (optional)

Water Temperature Degrees F / Degrees C (circle one)	Dissolved Oxygen (mg/l)

Estimated percent cover in the area where the invasive was found (optional)

Substrate cobble, %	Substrate muck, %	Substrate boulders, %	Substrate sand, %	Bottom covered with plants, %

If you found Zebra Mussel(s)

Water depth where Zebra Mussels were found _____ Feet / Meters (circle one) | Total Number of Zebra Mussels Found _____

What were the Zebra Mussels attached to?

☐ Dock/pier ☐ Dam ☐ Rocks ☐ Plants ☐ Boats or Gear ☐ Plate Sampler(s) ☐ Logs, acorns, pine cones or other woody structure
☐ Other: _____

Size of Largest Zebra Mussel Found	Size of Smallest Zebra Mussel Found (individual measurements on back of page)

Voucher Sample

Did you collect a sample (voucher specimen) and bring it to your local DNR office? If so, which office?

☐ Rhinelander ☐ Spooner ☐ Green Bay ☐ Oshkosh ☐ Did not take sample to a DNR office
☐ Fitchburg ☐ Waukesha ☐ Eau Claire ☐ Superior ☐ Other Office: _____

Please collect up to five specimens and bring a copy of this form, along with the sample and a map showing where you found the suspect invasive species to your regional AIS or Citizen Lake Monitoring Coordinator at the DNR.

While field collecting, specimens can easily be kept alive in a bucket or other container with just about 1/2 inch of water in the bottom. Freeze specimens at the end of the day in a ziploc bag without water. If freezing is not possible for a long period of time preservation in rubbing alcohol (except for Jellyfish - leave fully in water) is sufficient.

For DNR AIS Coordinator to fill out

AIS Coordinator or qualified field staff who verified the occurrence: _____

Statewide taxanomic expert who verified the occurrence: _____
(for list see http://dnr.wi.gov/invasives/aquatic/whattodo/staff/AisVerificationExperts.pdf)

Was the specimen confirmed as the species indicated above? ☐ Yes ☐ No	If no, what was it?
Museum where specimen is housed: _____	Museum Specimen ID:
Have you entered the results of the voucher in SWIMS? ☐ Yes ☐ No	

AIS Coordinator: Please enter the incident report in SWIMS under the Incident Report project for the county the AIS was found in. Then, keep the paper copy for your records.

State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Aquatic Invasive Plant Incident Report

Form 3200-125 (R 2/10)

The purpose of this form is to notify DNR of a new species of AIS in a waterbody. Only use if you found an aquatic invasive plant on a lake where it hasn't been found previously.

To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/lakes/ais.

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Open Records laws, ss. 19.32 - 19.39, Wis. Stats.

Primary Data Collector

Name	Phone Number	Email

Monitoring Location

Waterbody Name	Township Name	County

Boat Landing (if you only monitor at a boat landing)

Date and Time of Monitoring or Discovery

Monitoring Date	Start Time	End Time

Information on the Aquatic Invasive Plant Found (Fill out one form for each species found.)

Which aquatic invasive plant did you find?: ☐ Curly-leaf Pondweed ☐ Eurasian Water-milfoil ☐ Purple Loosestrife ☐ Brittle Naiad ☐ Hydrilla ☐ Brazilian Waterweed ☐ Yellow Floating Heart

Where did you find the invasive plant?

Latitude:	Longitude:

Approximately how large an area do the plants occupy?

☐ A Few Plants ☐ One or a few beds ☐ Many beds ☐ A Whole Bay or Portion of Lake
☐ Widespread, covering most shallow areas of lake ☐ Don't know (e.g. didn't check the whole lake)

Was the plant floating or rooted? ☐ Floating ☐ Rooted

Estimated percent cover in the area where the invasive was found (optional)

Substrate cobble, %	Substrate muck, %	Substrate boulders, %	Substrate sand, %	Bottom covered with plants, %

Voucher Sample

Did you collect a sample of the plant (a voucher specimen) and bring it to your local DNR office? If so, which office?

☐ Rhinelander ☐ Spooner ☐ Green Bay ☐ Oshkosh ☐ Did not take plant sample to a DNR office
☐ Fitchburg ☐ Waukesha ☐ Eau Claire ☐ Superior ☐ Other Office _____

Please collect up to 5-10 intact specimens. Try to get the root system, all leaves as well as seed heads and flowers when present. Place in ziplock bag with no water. Place on ice and transport to refrigerator. Bring samples, a copy of this form, along with a map showing where you found the suspect plants to your regional AIS or Citizen Lake Monitoring Coordinator at the DNR.

For DNR AIS Coordinator to fill out

AIS Coordinator(s) or qualified field staff who verified the occurrence: _____

Statewide taxanomic expert who verified the occurrence: _____
(for list see http://dnr.wi.gov/invasives/aquatic/whattodo/staff/AisVerificationExperts.pdf)

Was the specimen confirmed as the species indicated above? ☐ Yes ☐ No If no, what was it?

Herbarium where specimen is housed: _____ Herbarium Specimen ID: _____

Have you entered the results of the voucher in SWIMS? ☐ Yes ☐ No

AIS Coordinator: Please enter the incident report in SWIMS under the Incident Report project for the county the AIS was found in. Then, keep the paper copy for your records.