

**Final Report
On the Second Year of
Installation of the
Invasives Detection System
*Internet-Landing Installed Device Sensor
(I-LIDS)*
*At the Raquette Lake Launch Ramp***



**Submitted by
Kenneth B. Hawks, President
Raquette Lake Preservation Foundation (RLPF)
Formerly
Raquette Lake Property Owner's Association, Inc. (RLPOA)**

Disclaimer:

No Officer, Board of Directors member, or general member of the Raquette Lake Property Association, Inc, (referred herein as RLPOA), has any financial, or other involvement with Environmental Sentry Protection, LLC (referred herein as ESP). Note: RLPOA changed our name in 2013 to Raquette Lake Preservation Foundation (RLPF) in 2013. RLPOA will be utilized throughout this document.

Background:

Since 2003, RLPOA has conducted a proactive anti-invasives aquatic plant program. Prevention of infestation of the lake by invasive plants and fauna¹ has been the focus of our efforts. In early 2011, The Nature Conservancy, operating through the Adirondack Park Invasive Plant Program (APIPP), with funding from Covanta Energy, received a proposal from ESP to establish a boat launch invasives video surveillance monitor in the Adirondack region. During the late winter and spring of 2011, RLPOA volunteered and subsequently was selected to be responsible for the prototype installation of the *Internet – Landing Installed Device Sensor* (I-LIDS) as proposed by ESP. Installation was completed for the 4th of July weekend of 2011.

Introduction:

I-LIDS was developed in 2006 by ESP, a Minnesota Company concerned with the costs and effects of invasive aquatic plants on Minnesota's lakes and streams. I-LIDS is a tamperproof technology that can be stand-alone or used in conjunction with attendants. It continuously monitors boat launch activities, and with the optional solar power, is self-sufficient. Videos are recorded directly to a password-protected server on the internet and are available for later review. The camera is connected to the internet so a real time image is also available. A pre-recorded audio message can also be played when the camera is triggered by the movement of a person or vehicle on the launch ramp.

The goal of I-LIDS is to educate the boat launch users via signage, the recorded message, and the physical presence of the inspection camera and to prompt the boater to inspect their boat/watercraft, trailer, and tow vehicle and remove any plants found before launching and after retrieving their boat. It provides a tangible chronological record of the launching process. Most of the videos taken show the registration of the boat (except canoes and kayaks which are not registered in New York) and many include the license number of the towing vehicle.

The videos are of very good resolution, and are around 11 seconds in duration, with one or more minutes of refresh time between videos. The field of view is wide angle and covers a typical launch ramp. By password protecting the server, it is difficult for hackers to tamper with them, and it maintains a degree of privacy for the individuals who use the launch ramp.

In Minnesota and Wisconsin, it is illegal to transport or introduce aquatic plants from one body of water to another. The video evidence of a boater launching a boat with weeds hanging from it is *prima facie* evidence of a violation of the law. In localities with effective laws, videos are usually forwarded to a Sheriff's department for enforcement. For example, in Minnesota the

transportation of any aquatic plant is a \$100 fine; zebra mussels or prohibited aquatic invasive plants on a public road is \$250; the placing or attempt to place a boat or trailer with zebra mussels or prohibited aquatic plants into a body of water is a \$500 fine for the first offense. New York recently passed a law making the possession, sale or transportation of “invasive species” illegal in NYS, with a fine of \$250. The NYS Department of Environmental Conservation (DEC) is charged with promulgating regulations by September 2013.

Discussion:

The goal of the I-LIDS installation at Raquette Lake was to determine the measure of contribution that a video recording device and attendant recorded message would have on an ongoing and fairly comprehensive aquatic invasives prevention program in New York. A secondary objective was the evaluation of I-LIDS as a stand-alone, self-sufficient monitoring system for launch ramps where there is no steward present.

Currently, many lake associations in New York have an active educational program. Brochures, local newspapers, and signage are all used to inform the visiting boater of the potential harm caused by invasives aquatic plants and fauna. The ‘You are on video’ sign reinforces local concern for the waterway. Many associations have some form of monitoring process, either at the local marinas where there is no public launching facility, or at public launch sites to inspect watercraft as they are presented for launch. Some lakes charge \$50 to \$75 per day in launch fees, others require a mandatory steam cleaning prior to launch. Unless launch ramps are secured during hours when attendants are not present, there is no way currently to inspect boats being launched or recovered. I-LIDS can be used to fill this gap for aquatic plants prevention. It does not see into boats hulls (and few stewards look at live wells and bait wells), but does enable visibility of ‘green danglers’ and aid in the detection of zebra mussels attached to a boat’s hull. Most associations survey their lakes and educate their members on aquatic plant/fauna identification as a component of a detection and correction program. Frequent surveys of the lake near public launch areas are a must for a comprehensive program. Note – there is a misunderstanding that the transport of invasive plants is limited to motorized watercraft. A large infestation of variable leaf watermilfoil (VLM) is found at the end of the canoe carry into Brown’s Tract Pond outlet near 8th Lake. This is inaccessible to any type of motorized craft.

RLPOA has an active, four phase aquatic invasives prevention program consisting of education, prevention, detection, and remediation. We started with an educational program conducted by the APIPP and the Hamilton County Soil and Water Conservation District (HCSWD). Our members survey almost 90 miles of shoreline each year, and we have had boat launch stewards for several years at the main public boat launch ramp. This facility is owned by and recently upgraded by the Raquette Lake Supply Company.

Our vision in taking on I-LIDS was to reduce the risk of infection during the hours when no attendant is present. We can not afford the cost of attendants at all the launch sites on the lake for all of the times when users might want to launch a watercraft. Fishermen like to get on the water early. Families like to stay as long as they can, often to include cooking dinner on a remote beach, and then heading home at dark. I-LIDS did provide a view into who was using the ramp before and after the stewards were on duty by providing coverage from dawn to 7AM and 4PM to dark.

Since the boat launch ramp is directly in front of the Raquette Lake Supply Company store, everyone living in Raquette Lake and all the summer residents have to pass by it to get groceries, pick up their mail, buy gas, etc., in the village. In addition, the WW Durant dinner and tour boat is moored a short distance away. All of this caused a large volume of foot traffic at the launch ramp and a near constant flow of questions to the stewards during peak season. It also created a significant volume of videos with just legs in them.

Acceptance by the public has been very good. At first many of the local folks feared that the videos would show the entire village and were going to a “Facebook” like internet site. The fear was that the ‘block parties’ held on various holidays would be used by law enforcement to watch who was drinking, etc. After showing a few key players the actual videos, and providing the assurances that the videos were password protected, the rumors died along with the objections. The visiting public is still intrigued. Most folks take care of their boats and were happy to have them ‘recorded’. A comment box was established, but no written feedback on I-LIDS has been received. There was concern about the possibility of vandalism in the beginning, but outside of one person placing a hand over the lens for a minute or two, one putting a board in front of it for a short while, a small child placing their nose against the glass, and one dog starting to ‘stake out his territory’ until the recording activated and scared him away, there were no problems. The I-LIDS casing is thick stainless steel and very strong. That coupled with the depth and size of the rebar underground framework, make it very substantial. ESP states it has survived hits by tow vehicles at other locations.

Before the start of the boating season of 2012, we sat down and examined our lessons learned from 2011 and held discussions with the Watershed Stewardship Program at Paul Smith’s College (PSC). Several things were decided upon.

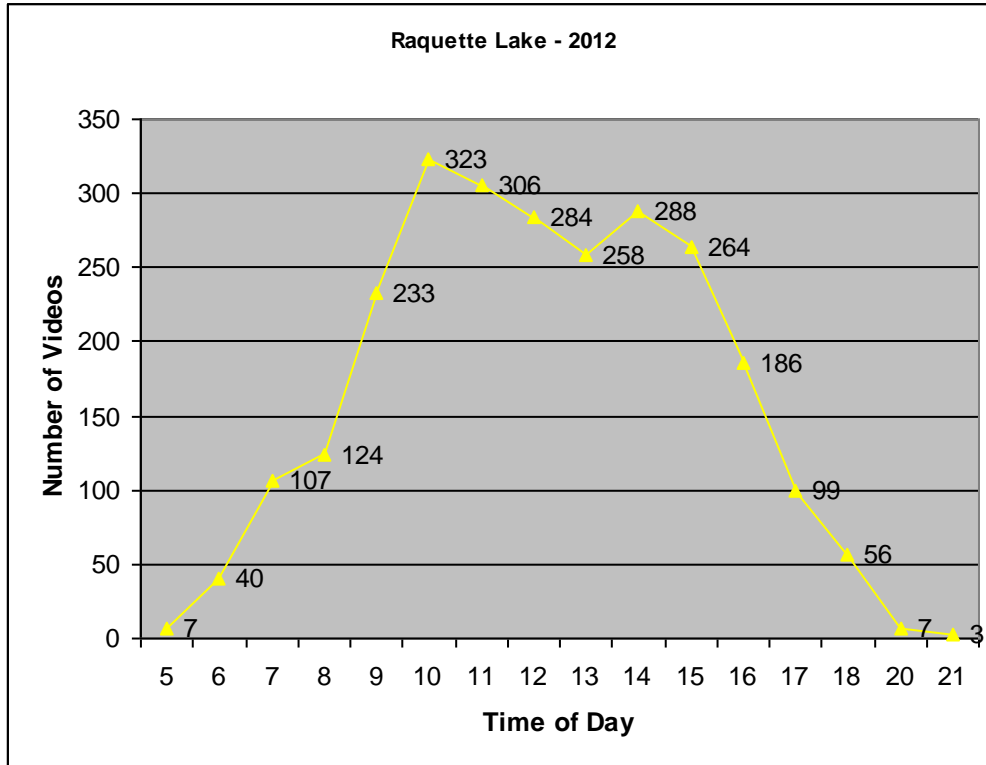
To ensure the videos would be reviewed in a timely manner, the PSC stewards were tasked to review the videos each day. In theory, this would provide same day review of the morning (5AM to 7AM) videos, and timely review of the previous evening’s videos. It would also allow self check for the videos recorded during a duty shift. In practice it wasn’t quite as envisioned. ESP has a large number of I-LIDS all reporting to a server as they record the individual boat launches across their customer base. Since the videos have to be password protected, and addressed by specific launch location, a software routine runs periodically, and assigns the videos into a directory specific to a particular location and assigns a date stamp and file designation. This allows RLPOA to access Raquette Lake videos only, and not videos from Wisconsin for example. This creates an inherent lag in the time from when a video is actually taken to the time it is available to be reviewed. Once the stewards got used to the times, it became a minor issue to their video reviews. If the viewer is only concerned with spotting “green dangles” and reporting them to an Environmental Conservation Officer (ECO) for enforcement, days of lag time are acceptable. If the viewer is looking for a specific trailer with “green dangles” to clean them off, timeliness can play an important part. The stewards were able to review the videos during slack periods during their shifts. This greatly reduced the cost for I-LIDS support from ESP. We only paid for server usage, and not the labor to review 3,100+ videos and write reports on them.

The I-LIDS needs a solid connection with the internet to function as an active participant in boat launch reviews. Our most computer knowledgeable member lives 6+ miles by water from the launch ramp. During 2011, he made 10+ trips to troubleshoot 'off-line' issues. At \$5+ a gallon and around 5 miles per gallon for gas, it was expensive. Part of the reason for this was the WI-FI drop in the store had numerous users and it saturated at times. Free in this case was not without cost. The RLPOA board of directors decided to pay for a dedicated (home) phone with a Digital Subscriber Line (DSL) connection. It soon proved that we needed a dedicated Internet Protocol (IP) address for I-LIDS. This required the DSL portion to be a business listing, with an attendant increase in cost. However, with the upgrade to a dedicated IP address, once the I-LIDS was up and running, we had *no* issues with it being visible on the internet all summer.

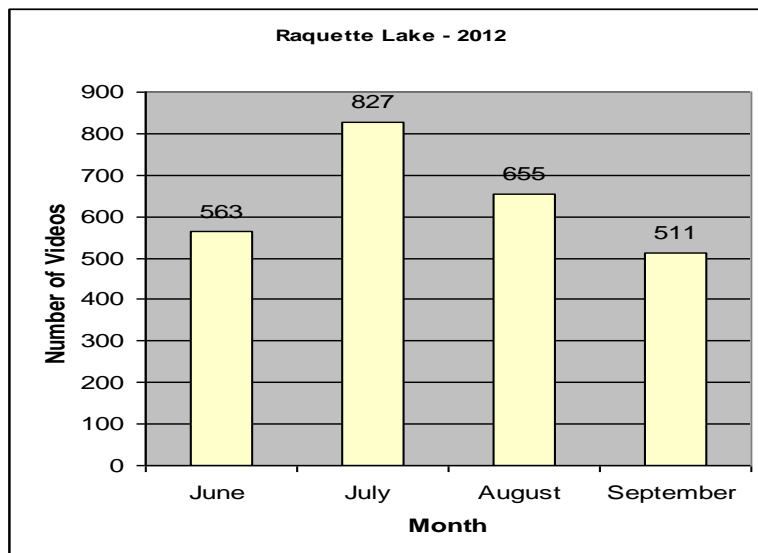
In cooperation with PSC, a column to record the video file number was added to the forms the stewards used to document Launches/Retrieves. Since the form had to be coordinated with the Federal Environmental Protection Agency (EPA) it was a non-trivial task. Our thanks to PSC for making this possible. There are several features of the Raquette Lake environment that made correlation difficult between the stewards' records and the I-LIDS videos. One major influence is the inspection of watercraft away from the launch ramp. Very few boaters (and stewards) inspect their rigs on the ramp. It is done in other areas and by the time the rig is backed (or carried) down the launch ramp it has been inspected and offending "green dangles" have been removed. Thus I-LIDS is reviewing a cleaned rig. The second feature is the launch ramp is located in front of *the* store in the village and it is adjacent to the only public use dock. Thus the 250 camp owners who are water access only, have to go by the ramp to get their mail, papers, groceries, etc. In addition, the only gas pump adjoins the ramp. Needless to say, the area gets a great deal of walking traffic on any given day. This results in a large number of "legs" videos and videos of folks just looking at the lake. In some instances the 'legs' trigger the camera and prevent the recording of a launch or retrieve by blocking the view of the watercraft. There are however, several videos showing the stewards inspecting rigs on the launch ramp.

2012 Statistics:

At the village launch ramp, from the first week in June to the second week in October, there were 3,111 videos recorded. There were 855 motorboats inspected by stewards at the village launch ramp. I-LIDS recorded 506 motorboat launches/retrieves while stewards were on duty. 349 motorboat launches/retrieves were not recorded. Power outages, DSL modem resets, etc., contributed to this gap. 204 motorboat launches/retrieves were recorded while no steward was on duty.



The number of videos by time of day, reflect the utilization rate of the launch ramp. Noon time is a heavy traffic time as is later in the afternoon. With the large number of camping sites only accessible by water, the launch/retrieval rate being high in the afternoon makes sense.



Notice that there are almost as many videos taken in September as in June. The significance of this is that there are no stewards present at the launch ramp in September. Thus I-LIDS is the only sentinel observing the launches into and the retrievals from the lake.

For the entire season, I-LIDS recorded 9 plants attached to boats or trailers. Only once was there a plant dangling from a trailer axel on a retrieve where the steward's record did not record the finding of a plant. There were 4 occasions where plants were shown on the video, but no steward was present. The other 4 plants shown on video were spotted and documented by the steward on duty.

Boat owners or the stewards cleaned off 86 plants on watercraft entering Raquette, and 74 leaving. Adding in the RLPOA volunteer data shows a total of 2,722 watercraft inspected during the 2012 season, with 97 plants found on entry and 83 on leaving. Invasive plants found and identified by all stewards/inspectors included bladderwort, water chestnuts and milfoils; accounting for 71 'saves'. A 'save' is the prevention of invasive plant material into Raquette on a launch inspection or the prevention of plant material from Raquette being introduced to some other lake on a retrieve. Additionally, there were 37 plants found and removed that were classified as 'other'. The remainder were classified as grass.

Recommendations/Conclusions:

I-LIDS works as advertised and is an effective component of a program to detect the potential introduction of invasive plants into a water body. The Raquette Lake installation is probably not the most optimal location to show off I-LIDS capabilities due to the large volume of foot traffic.

It does capture videos and retain them as a historical record. Because of its viewing angle, it can catch some plants on the underside of trailers and tow vehicles. Often the registration number of the watercraft is identifiable, as is the license number of the tow vehicle.

The signage does get folks attention. The first year many folks wanted to know if they were on "U-TUBE", "Facebook" or similar. This year they noted and accepted the recording. The presence of the I-LIDS 'fireplug' is a deterrent, especially if the sound is turned on. The recorded notice gets attention on an unmanned ramp, and adds to the effect that 'someone is watching' this launch/retrieve.

The determination by the New York State Department of Conservation that launch ramp videos are an "invasion of privacy" should be re-examined, especially now that there is a law prohibiting the transportation of invasive plants/fauna.

Acknowledgements:

Mr. Pat Deyle, Vice President, and Chairman of the Invasives Committee, RLPOA, was the spark plug and coordinator behind the I-LIDS effort.

Mr. James Dillon, Raquette lake Supply Company, for his overall support of RLPOA's invasive prevention program, and for letting us monitor his launch ramp, providing the electricity, and helping run the new telephone cable under the floor of the store.

Dr. Eric Holmlund and Kathleen Wiley, Paul Smith's College, were very supportive of our efforts, and as the providers and supervisors of the three launch stewards, were critical to making the summer of 2012 a success.

Ms. Hilary Smith and Meghan Johnstone, APIPP, were critical to the initiation of the effort and successful securing of the grant monies.

Mr. Eric Lindberg, President, ESP LLC, has been very responsive to our requests including figuring out how to get the DSL protocols up and running, while working from Minnesota.

Covanta Energy for providing the grant funds in 2011 and their commitment to a better environment via their community outreach programs; and to The Nature Conservancy for cost-sharing operational support in 2012.

Mr. Mike Burke and MS. Nora Burke for their overall support of RLPOA's invasive prevention program, for letting us monitor their launch ramp, and power washing contaminated boats at no cost to the visitors.

ⁱ Fauna as used in the context of this report includes invasive fish, e.g. snakeheads; microbes, e.g. VHS; invertebrates e.g. Zebra Mussels; etc., i.e. members of invasive animal life in general.