Burnett County Lakes and Rivers Association

2007-2008 Video Launch Monitoring Summary

Environmental Sentry Protection, LLC

Background

In December of 2006, the DNR approved a 2 year AIS Education and Prevention grant for the Burnett County Lakes and Rivers Association (BCLRA). This grant leveraged traditional CBCW practices as well as new tools such as continuous monitoring (I-LIDS), and educational materials distributed to bait stores in a multi pronged effort to stem or prevent the advance of invasives into these lakes. By focusing on several lakes across the county, the project was designed to pilot a new tool to influence the behaviors and attitudes of lake visitors to clean their boats and take ownership for their part in preventing infestation of AIS into lakes.

A key part of this grant was the automated monitoring of 7 boat launches on five lakes in Burnett County (Johnson, Lake 26, Mud Hen, Big Wood, and Yellow Lake (3 launches)). The monitoring equipment is manufactured, installed, and maintained by Environmental Sentry Protection, LLC (ESP). The 5 lake associations, BCLRA, Burnett County, and ESP committed to providing 50% of the resources for this project through a combination of volunteer effort, resources, and payments.

Project goals and objectives

1) Develop and present educational information to fishermen visiting bait stores
2) Identify a clear AIS cleanoff zone at each launch
3) Educate visiting boaters on procedures that they should follow to clean their boats
4) Install I-LIDS to capture launch usage statistics
5) Determine compliance of visitors with removal of AIS prior to launching
6) Evaluate how effective a monitoring tool is in ensuring visitors follow procedures
7) Identify specific boaters who violate laws regarding transport of AIS

The main goals of the program are to:

1) Reduce the risk of AIS introduction into these lakes through a continuous presence, education, and modifying boater behaviors with respect to launching aquatic plants
2) Identify AIS violators who had attached weeds on their boat and trailer while launching.
3) Improve public education on AIS, including notifying violators of illegal launching

In 2007 over 6900 video sequences were captured from 5/5-10/18/07. In 2008 the video count increased to 13707, mostly due to implementation of Yellow Lake launch sites earlier in the season. This report provides a summary of the project, analysis of these videos, personal observations of dynamics at boat launches, and recommendations.

Project Conclusions

Several important conclusions can be drawn from the report that follows:

1. **Cleanoff behaviors improved through a combination of education, enforcement, and ongoing monitoring. The I-LIDS complemented other resource efforts from the DNR (Clean Boats/Clean Waters, billboard, radio spots, group checks), County (AIS interns and group checks), and lake associations (volunteer efforts, local support, and education distribution).**
2. **There were multiple opportunities where residents received AIS education. For example Babe Wikelman allowed his image to be used for an Anti-AIS brochure that was distributed (along with a CBCW brochure) to numerous marinas and baitshops in the county. Other innovative education examples included 2 billboards in Burnett County, radio spots, a BCLRA Lakelines article (3500 dist), and four Burnett County Sentinel articles promoting AIS awareness.**
3. **This project galvanized interest from DNR, lake associations, Burnett county, retailers, and media to focus on preventing AIS introductions to lakes. In 2007, reactions to lack of enforcement required significant resource involvement from all participants to reach understanding. This resulted in the development of a county ordinance to address the weaknesses in state AIS "illegal-to-launch" laws. These achievements would not have occurred without communication, interest, and cooperation between all parties.**
4. **Enforcement in Burnett County views this project as highly leveraged ("minimal if any impact to our resources" Sheriff Dean Roland). Citations have been issued based on video evidence. The prospect of rewarding positive behaviors from the county is just as exciting to further influence behaviors.**
5. **The I-LIDS system was improved over the project to provide ongoing operation with less maintenance. There were isolated instances of vandalism but the system continued to operate as designed.**
6. **As seen on videos, people are increasingly aware of the need to clean off prior to launch. While a few boaters initially expressed displeasure in 2007, in 2008 it appears to have been largely accepted and boaters are more serious about cleaning. These observations are similar to those of human watercraft inspectors so it is difficult to attribute the positive results entirely to the I-LIDS.**
7. **Cost to implement ongoing monitoring is a fraction of the cost of deploying a paid person at the boat launch fulltime. The cost from the DNR for the project was roughly $41,000 and lake associations had costs of $11,200. During the course of the project there were over 23,000 hours of available daylight coverage at 7 launches. This worked out to about $2.26/hour. The seasonal cost per hour will drop below this when initial costs for setup are excluded.**
8. **Identifying peak usage trends by day and hour can help plan launch inspections. Power loading, cleanoffs, weeds on exit, draining of live wells and bilges, dumping of weeds and minnows were sometimes visible. The visibility depends on time-of-day, launch lighting, camera angle, and whether clean-off occurs at the launch site or in the parking lot or landing exit. This tool can identify behaviors to support other DNR clean lakes initiatives such as stopping VHS**

spread. It cannot see into livewells, bait buckets, etc., though. It is preferred to have an in-person inspection, yet it may be impractical to expect this will occur at a significant enough level to protect lakes at a regional scale. Complementing this with an automated tool provides a level of safety to inspectors in remote locations and daylight coverage of 2563 hours (May through October) per launch.

9. **The benefit of a Clean Boats Clean Waters program is that the watercraft inspector can remove or personally direct another to remove plants, animals, and/or water from boats, trailers, and equipment *before* launching. The I-LIDS of course cannot do this but does record the potential animal or plant introduction as an enforcement deterrent and can provide an audio clean-off reminder to the boater. An integrated approach of these methods can focus limited watercraft inspector resources at peak times and fill in gaps with automated monitoring when inspectors are not present at the launch.**

The spread of Aquatic Invasive Species is not inevitable. It is preventable. It is a risk that needs to be mitigated with the cost effective application of education and monitoring resources to influence new behaviors among lake users. The cost of prevention is a fraction of management cost and should be the preferred alternative. Applying resources in a containment strategy to counties where just a few infested lakes exist promises even a greater leverage of resources to protect Wisconsin waters.

Why Monitor? The Risk of New Aquatic Invasive Species

Wisconsin Lakes face threats from many varieties of AIS such as Eurasian watermilfoil, Hydrilla (newly discovered in Indiana, and Wisconsin), and Zebra Mussels which have been documented to primarily spread by attaching to weeds[1]. Residents of infested waters spend hundreds of thousands of dollars annually in the battle to manage these invasives once they are introduced to a body of water. Developing new methods to prevent the spread by reducing the risk of boaters spreading invasives is critical.

Project Elements (from Grant Application)

Education/Inspection Methods and Activities Used

1) **Signage and volunteers at peak times to educate boaters on AIS impact, identification, and clean-off procedures.**
   Signage was developed as shown in Appendix A and posted at all launch sites. Additionally, Lake 26 utilized 2 additional signs to call attention to the I-LIDS. Lakes performing volunteer monitoring in 2007 included Johnson Lake, Lake 26, and Big Wood Lake.
2) **Designate clean off zone prior to and after launch.**
   An I-LIDS viewing zone was established at each launch by virtue of the angle that the camera was pointing and posting a sign that could be read prior to a boat launching.
3) **Placing a monitoring device at the base of the landing to record launches on a remote server**
   A dedicated I-LIDS was placed at each launch site both seasons. Video sequences were uploaded from all sites.
4) **Provide a weed storage can for placement of aquatics prior to launch**
   A weed "depository" was installed at each launch where boaters could deposit weeds to prevent runoff into the lake. It was designed as a small mesh cylinder that wouldn't encourage disposal of trash. These depositories were not installed until the second year of the project, but once installed there was evidence of obvious use. It was discovered the mesh will need additional support to stand upright for the entire season.
5) **Develop and distribute AIS educational material at county bait shops**
   In 2008, 10,000 Babe Winkelman endorsed anti AIS pamphlets with county lake maps were designed, produced, and distributed to bait shops, marinas, restaurants, and resorts around Burnett County. Positive news stories on the use of the I-LIDS appeared in the Grantsburg Sentinel on 4 separate occasions. A Burnett County Lakes and Rivers newsletter went out to 3500 households.

[1] "Overland Dispersal of Aquatic Invasive Species: A Risk Assessment of Transient Recreational Boating" Johnson, Ricciardi, Carlton – 2001 Ecological Society of America

Description of project products or deliverables

1) **Clean Boats/Clean Waters training** for volunteers was conducted by the DNR in Spooner and promoted to the project participants who were well represented. An onsite CBCW training was conducted at Johnson Lake that ESP supported. At project meetings lake people were often encouraged to schedule volunteer monitors. Detail of each lakes effort to perform inspections is described below.
    a. **Johnson Lake:** In 2007 a CBCW training session was held at the launch for lake volunteers. There were a significant number of hours of volunteer inspections in 2007. In 2008 the amount of volunteer time dropped to 70 hours due to lack of follow through from the assigned organizer to coordinate volunteers and residents losing enthusiasm.
    b. **Big Wood Lake:** A letter soliciting volunteer inspectors at the boat launch went out in 2007 to every resident on the lake. There are a lot of older people which presumably have time. There were responses from only 2 people. In 2007 the president spent about 40 hours down at the launch after having gone through CBCW training. In 2008 he spent about 10 hours. He did note: "We talked with 47 boaters and there has been a night and day attitude with respect to cleaning weeds. There is great awareness because of the I-LIDS on Big Wood Lake." There's no trouble getting people to help with fund raising with monetary support more available than volunteers.
    c. **Lake 26:** In 2005 and 2006 Lake Twenty Six received AIS prevention grants for $3500 (2005) & $2800 (2006) under the CBCW program. Approximately 476 hours were spent monitoring the boat ramp in 2005 from May through September by four paid and trained monitors. Fifty five (55) Lake Association members worked as volunteer ramp monitors in 2005. There were more than 100 hours involved in managing and training by Bill Dorgan for the CBCW effort. In 2006, a similar monitoring effort and schedule followed, however it was more difficult to get volunteers in 2006. Reasons included women being uncomfortable at the remote park access and boaters who were difficult to deal with or wouldn't talk to the monitors. There were a limited amount of volunteer monitors for 2007 / 2208 as part of the I-LIDS project despite the importance of volunteer inspections being expressed to residents from ESP at association meetings in 2007 and 2008. The lake could not sustain more than modest volunteer monitoring in 2007/2008 given past experiences and did not have funding for paid monitors.
    d. **Yellow Lake:** The president personally made an attempt to speak with every resident on the lake to build the association participation. This was successful in increasing membership to 250 homes around the lake. AIS prevention was a key topic discussed at the 2007 meeting but there was no success in getting people to volunteer to perform inspections. The association has had success with raising money for other lake projects and may be a candidate for paid inspectors at peak times.
    e. **Mud Hen Lake Park and Rec District:** As part of this monitoring project, 2 people went to CBCW training in Spooner in 2007. That spring, district members were asked to volunteer to perform inspections at the launch and to review videos as part of their volunteer effort. Several people agreed to do inspections as a complement to the automated monitoring project. 50 hours

were spent at the launch each year in 2007 and 2008 doing boat inspections and maintaining the park when boaters weren't present.

Monitoring Hours (excludes video review)						
	Report Date					
Lake	**6/5/2007**	**8/24/2007**	**1/7/2008**	**7/7/2008**	10/15/2008	**Total**
Johnson	116	6	75	50	50	**297**
Mud Hen			27	39		**66**
Big Wood	15.5		68.75	4.5		**88.75**
Lake 26			24	14		**38**
Yellow Lake			0			**0**

2) **Data from monitoring systems regarding launch usage** was available to all project participants as video data was collected to identify trends for peak usage of lakes to more effectively schedule volunteer inspectors. Further analysis of usage trends has provided graphs of peak periods and times as shown in **Appendix C.**
3) **Capture of date/time/video of boat launches** was performed for all captured videos.
4) **Association monitoring** of videos improved due to performance enhancements to the website that allowed for rapid availability after events, immediate playback, and skipping of false positives. Most lake associations were prompt in their review of the videos looking to identify potential violators. Due to large volumes of video capture on Yellow Lake, there was some delay in getting these videos reviewed. By the end of the project all videos will have been reviewed.
5) **AIS Violation evidence** that can be used for investigation or issuance of citation of violators of AIS launch laws was identified amongst the videos captured. See Appendix B. There were 11 violations documented to either DNR enforcement or the Burnett County Sheriff in 2007 which were not cited due to the interpretation of the existing Wisconsin State AIS law. In 2008 Burnett County developed a county "Illegal to Transport" ordinance which held the registered boater responsible for any aquatic or terrestrial plants observed being launched into a body of water or transported on a county highway. There have been 2 citations and one warning issued based on this ordinance and video evidence captured so far. 4 additional suspect AIS violations were in process as of this report.
6) **Increase awareness of I-LIDS and AIS clean-off importance to boaters at landing areas**. Boaters were made aware of the I-LIDS devices and AIS clean-off importance in several forms. The large sign reminded boaters to inspect their boats and notified them that boats were being video inspected. The impression made by the stainless steel I-LIDS was significant as well. We know that there was increased awareness of the I-LIDS devices themselves due to people observed on video reading the sign and inspecting them.
7) **Recording of registration numbers to track** multiple violators was done over 2 years.
8) **Water testing** was not performed.

Project Implementation

There were several steps involved in getting the launch sites ready to be used.

Site Design

A review of all sites was made to determine the optimal location for I-LIDS placement. Factors for placement included proximity to a power source, a viewing angle that would show launches going into the water, an angle of view away from direct sun if possible, and accessibility to WAP connectivity. The Yellow Lake implementations took a longer time in 2007 for implementation due to a requirement for power to be provisioned at each launch and development of a wireless network across a 3 mile span.

Approval

Requests were made and permission was obtained from Burnett County and relevant townships for permission to install footings and operate cameras.

I-LIDS Equipment

Stainless steel housings, circuit boards, and cameras were designed, ordered, and built.

Signage

A design was submitted, approved, was produced and installed at all sites. Lake 26 developed additional signage in response to this project. **See Appendix A.**

Wireless Access Points (WAP)

Radio's providing wireless access points were installed at all sites. Local resident resources were identified that would allow for a radio to be attached to their network and the infrastructure was put in place to provide secure wireless connectivity to the boat ramps. In 2008, lightning impacted 3 of the Wireless antennas: 2 on Yellow Lake and one at Johnson Lake. A new vendor for antennas was implemented in year 2 to provide greater reliability and a 3 year warranty. Additionally, a lightning arrestor was configured where appropriate.

Installation of Footings

Most launch sites had helical piers installed to which the I-LIDS would be mounted. These piers consisted of 8' long pipes, screwed into the ground, upon which footing plates were welded. Thereafter the I-LIDS could be attached and removed seasonally with tamper resistant bolts and caps. This footing design represented an improvement in strength to previous concrete footings.

Configuration and Installation

I-LIDS were deployed to the footings and configured to the network so that they would automatically transmit videos of launches across the Internet to remote servers. User passwords were established on the website so that project participants could log into the system.

Weed Disposal Bins

For people coming to the boat launch that cleaned off at the lake, a cylindrical bin was designed to hold these plants. This happened mid-summer during the second year of the project.

Educational Brochure

A wallet size takeaway was designed that leveraged Babe Winkelman as a nationally known fishing spokesman showing the impact of AIS to fishing. To have the audience retain it, a map of Burnett County lakes was designed and put on the back of the brochure. 5,000 of these pieces were produced and distributed at area marinas, stores, and bait shops.

Violation Identification and Enforcement Process

Responsibility for review of the captured videos was shared between ESP, Lake Association volunteers, and County staff. As of the end of the project, ESP has reviewed every video that was captured by I-LIDS over the two years. In the process of reviewing the videos, false positives were deleted in order to obtain more meaningful data for launch activities. In 2007 the potential violations were forwarded to DNR Enforcement in Spooner (Dave Zebro). Initially the wardens did not have all the ideal tools (software/laptop displays) to view the videos with maximum resolution available. After this issue was overcome, questions arose as to the degree of the violation and whether there were obstacles in the existing State Illegal to Launch statutes that would prevent these suspect violations from being prosecutable in court. It was decided by DNR enforcement to issue verbal warnings to these boaters in 2007. Based on the interest of the county in issuing citations in 2008, a county ordinance was enacted to hold registered boaters liable for any weed seen on their boat being launched into a body of water. Under expanded authority the DNR conservation officers offered to work with the county to enforce this new ordinance based on time available and workload priorities. The process for investigation and prosecution for these suspect violations was:

1. Lake Association or County or ESP would use the web interface to the video database to identify suspect violation and record date/time/launch and notify ESP via email
2. ESP would review the reported suspect violation in original MPEG4 resolution with Apple's Quicktime player on high resolution monitor and if it appeared a violation had taken place would forward MPEG4 video to the Burnett County Conservationist (Dave Ferris).
3. Dave Ferris would review this video to concur that it was a plant, and therefore a violation and review this with the Deputy assigned to investigate (Josh Henry).
4. The Deputy would then determine whether he agreed with ESP and Conservationist, and whether the registration number on the boat was current and valid. If there was agreement, a citation would be issued by Burnett County to the registered boat owner.

Launch Statistics

The data in the table show nearly twice the number of videos and more launches for Yellow Lakes. In 2008 there was an earlier start which accounted for increased launches. There were more false positives due to clouds and lightning on Yellow Lake launches since the cameras were powered. Later in the season sensitivity settings on these cameras were adjusted to reduce the video count. Measuring violations as a percentage of launches, it can be seen that this was reduced by 33% season over season. This corresponds with the increased number of clean-offs observed. It is interesting to see violations reduced on Big Wood and Lake 26 year over year. According to the WDNR Lake and River Management Coordinator, these data are similar to results observed on lakes that have had multi-year watercraft inspection efforts.

2007 BCLRA Launch Statistics

Launch	2007 Period	Weeks	Launches	Pullouts	Visits	Videos	Launches per week	Potential AIS Violations	% Violations Launches
Johnson Lake	5/5-9/30	23	131	116	247	981	5.70	0	0.00%
Lake 26	6/12-9/29	14	140	128	268	1068	10.00	1	0.71%
Big Wood	6/23-9/29	13	180	174	354	776	13.85	3	1.67%
Mud Hen Lake	7/9-9/29	11	221	175	396	924	20.09	0	0.00%
Yellow Lake-YLL	8/3 thru 10/18	10	392	501	893	2428	39.20	3	0.77%
Yellow Lake-IKE	8/13-10/6	7	25	12	37	338	3.57	0	0%
Yellow Lake-Jeffries	9/5 thru 10/18	6	103	76	179	423	17.17	4	3.88%
Total			**1192**		**2374**	**6938**		**11**	**0.92%**

2008 BCLRA Launch Statistics

Launch	2007 Period	Weeks	Launches	Pullouts	Visits	Videos	Launches per week	Potential AIS Violations	% Violations Launches
Johnson Lake	5/4-8/24	17	123	n/a	n/a	459	7.24	0	0.00%
Lake 26	5/3-9/18	20	158	n/a	n/a	817	7.90	0	0.00%
Big Wood	5/3-9/6	17	123	n/a	n/a	696	7.24	0	0.00%
Mud Hen Lake	5/17-9/4	17	109	n/a	n/a	431	6.41	2	1.83%
Yellow Lake-YLL	5/24-9/1	16	704	n/a	n/a	7281	44.00	3	0.43%
Yellow Lake-IKE	5/1-9/1	18	168	n/a	n/a	1799	9.33	0	0.00%
Yellow Lake-Jeffries	5/24-9/19	17	279	n/a	n/a	2224	16.41	5	1.79%
Total			**1664**		**0**	**13707**		**10**	**0.60%**

Follow-up on 2007 Recommendations

Recommendations in bold were suggested for year 2 of the project with the primary goals of increasing the number of launch videos captured, decrease downtime, and improve clean off behaviors.

Expand the use of volunteers at launches at peak times and supplement with county/DNR resources. Burnett County resources were of tremendous help with video review and follow through on enforcement. Big Wood Lake and Johnson Lake were the most involved with volunteer resources at their launches. Johnson Lake CBCW hours were less than 2007 as interest from residents in the volunteering part of the program has waned over several years of being exposed to this. It is believed that the lakes would welcome a program where interns were scheduled at their launches for them even if this meant paying an hourly rate. The message that in person presence complements the I-LIDS is not disputed by the associations.

Follow through on AIS violations to reinforce clean-off behaviors. In 2008, Burnett County implemented an AIS ordinance that held registered boat owners responsible for aquatic or terrestrial plants hanging from their boat/trailer if it is brought onto a county highway or launched into a body of water. Based on this ordinance which passed unanimously by the Burnett County Board, 5 citations were issued with one being adjudicated as guilty as of the date of this report. Further a group effort coordinating DNR Conservation Wardens and County Enforcement was conducted at the boat launches in the study that resulted in several citations being issued. With the citations being issued later in the season, it would be hoped that a greater awareness would result over time for the consequences of not cleaning off. It is likely that to increase consistency of cleanoffs an integration of peak period watercraft inspectors, group checks, I-LIDS monitoring, and enforcement is needed.

Ensure that the level of involvement and awareness from lake associations and county resources supporting this project continues if not grows. Based on support from enforcement resources and the continued improvements in the I-LIDS system, lake associations have expressed a continued interest in protecting their lakes. However, some of the lakes have expressed that they may not continue with the program without some level of DNR support for the costs of monitoring.

Involve a technical lead from each lake association and train that person on the effective review of videos. Users from each lake were identified to review videos. The County AIS intern also spent time reviewing videos from Yellow Lake which were much greater in volume. While active involvement from all lakes occurred to review some videos for violations, Lake 26 and Yellow Lake desired to outsource the balance of video reviews.

Develop and distribute directed educational pieces at the bait stores and retail boat operations. Completed with positive feedback from all retail operations and boaters. Over 1,000 CBCW educational brochures were distributed as well.

Facilitate clean off behaviors. While a cleanoff tool was not designed or paid for by lake associations or as part of this grant, a weed repository was put up on sites. In the future this weed repository would be more effective with cleanouts by designated lake volunteers and improving its structural integrity.

Findings / Observations

The percentage of boats launching weeds was lower than reported in November 2007 CBCW report. The 2008 BCLRA project identified 10 boats out of 1664 launches that launched with weeds or 0.60% boats coming to the launch. This compares favorably with the percentage of boats entering with weeds in 2007 (0.92%). While not directly comparable, in 2006 CBCW inspectors statewide observed 6% of boats entering landings proper with aquatic plants attached. That does not mean those boats were launched. The inspector would record a boat arriving with plants attached and then the boater removed it him/herself before launching, or the inspector requested removal. Another reason that they are not comparable is that I-LIDS are able to record activity in the absence of a watercraft inspector.

A combination of I-LIDS automated monitoring and CBCW volunteer monitoring was most effective in reducing the number of launches with weeds. Of the 5 lakes participating in the study, 3 lakes performed additional volunteer inspections at peak times in 2007. Johnson Lake was the most active CBCW participant and had no boats launch weeds into their lake. Observing cleaner boats at launches where multiple risk reduction methods are used would be expected.

Cameras were of high enough resolution to capture small weed fragments, boat registrations and license identification. The ability to change the camera resolution from 640x480 to 1280x1024 compensated for distance from subject at several launches where the I-LIDS could not be positioned closer. Cameras could be configured for different durations of launch capture. The motion sensing capability of the camera was tuned to reduce the number of false captures, however there were times when passing clouds or lightning triggered a capture for I-LIDS where power was on all the time. Units powering on when there was only a ferrous object (vehicle) present provided a higher percentage of visit captures.

Boaters at all launches demonstrated clean off behaviors prior to launching and after pullout. Boaters were frequently seen inspecting their boats and trailers for weeds without the presence of volunteers at the launch. The frequency of cleanoffs observed was higher later in the season. Of course the I-LIDS was not able to capture cleanoff/inspections that occurred off of camera at the launch or away from the launch. Observed clean off behaviors increased approximately 30% in 2008. There were still instances of disregard for the I-LIDS when boaters did not pay attention to the devices nor clean off their equipment, as witnessed by WDNR Deputy Warden Oginski in August 2008.

Additional illegal activities were captured at boat launches. While the focus of the I-LIDS was to educate and monitor for AIS clean off compliance, the I-LIDS captured other violations. Vandalism occurred once with a sledgehammer to the bullet proof glass and another time with a vehicle accidentally striking the I-LIDS. On one occasion a plastic bag

was placed over one unit but was removed by a resident soon after. On Lake 26 an ATV was observed driving out of the lake after apparently cleaning his vehicle along the shoreline, which was a violation. No follow-up could be performed as registration information could not be seen. Also at Lake 26 an amphibious car was seen driving into the lake. Last, a group of youths were captured defacing signs at Yellow Lake Lodge boat launch.

Number of launches captured over the course of the season was lower than actual. In 2007, several factors contributed to a lower boat launch count than expected: optimizing solar power and battery charging; circuit board power budgeting; and startup delays. With networks established, footings in place, and better tuning of power management, there were a higher number of launches captured in 2008.

Future Improvements

Several opportunities for improvement at the conclusion of this project are noted

1. The I-LIDS should be programmed to come on correlating with peak periods (e.g. early am fishing) to ensure that a higher number of launches are captured
2. Lake association and county reviewers need specific structure for reviewing videos and flagging false positives. This would aid in adjusting sensitivity settings earlier in season to improve launch/video ratio.
3. Paid interns should be made available to lakes as a whole that could rotate watercraft inspection duty between these lakes based on peak periods. This would complement the I-LIDS ongoing monitoring.
4. Positive recognition for boaters cleaning off weeds is planned and should continue.
5. Audio educational messages need to be deployed as a reminder to boaters when they launch. Delays in building of the audio circuit prevented this from being deployed.

Appendix A. Technical Briefing on Site Implementation

Wired and Solar Implementations

The I-LIDS are deployed with either a powered configuration or a solar powered site. Yellow Lake Lodge and Ike Walton have direct power. Jeffries launch has an external solar panel available. Because of this increased power the I-LIDS is scheduled to be on for peak periods (e.g. 6am-10am). The other launches utilize a solar panel that charges a battery in the base. For solar powered sites, it is important that there is no blockage of any of the cells on the panel, otherwise recharge time is affected. Mud Hen Lakes' launch had an ideal solar site which was quite open. Other sites such as Big Wood and Lake 26 had some branch obstruction during certain hours. The amount of time the camera is allowed to come on was programmed at each site based on the amount of potential charge availableSo while the I-LIDS is available to capture launches anytime during daylight hours, a solar implementation would not continuously support a site that received heavy traffic over many days (such as Lake Minnetonka with hundreds of launches per day) without an external solar panel or an outside power source.

A power saving feature was developed in 2008 that dynamically put the sensor into a sleep state if the power dropped below a predetermined level. The I-LIDS would "wakeup" every 15 minutes to see if the power was adequate and if so, keep the sensor running. An additional feature was its ability to "go to sleep" to conserve power overnight. Big Wood Lake had more limited solar and opening the I-LIDS to check voltage was inconvenient. To address this, a voltage display LCD was incorporated so that users could see charge level without opening the I-LIDS. These features overcame issues from 2007 where the associations and ESP had to change out the batteries before they dropped too low and became damaged. Less maintenance, fewer battery replacements, and better monitoring hours resulted from these improvements.

Circuit Board

The I-LIDS circuit board integrates several functions including power conversion (12V-5V), date/time chip, vehicle sensor, and controls for audio playback, LED, and external antenna power. All of these functions are integrated under the programmatic control of a microprocessor. So when the magnetic sensor on the circuit board detects a launch, power is provided to the camera for a set period of time. A separate circuit was developed that allowed a pre-recorded message to be played at sites to alert boaters to the need to inspect their boats before launching. Based on other work being performed, audio playback will be implemented for a few sites in late September. When the camera recognizes motion in its defined frame, it captures video. Otherwise the sensor circuit board operates in a low power consumption state, not powering the camera.

Another improvement to the circuit board was to measure the direct reading of the sensor for greater accuracy. We moved the board to a new location in the I-LIDS parallel to the solar panel. Last, a 12V (higher power) mode of the sensor was used at Johnson Lake. With these changes, several discoveries were made in 2008:

1. Sites that had a helical pier (vs. concrete) experienced some 'drift' of the magnetic field measurement. This tended to occur to a greater extent in the morning.

2. Placement location of the sensor within the I-LIDS was important to gain the greatest sensitivity to vehicle detection.
3. 12V mode provided twice the range of 5V operation which is more practical for sites with greater distances from vehicle path and unobstructed solar.

These issues were addressed by operating the I-LIDS in programmed "on" time for earlier hours, changing the mode to differential measurement, and positioning the board where it was located in 2007.

Video Camera

The web camera with high resolution option is capable of capturing images where small aquatic plant fragments and registration numbers can be distinguished even from a distance. The benefit of an Internet based camera is adjustments could be made to many sites remotely. A maintenance window was configured so that at a preset time, a camera would come on and could be managed. Several characteristics of the video have been raised in the project which are covered here.

Duration of video capture

The camera has a fixed amount of memory and does use MPEG-4 video compression to compress the size of the video. There is a compromise that needs to be achieved between duration (usually 10-15 seconds), frames per second, compression percentage allowed, and size of image captured. Even if there was extreme movement in a high resolution scene that was set to capture 15 seconds, the camera would still transmit a playable video that would just be truncated at the end.

Quality of video

This is a function of focus, compression settings, and low-light settings. It was critical to focus the camera accurately at each site. Early morning or late shots with less light will of course be less clear based on available light. While videos were captured at night, it was impossible to pick up more than headlights and rough outlines of trucks and boats moving. An indirect LED light could be tested in the future that may be able to illuminate possible aquatic plants and provide clearer images.

Triggering of camera

The camera has the ability to measure movement within a defined "frame" of interest that is separately configurable for each site. The characteristics of the frame include Object size, Sensitivity to light, and History of object. For sites that did not have the sensitivity turned down, a partly cloudy day would trigger video capture even with no launch occurring. Powered sites were of course more capable of flooding the website with false positives videos if they were not configured correctly.

Time stamp on the video

Some videos have a timestamp of 07-01-01 which was caused by the Internet service not providing access to the Internet based clock soon enough. When these videos were processed, a date/time was assigned to them based on the file characteristics when they were transmitted from the site. So the database has an accurate time/date.

Clarity in low light conditions

The quality of the video is dependent upon sufficient light being available. In low light conditions, pixilation can occur when the mpeg compression settings are too high. Also in the morning, dew can be seen on the outside of lenses. This would usually dissipate soon after it was seen. It was not due to moisture on the inside of the units which are water sealed and use desiccants to keep components dry. A low power LED light is being designed to aide in night time reviews.

Website improvements

In 2007 several recommendations were made from lake association video reviewers. These included speeding up the download speed of the video from the website, playing videos in sequence, and provide an ability to flag the videos for deletion if it was a false positive. Significant time was spent in improving the website to address these requests.

Translation from MPEG4 to Flash for Website Playback efficiency

In order to provide a rapid review environment for web based access in 2008 the server translated MPEG4 videos to Flash and then uploaded them to a hosted server on the Internet. These changes improved the playback experience for Web browsers by reducing the size of the file for faster loading on slower connections, embedding multiple videos into one sequence, and allowing users to skip ahead if there happened to be nothing in a particular scene.

Categorizing users

Three classes of users were created (admin, basic, demo). Users with demo privileges could review videos but they were not marked as having been reviewed. Basic users looking at videos had them recorded as being reviewed. Admin users could flag videos for deletion if there were false positives.

Appendix B. Installation Images

I-LIDS installed on footing

Weed Disposal Bin

Lake 26 Boat Launch Layout

Welding Footing Plate on Pier

Appendix C. AIS Violation Summary

(# indicates character cannot be discerned)

Location	Date	Time	Boat Registration	Supporting Video	Boat Description	Vehicle Description	Observed
Big Wood	7/8/2007	6:26	MO6131EA		Ranger 488V8 - White with green/black trim	Red Chev PU	Weeds on rear corner of boat trailer backing in. Face of person in boat.
Lake 26	7/19/2007	18:35	unknown		ATV riding in water	Red ATV	ATV riding out of water from swimming area
Lake 26	7/29/2007	12:04	not visible	7/29- 12:09	Bayliner white w/ blue	Blue on silver Tahoe	Weed on right rear trailer
Yellow Lake	8/8/2007	17:59	n/a		Person defacing signs at Yellow lake lodge boat launch	3 people	Person using black magic marker to deface ESP and Yellow Lake Lodge signs at launch.
Big Wood	8/14/2007	7:50	IL5135JF	8/13-7:43 8/13-10:51 8/14-7:50	White with green 18' Lowe fishing boat	Red Dodge Ram 1500 pickup	Full weed segment on middle strut appearing quite viable
Yellow Lake - Lodge	9/3/2007	12:17	MN1540HH	9/3/2008-12:21 9/12-19:34	Red/Silver Alumacraft w/ 3 trolling motors	Silver F150 w/ blue detail line. Driver in striped shirt w/ cap, older	Aquatic weeds on middle of rear trailer axle.
Big Wood	9/28/2007	8:00	IL2912GY	9/28-18:36	Bass Tracker - White with graphite and red stripe	Tan Truck	Large single weed on middle of rear trailer transom. 2 individuals reviewing boat at launch with faces.
Yellow Lake - Jeffries	10/1/2007	10:11	MN5289DU		Aluminum fishing boat 14'	White Nissan 2 door	2 weeds dangling on back axle. Drivers face visible.
Yellow Lake - Jeffries	10/6/2007	15:10	?		Silver Pontoon		Weeds on back axle
Yellow Lake - Jeffries	10/6/2007	15:16	WS9196ES	9/9-7:22 9/9-10:36 9/9-10:38	White and green Alumacraft 18' fishing boat	Black Dodge Ram pickup	Strands of weeds on outside left and right of trailer
Yellow Lake-Lodge	10/11/2007	10:47	WS6188ET	10/12 15:09	Red 16' Angler fishing boat	White FX4 New model truck	Weeds on prop, rear bunk, Man looking directly at them.
Yellow Lake-Lodge	10/12/2007	9:38	MN2308 J#	10/12 16:21	Red Crestliner	MN F150 White MTX	Weeds on rear corner of boat trailer backing in.
Yellow Lake - Jeffries	10/14/2007	12:36	WS3151DZ		White w/ red 18' fishing boat with Champion trailer	Red Dodge Ram 1500 pickup	Large clump of weeds dangling from right rear trailer. Face of boater visible.

2008 BCLRA AIS Violation

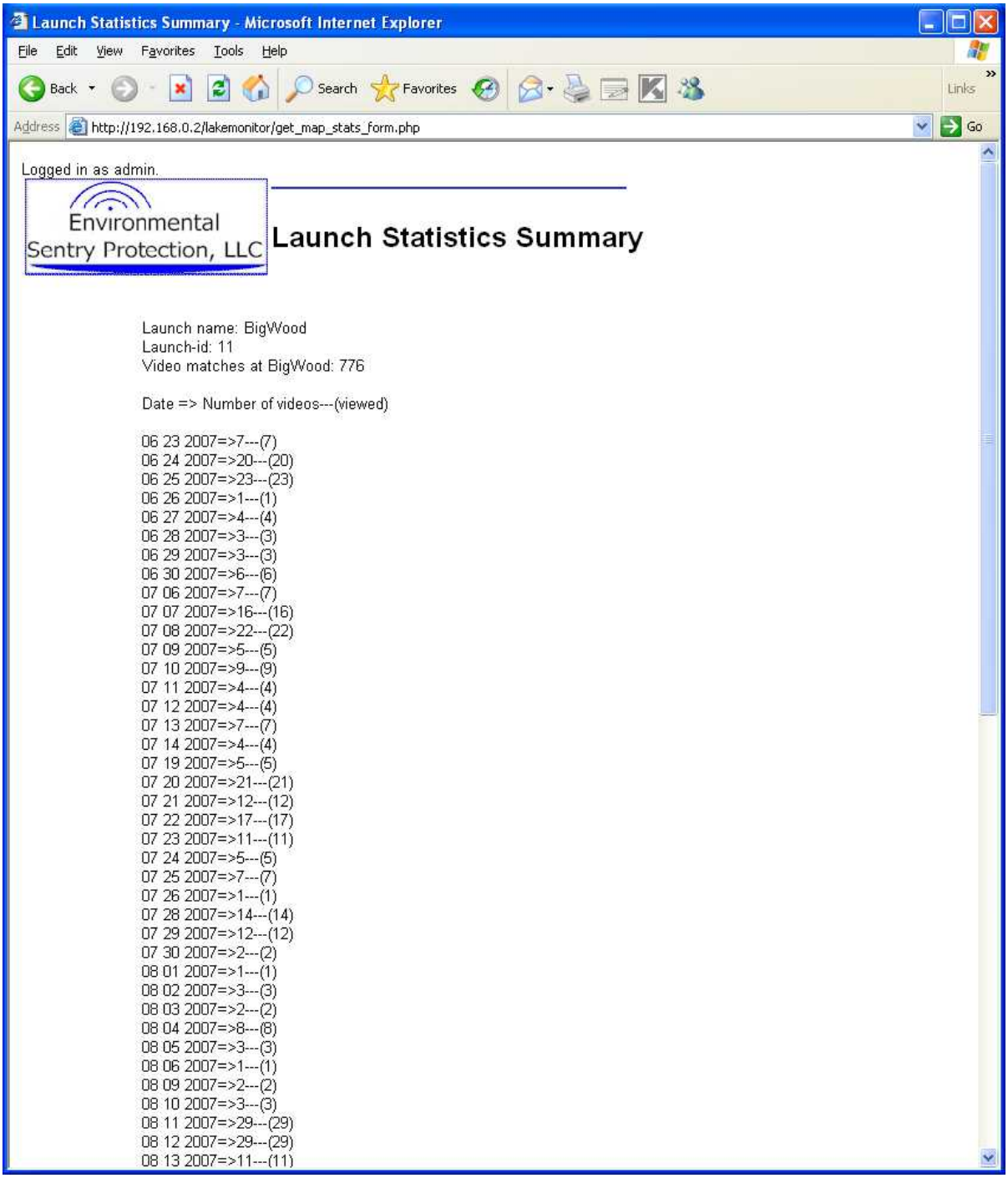
Summary – (as recorded by I-LIDS video)

Location	Date	Time	Boat Registration	Boat Description	Vehicle Description	Observed	Was Boater Identified?	Action Taken
Yellow Lake - Lodge	6/3/2008	17:49	WS7886BZ	White/Blue aluminum fishing boat	Red Chev 4 door	weed on rear axle	Investigating	Submitted
Yellow Lake - Jeffries	7/3/2008	15:26	WS2158CX	Sportsman 20 Pontoon / Johnson outboard	Black Truck	weeds on middle rear of trailer	Yes	Citation
Yellow Lake - Lodge	7/18/2008	15:11	WS8913CT	Sylvan I/O White/red stripes	Gray GMC pickup	clumps of weeds	Investigating	Submitted
Yellow Lake - Jeffries	7/20/2008	7:00	cannot id	Silver/blue aluminum Lund "Predator II" fishing boat	Black 4x4 pickup	weeds on rear axle trailer	No	No action
Yellow Lake - Jeffries	7/26/2008	6:23	WS3251EV	Red/silver aluminum fishing boat	Gold chev Z71 pickup	Weeds on axle and prop	Yes	Warning
Yellow Lake - Jeffries	7/30/2008	6:38	WS6919	Pontoon-Sunrise Premier	White Z71 pickup	weeds all over trailer/boat	Yes	Citation
Big Doctor Lake	8/9/2008	11:00am	WS6592EV		Minnesota-M.Wagner	Officer Oginski identified violation in person	Yes	Citation
Mud Hen Lake	8/22/2008	10:26	WS5343GV	Red Starcraft Aluminum fishing	Black Truck	weeds on middle rear of trailer	Investigating	Submitted
Yellow Lake - Jeffries	9/1/2008	6:46	MN4902FW	Blue/Silver aluminum Lund open bow	Silver mini SUV	Weeds on axle	Yes	Citation
Mud Hen Lake	9/1/2008	10:28	MN0984EV	Pontoon w/ brown sides	White Z71 crewcab	weeds on rear axle trailer	Investigating	Submitted

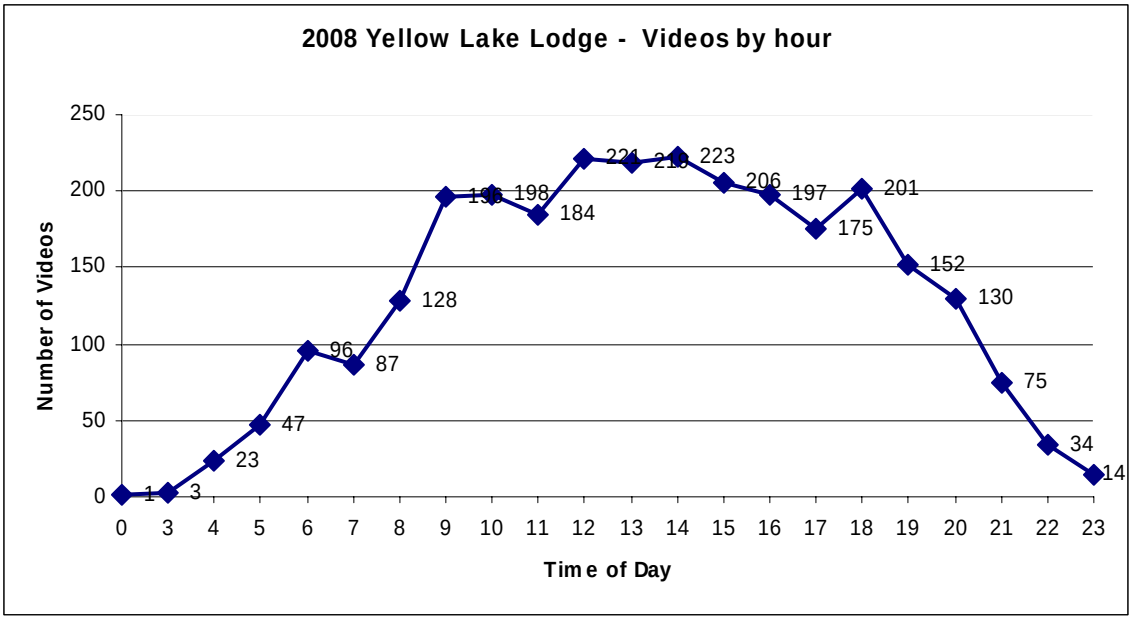
Total AIS Violations **10**

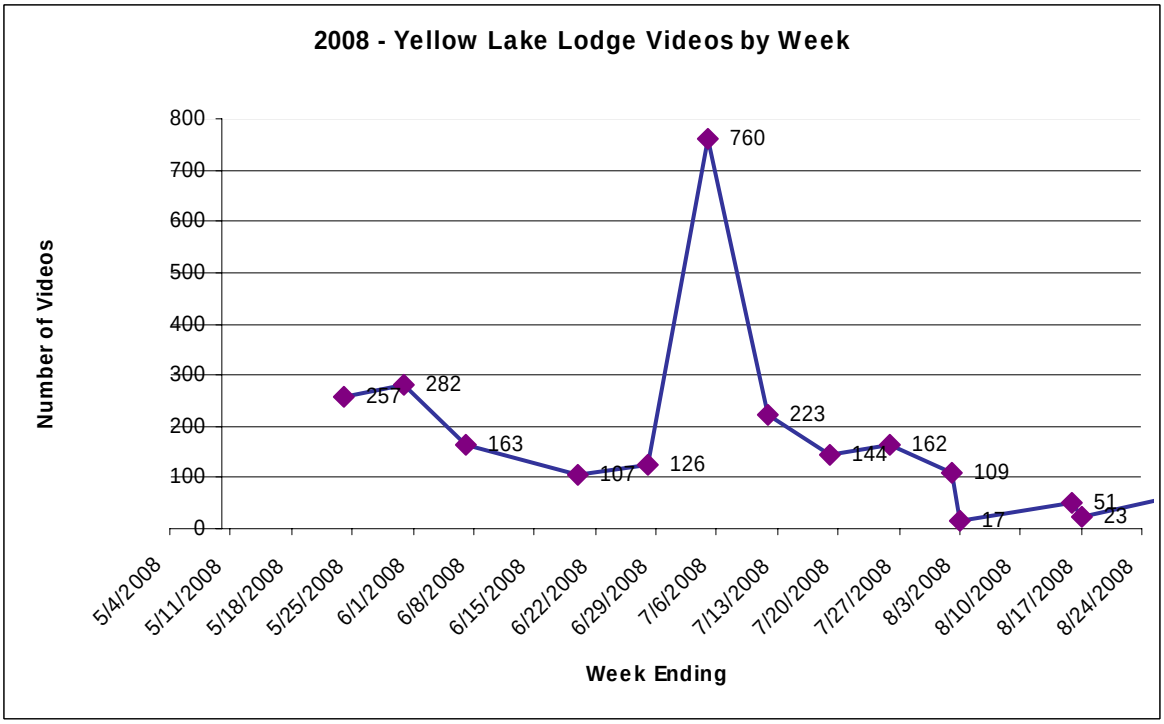
Appendix D. Lake Statistics

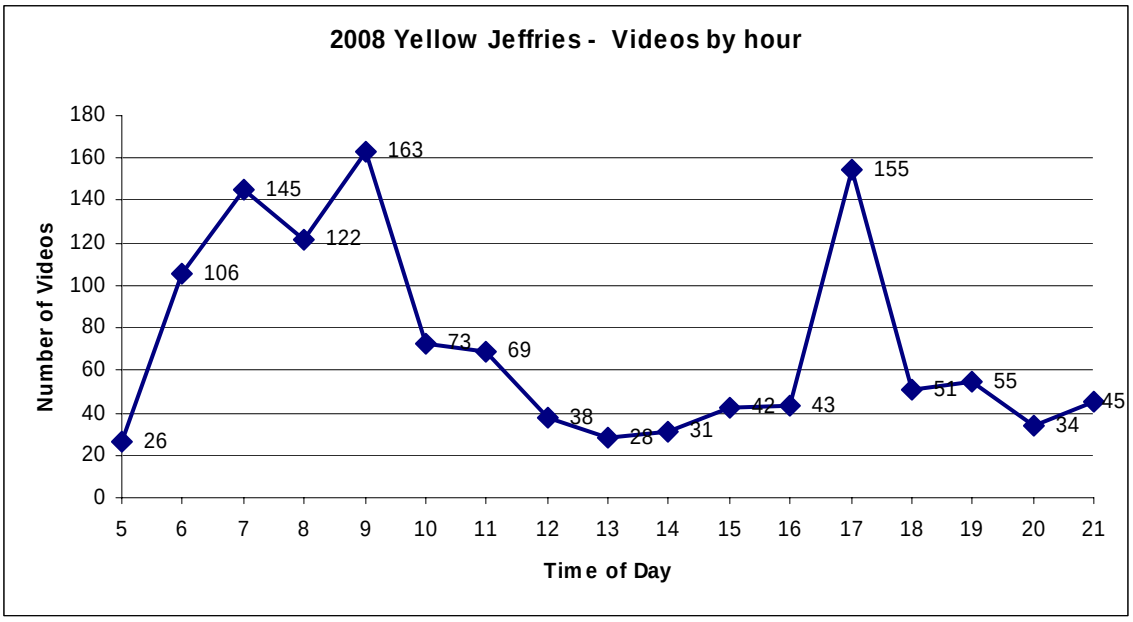
The following snapshot of Big Wood Lake launch statistics shows counts of videos by date/time of capture and whether reviewers have reviewed those videos. Videos for both years were reviewed for violations, obtain launch counts, and to identify cleanoff behaviors. In 2008, the video database was "cleaned" to remove false positives and focus on launch activity from boaters. The charts following show trends at the launches by date and time for peak usage.



2008 Usage Trends






2008 Yellow Jeffries - Videos by hour
Number of Videos
Time of Day
180
160
140
120
100
80
60
40
20
0
5
6
7
8
9
10
11
12
13
14
15
16
17
18
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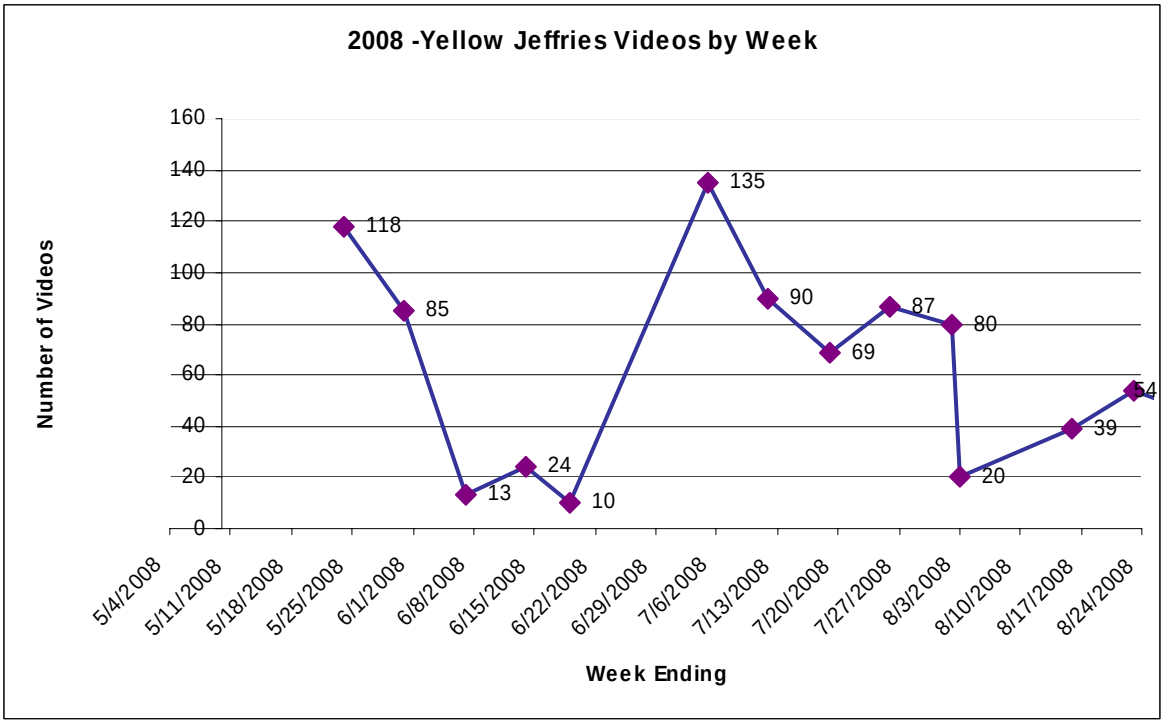
38
28
31
42
43
155
51
55
34
45


2008 -Yellow Jeffries Videos by Week
Number of Videos
Week Ending
160
140
120
100
80
60
40
20
0
5/4/2008
5/11/2008
5/18/2008
5/25/2008
6/1/2008
6/8/2008
6/15/2008
6/22/2008
6/29/2008
7/6/2008
7/13/2008
7/20/2008
7/27/2008
8/3/2008
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87
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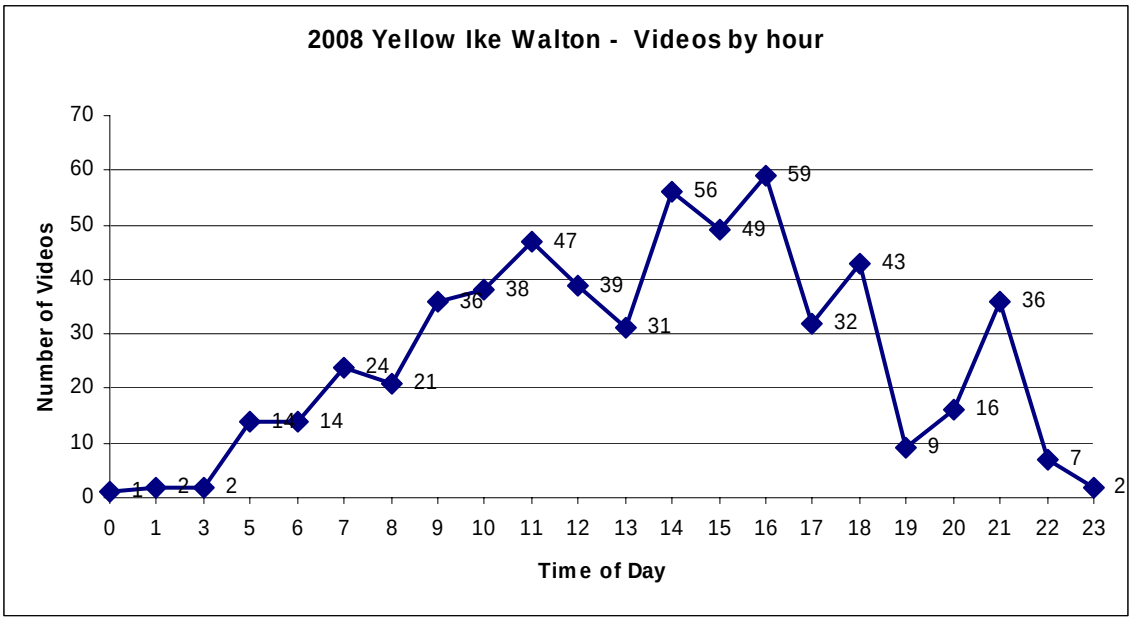
20
39
54


2008 Yellow Ike Walton - Videos by hour
Number of Videos
Time of Day
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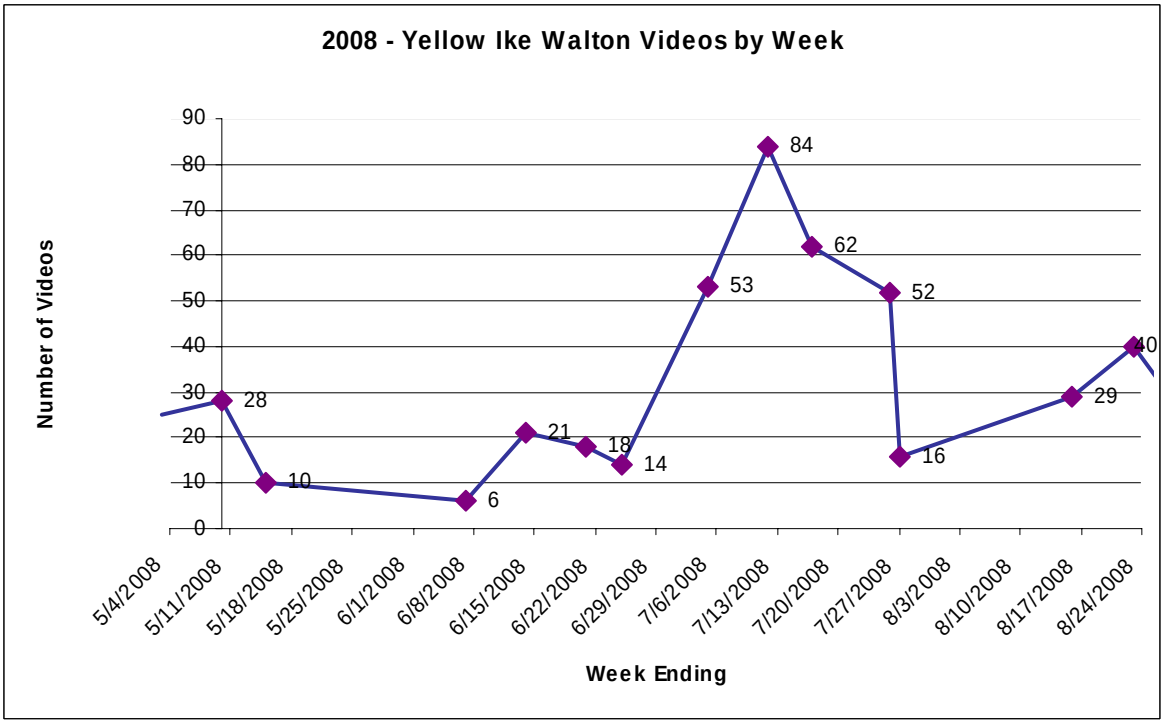
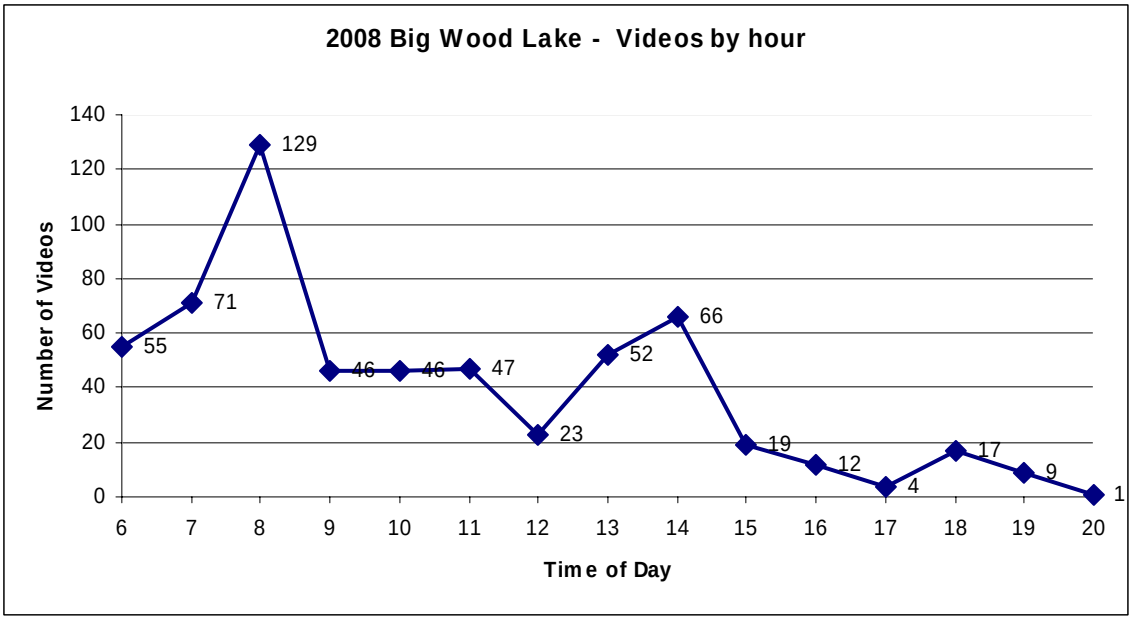
0 10 20 30 40 50 60 70
1 2 2 14 14 24 21 36 38 47 39 31 56 49 59 32 43 9 16 36 7 2


2008 - Yellow Ike Walton Videos by Week
Number of Videos
Week Ending
0 10 20 30 40 50 60 70 80 90
28 10 6 21 18 14 53 84 62 52 16 29 40
5/4/2008 5/11/2008 5/18/2008 5/25/2008 6/1/2008 6/8/2008 6/15/2008 6/22/2008 6/29/2008 7/6/2008 7/13/2008 7/20/2008 7/27/2008 8/3/2008 8/10/2008 8/17/2008 8/24/2008


2008 Big Wood Lake - Videos by hour
Number of Videos
Time of Day
140
120
100
80
60
40
20
0
6
7
8
9
10
11
12
13
14
15
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12
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17
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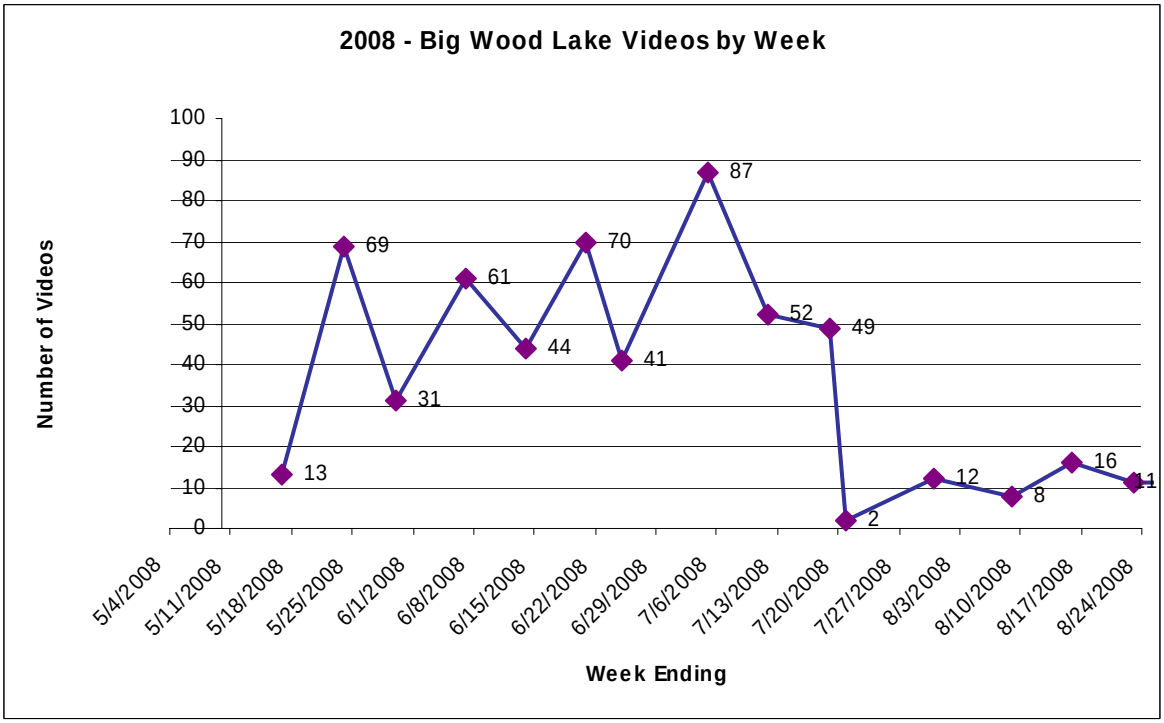
1


2008 - Big Wood Lake Videos by Week
Number of Videos
Week Ending
100
90
80
70
60
50
40
30
20
10
0
5/4/2008
5/11/2008
5/18/2008
5/25/2008
6/1/2008
6/8/2008
6/15/2008
6/22/2008
6/29/2008
7/6/2008
7/13/2008
7/20/2008
7/27/2008
8/3/2008
8/10/2008
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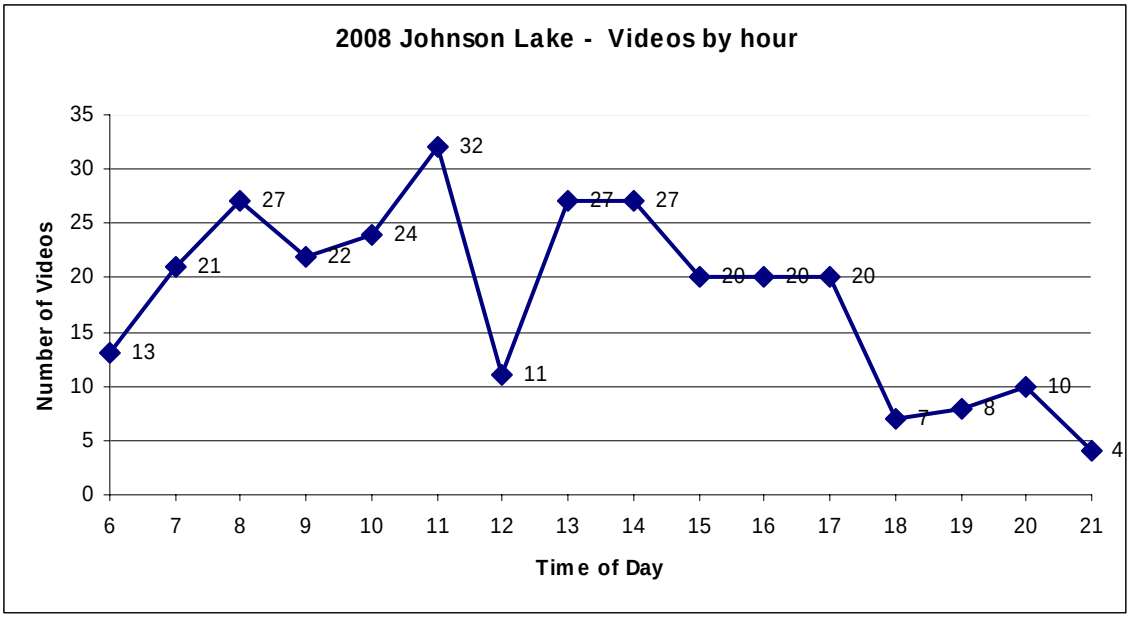
8
16
11


2008 Johnson Lake - Videos by hour
Number of Videos
Time of Day
0
5
10
15
20
25
30
35
6
7
8
9
10
11
12
13
14
15
16
17
18
19
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27
27
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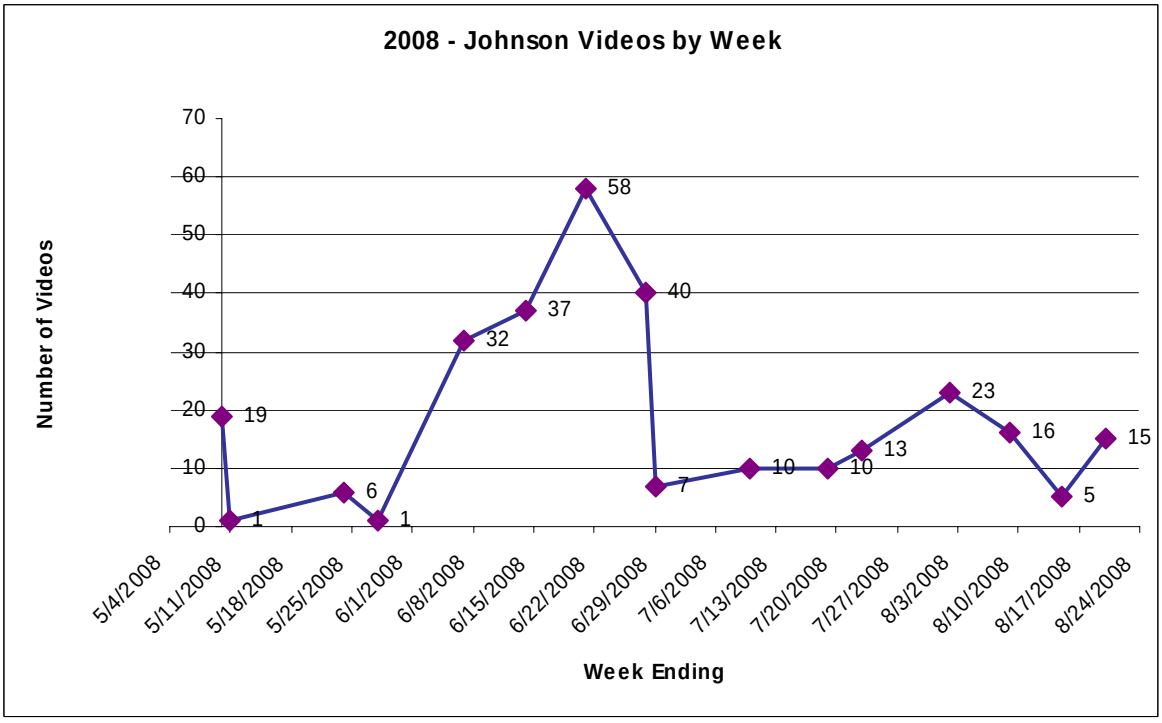
20
20
7
8
10
4


2008 - Johnson Videos by Week
Number of Videos
Week Ending
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10
20
30
40
50
60
70
5/4/2008
5/11/2008
5/18/2008
5/25/2008
6/1/2008
6/8/2008
6/15/2008
6/22/2008
6/29/2008
7/6/2008
7/13/2008
7/20/2008
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8/3/2008
8/10/2008
8/17/2008
8/24/2008
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23
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5
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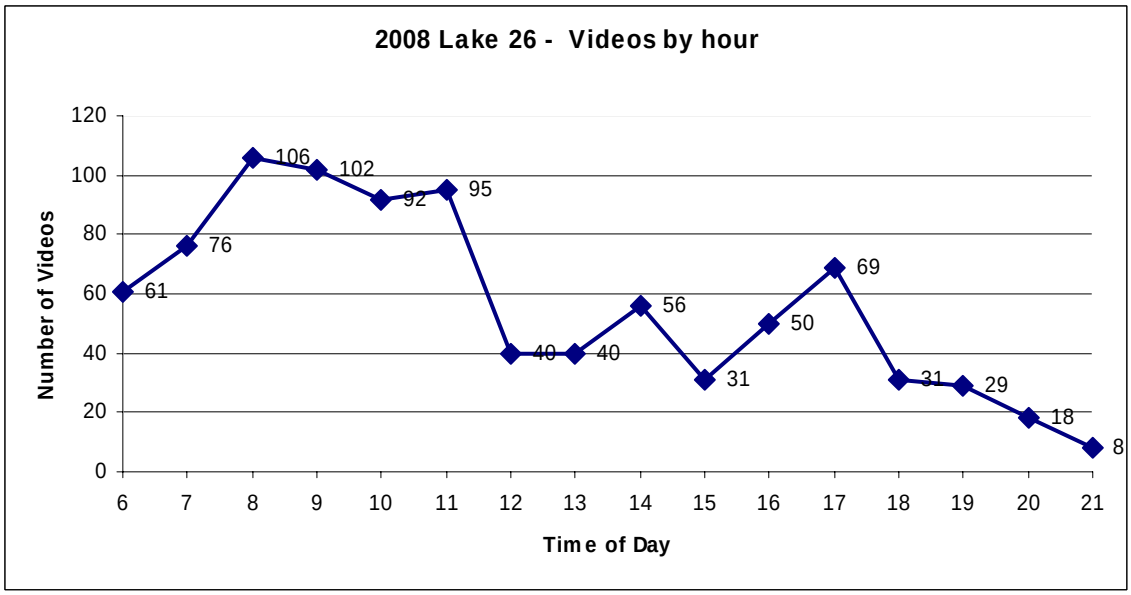
2008 Lake 26 - Videos by hour
Number of Videos
Time of Day
120
100
80
60
40
20
0
6
7
8
9
10
11
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13
14
15
16
17
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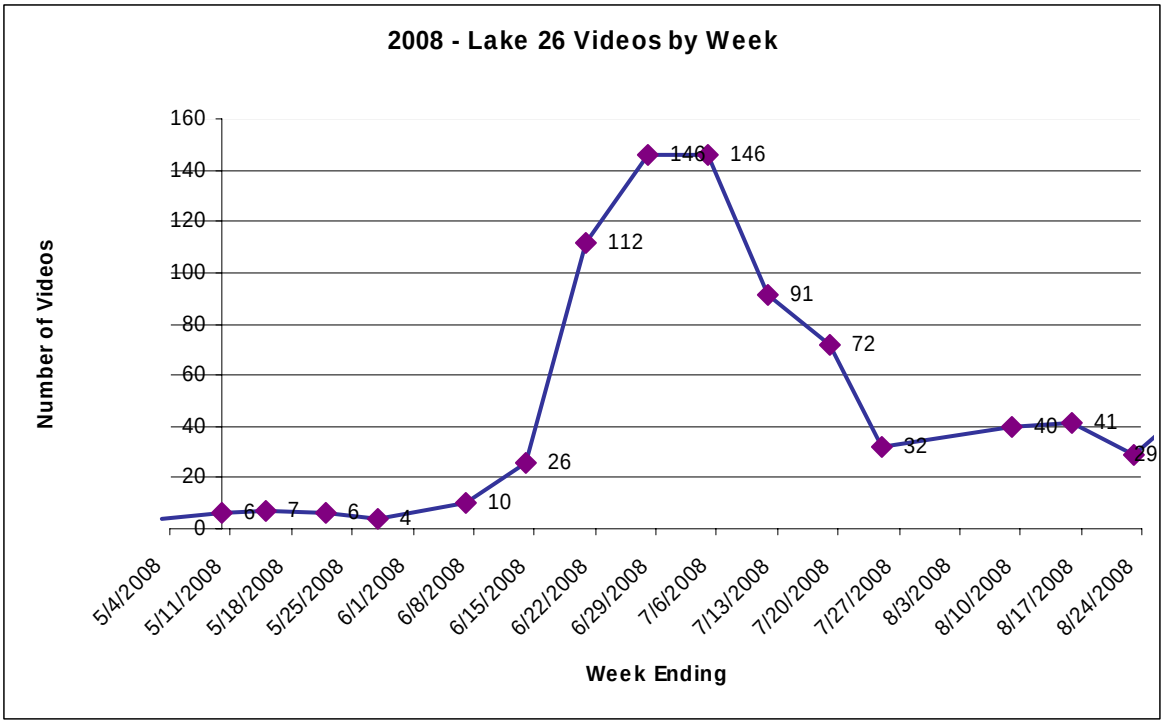
69
31
29
18
8


2008 - Lake 26 Videos by Week
Number of Videos
Week Ending
160
140
120
100
80
60
40
20
0
5/4/2008
5/11/2008
5/18/2008
5/25/2008
6/1/2008
6/8/2008
6/15/2008
6/22/2008
6/29/2008
7/6/2008
7/13/2008
7/20/2008
7/27/2008
8/3/2008
8/10/2008
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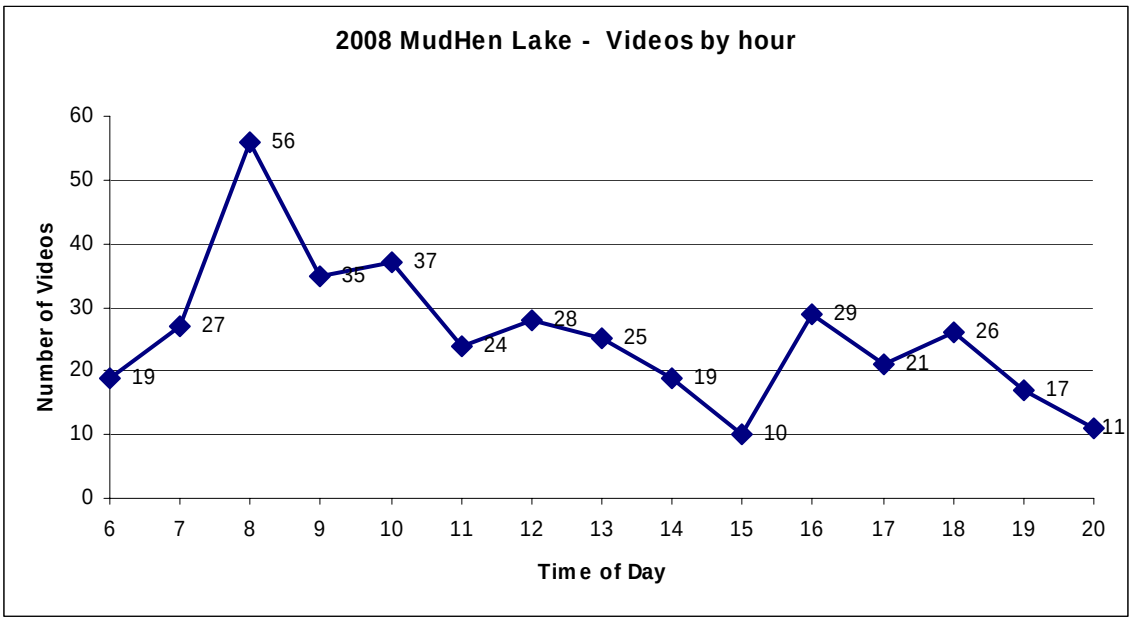
41
29


2008 MudHen Lake - Videos by hour
Number of Videos
Time of Day
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10
20
30
40
50
60
6
7
8
9
10
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12
13
14
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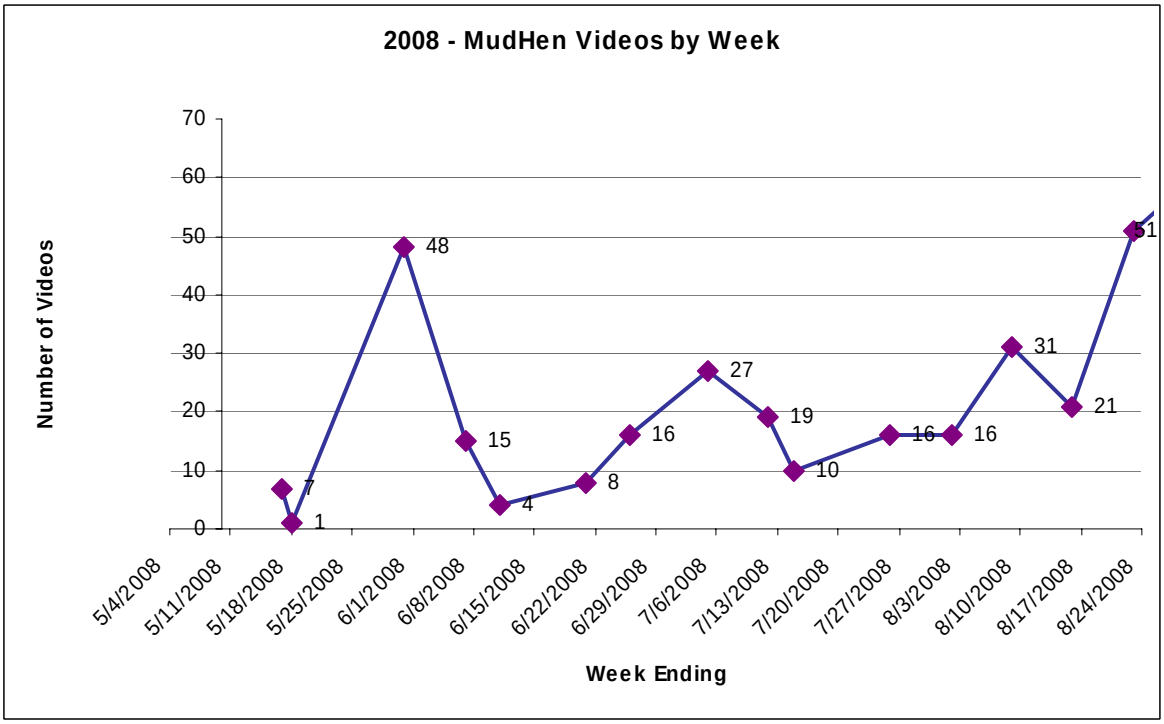
29
21
26
17
11


2008 - MudHen Videos by Week
Number of Videos
Week Ending
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10
20
30
40
50
60
70
5/4/2008
5/11/2008
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5/25/2008
6/1/2008
6/8/2008
6/15/2008
6/22/2008
6/29/2008
7/6/2008
7/13/2008
7/20/2008
7/27/2008
8/3/2008
8/10/2008
8/17/2008
8/24/2008
7
1
48
15
4
8
16
27
19
10
16
16
31
21
51

Appendix E. Principal Project Participants

Wisconsin DNR

Kathy Bartilson, Supervisor, Northern Region, 715-635-4053
Jane Malischke, Environmental Grants Specialist, 715-635-4062
Pamela Toshner, Lake Specialist Northern Region, 715-635-4073
Dave Zebro, Warden Supervisor, Northern Region, 715-635-4093

Burnett County

Dave Ferris, Land and Water Conservationist, 715-349-2186
Sheriff Dean Roland, 715-349-2121
Deputy Josh Henry, 715-349-2121

Burnett County Lakes and Rivers

Fred Kruger, Project Manager, 715-635-7788
Roger Noe, President, 715-635-6309

Lake Associations

Yellow Lakes and Rivers, Bob Albright, 715-749-3218
Yellow Lakes and Rivers, Rick Doering, 715-866-4764
Lake 26, William Dorgan, 651-738-0675
Johnson Lake, Bob Polkinghorn, 715-866-8575
Big Wood Lake, Ted Williams, 715-689-2435
Big Wood Lake, Denny Wagoner, 715-689-2851
Mud Hen Lake, Dan Heintz, 715-248-7271

Environmental Sentry Protection, LLC

Eric Lindberg, President, 763-473-0051

Environmental Sentry Protection, LLC offers a stand-alone system to monitor boat launch events with networked video capture and make a history available for web review by lake constituents and enforcement officials. It is a tamper-proof, onsite solution to capture boater clean-off activities to ensure compliance with the Aquatic Invasive Species laws so lakes can be protected from the extensive and irreversible impact of Aquatic Invasive Species such a Eurasian Watermilfoil, Curlyleaf Pondweed, and Zebra Mussels. Utilizing Internet connectivity for video storage and remote management, this system offers an educational and inspection tool for boat launches, trails, or other remote facilities.

www.environmentalsentry.com

Appendix F. Lake Association Letters of Support

Wisconsin DNR, Aquatic Invasive Species
September 26, 2008

Re: Additional supporting information for I-LIDS system, remote launch site monitoring equipment. Wisconsin DNR administration of grant funding for aquatic invasive species prevention and management.

My name is Fred Kruger, and I am the project manager on a two year DNR grant which is partially funding the trial installation of seven I-LIDS remote monitoring systems on five of our Burnett county lakes.

The I-LIDS automated cameras have become the center of lake conversation in our county. In the past signs were posted at boat launching areas, with almost no impact. We have had volunteer programs like clean boats, clean water, with excellent success WHEN volunteers were able to be at a launch site. WHEN is key here as in today's society of working moms and dads, volunteer time comes very sparse. It was a reoccurring theme in our own two year project. The bottom line is that for the most part our launch ramps; and therefore or lakes are not protected from accidental or intentional invasives introduction.

The DNR has been educating the public for several years on the introduction of invasives to our lakes. Our project sought to have citations as an active part of our education process. The state statute (30.715) is a joke because of its 'reason to believe' clause. The project I-LIDS recorded about 10 violations during the first season. No citations were written, only warnings were issued.

This second season has progressed smoothly. Installations went quickly and all the electronic connections were in place. We have had a small number of storm related and other failures. These were all corrected in a minimum amount of time by the contractor.

Citations are again our focus for educating the public. This spring our project lakes in cooperation with Burnett county lakes and rivers association, convinced the county board to pass an ordinance that would prohibit plant transport on any aquatic trailer or watercraft on any public highway in the county. This ordnance has the complete support of our DA, sheriff, and DNR wardens. To date, I am aware of 6 citations issued in the county this year. Several were a direct link to the documentation recorded by the I-LIDS.
Interestingly other Counties are following Burnett Counties lead with similar ordnances.

I believe, and I know that the project lake leaders believe, that the I-LIDS have had a major influence in the containment of the spread of invasives in our monitored lakes and the county in general. Human intervention at the launch sites 24/7 is impossible due to the reasons stated above. The I-LIDS are not perfect, however, they have made a significant impact on awareness and ACTIONS by the boating public. The I-LIDS contractor is making significant improvements to the system each year, making it a valuable tool in the enforcement of invasives control in Wisconsin. My project lake leaders and I would like to be heard IN FAVOR of I-LIDS units being an allowable expense in the DNR AIS grant program.

Sincerely, Fred Kruger 715-635-7788

September 24, 2008

DNR AIS Program:

Our Association has participated in a pilot project for the past two years that used an automated system to monitor boat launches at our main launch ramp. This system, known as I-LIDS, has provided video of launches that can be reviewed through the internet. All videos have been reviewed within 48 hours by volunteers from our association. If violations are observed, they can be reported to the Burnett County Sheriff for enforcement of the County Ordinance passed last spring.

Compliance with the removal of weeds prior to launch has been extremely good, we believe, due to the I-LIDS system that is in place. Funding for the pilot project through a DNR grant has made it possible for our Association to take a proactive role in preventing AIS from being introduced into our lake.

We would like to continue using this system in the future, since the cost of ramp monitors is prohibitive. If I-LIDS is eligible for DNR grant consideration we will able to continue educating members and lake users and hopefully avoid the destruction of our lake like so many others in parts of Wisconsin.

We consider the pilot project with I-LIDS a success and hope it will be eligible for grant consideration next year. Without this system at our launch site we will be unable to monitor our ramp.

Sincerely

Dennis Wagoner, President
22650 Hanson Point Road
Grantsburg, WI 54840

September 24, 2008

Mr. Carroll Schaal
Wisconsin Department of Natural Resources
Bureau of Watershed Management
PO Box 7921
Madison, WI 53707-7921

As Vice President of the Yellow Lakes and River Association I am requesting the I-LIDS system be included in future DNR grants through the Wisconsin Lake Association re: NR 198.

The I-LIDS system has proven to be a deterrent as well as an educational tool in preventing AIS from getting into our lakes. I-LIDS is our major effort to this end.

Though we are aware of the Clean Boats, Clean Waters program, only the I-LIDS project monitors our lakes dawn to dusk, 7 days a week. We could never staff the CBCW to this level of coverage.

To illustrate our dedication in preventing AIS in the Yellow Lakes and River the following has been adopted and posted on our website. “To reduce the number of boats being launched into the Yellow Lakes and River and thus reducing the potential of introducing Aquatic Invasive Species into the lakes and river the YLRA will no longer sponsor fishing contests.”

Monitoring with I-LIDS and enforcing the law is our only means in protecting the Yellow Lakes and River from AIS. As you can see I-LIDS is instrumental in fulfilling our mission.

On behalf of the YLRA;

Bob Albright
962 80th Ave
Roberts, WI 54023

715-749-3218

On behalf of the Lake 26 Property owners Association, I am writing to ask that the I-LIDS system be included in eligibility for future DNR grants through the Wisconsin Lake Association.

Our Lake Association has used the I-LIDS system for the last two years (2007-2008). Prior to this period we were actively involved for two years in monitoring our boat ramp on weekends with paid and volunteer monitors as part of the DNR Clean Boats – Clean Waters Program.

We have found the I-LIDS system that takes videos of boats launched into the Lake a practical and successful way of preventing AIS from getting into the Lake. Most Boaters know the Law and are very careful in making sure that plant material is not on their boat and trailer before it is launched.

We know of no other system that can be as successful as this system in providing the protection we need to prevent AIS from getting into the Lake. Of course this system can only be effective if we have a law that can be enforced when video evidence of a violation is presented. We do have an effective Burnett County law. However, we believe there needs to be an effective Wisconsin State Law that provides for a long term solution to the dangers of AIS.

We believe that over the last few years most people who launch boats into the lakes who were part of this project have been educated about the dangers of AIS and the illegal to launch law. Most people do and will comply with the law. Although less that 10% of people launching their boats seem not to accept and comply with the law, it is this limited percentage that makes it necessary to have the I-LIDS system.

We believe that in many smaller, high traffic (visitor) lakes such as Lake 26 the Clean Boats – Clean Waters program is unsustainable over a long period of time. We need a 24/7 system such as the I-LIDS that will monitor the lake with video evidence that can enforce the law.

Lake Twenty Six access is through the Burnett County Park and Beach area that is very remote. Volunteers are not always comfortable monitoring the boat ramp. There have been several cases in which women volunteers have been confronted by men who challenged the right of people to monitor activity at the ramp

Lake 26 is a small lake of only 230 acres. The DNR stocks Muskie in the lake every other year. For two years as part of the Clean Boats – Clear Waters program we documented through monitoring a consistent and significant number of fisherman who came from outside the area to fish. Most of what we fear the most are not our residents on the lake or people from or near our community. We believe these are people will respect the law. What we fear the most are those who travel to our area or even from Minnesota to fish Lake 26. You would expect that traveling fishermen would know and respect the law. However, they are the people most apt to come from other high traffic lakes and thus most apt to infect Lake 26. These are the people who seem to show the most impatience and disrespect for the law.

Enforcement of the law is the only way to get the compliance we need and the I-LIDS system is needed to get that enforcement.

Lake 26 Association
Bill Dorgan, 590 Deer Ridge Lane, Maplewood, MN 55119 651-738-0675

August 26, 2008
Mr. Carroll Schaal
Bureau of Watershed Management
P.O. Box 7921
Madison, WI 53707-7921

RE: NR198

Dear Mr. Schaal:

I represent Johnson Lake Property Owners Association in Burnett County. We were included in the previous grant program for AIS and used that money to help fund an I-LIDS camera at our public boat landing. The balance of the cost was provided by donations to the association from property owners.

The I-LIDS camera has been operating for the past two summers with great success! In 2007, we observed NO boats being launched with weeds attached to the trailers and as of today, the same situation exists. We have also seen boaters inspecting their boats prior to launching and I have personally talked to boaters that are aware of the AIS problem and the consequences of launching a boat/trailer with weeds attached.

We cannot monitor the boat landing every day, so the I-LIDS camera is very important in our effort to keep AIS out of Johnson Lake. I urge you to include funding for these units in the AIS Grant program (NR198). We would like the 5 Burnett County lakes currently using the I-LIDS camera to be allowed to apply for future grants.

Best Regards,

Bob Polkinghorn
28169 S. Johnson Lake Road
Webster, WI 54893

715-866-8575

August 20, 2008

Mr. Schaal,

As secretary , I am contacting you on behalf of the Board of the Mudhen Lake Inland Lake Protection and Rehabilitation District. It has come to our attention that the DNR is taking public comment in regards to NR 198-AIS Grant Program. Mudhen Lake outside of Siren, Wisconsin has been a participant in the I-LIDS program (automated video of the public boat launch) for the past two summers. Lake property owners who have monitored the videos have reported that the presence of the camera, as well as volunteers providing educational materials, have resulted in a greater awareness of the laws. Eligibility of the I-LIDS cameras in the grant program is imperative. The prevention of the introduction of aquatic invasive species through monitoring and education is a must, and aiding in the financial aspects of this would only increase public awareness of the matter. Please consider the I-LIDS program eligible for future Wisconsin Lake Association grants.

Thank you for your time,

Cynthia Stennes
Secretary
Mudhen lake Inland Lake Protection and Rehabilitation District

Appendix G. Burnett County Statute

Ordinance No. _____

The County Board of Supervisors for Burnett County does ordain as follows:

ILLEGAL TRANSPORTATION OF AQUATIC PLANTS AND INVASIVE ANIMALS ORDINANCE

Section 1: Purpose

The purpose of this ordinance is to prevent the spread of aquatic invasive species in Burnett County and surrounding water bodies.

Section 2: Definitions

(a) "Aquatic plant" means a non-woody submergent, emergent, free-floating, or floating-leaf plant that normally grows in or near water and includes any part thereof

(b) "Terrestrial plant" means a plant that normally lives or grows on land and includes wetland species.

(c) "Invasive animal" means all vertebrate and invertebrate species including zebra mussel, quagga mussel, rusty crayfish, spiny water flea, or any other aquatic invasive animal prohibited by the State.

(d) "Animal" means all vertebrate and invertebrate species, including but not limited to mammals, birds, reptiles, amphibians, fish and shellfish, or their eggs, larvae or young, but excluding humans.

(e) "Aquatic Animal" means all Animals that live in, on, or near the water. This includes all vertebrate and invertebrate species, including but not limited to reptiles, amphibians, fish and shellfish, or their eggs, larvae or young.

Section 3: **Prohibited Transport of Aquatic Plants and Invasive Animals**

Except as provided in Section 4, no person may operate a vehicle or transport any boat, boat trailer, personal watercraft and its associated trailer, canoe, kayak, or boating equipment, fishing equipment, hunting and/or trapping equipment (including but not limited to personal floatation devices, nets, anchors, fishing lines, decoys, and waders) from navigable waters onto a public highway if aquatic plants, terrestrial plants, or aquatic animals are attached. All plants and aquatic animals shall be removed prior to entry onto a public highway or launching a boat or placing equipment or trailers into navigable water.

Section 4: Exceptions to Transport of Aquatic Plants and Invasive Species Unless otherwise prohibited by law, a person may transport aquatic plants:

(a) For disposal as part of a harvest or control activity conducted under all aquatic plant management permit issued under ch. NR 109 or as authorized by the county.

(b) When transporting commercial aquatic plant harvesting equipment away from any water body to a suitable location for purposes of cleaning any remaining aquatic plants or animals.

(c) When conducting an aquatic plant study for the purposes of vouchering specimen or conducting an educational workshop.

(d) When harvested for personal or commercial use, such as to be used as compost or mulch, and in a closed container.

(e) For purposes of shooting or observation blinds for waterfowl hunting during the waterfowl season, if the aquatic plants used for these blinds are emergent, cut above the waterline, and contain no aquatic invasive spec[i]es. All other equipment shall have plants and aquatic animals removed before entering a public highway.

Section 5: Liability of Owner or Lessee

(a) If a watercraft, trailer, or plant harvesting equipment is placed in waters in violation of Section 4, the owner or lessee of the watercraft, trailer, or plant harvesting equipment shall pay forfeiture in accordance with the penalty provisions contained in Section 6. An owner or lessee may not be penalized as set forth above if either of the following apply:

1. Another person was cited for or convicted of a violation of Section 4 arising out of the same incident; or
2. The watercraft, trailer or plant harvesting equipment was stolen.

(b) Paragraph (a) does not apply to a lessor of a watercraft, trailer, or plant harvesting equipment if the lessor keeps a record of the name and addressee of the lessee and provides the same to law enforcement upon request.

(c) Paragraph (a) does not prohibit or limit the prosecution of the operator of a watercraft, trailer, or plant harvesting equipment for violations of Section 4.

Section 6: Citation and Enforcement

(a) Any person who violates a provision of this ordinance shall be subject to a forfeiture plus court costs as follows:

1. For the first offense, a forfeiture of $50.
2. For the second offense, a forfeiture of $100.
3. For the third and subsequent offenses, a forfeiture of $250.

(b) Each violation shall be considered a separate offense.

(c) Legal action may be initiated against a violator by the issuance of a citation pursuant to sec. 66.0113(l)(a), Wis. Stats. This citation may be issued by a law enforcement officer of Burnett County.

(d) The citation shall contain the following:

1. The name and address of the alleged violator.
2. The factual allegations describing the alleged violation.
3. The time and place of the offense.
4. The section of the ordinance violated.
5. A description of the offense in a manner that can be readily understood by a person making a reasonable effort to do so.
6. The time at which the alleged violator may appear in court.
7. A statement which in essence informs the alleged violator:
   a. That the alleged violator may make a cash deposit for the amount of the applicable penalty, to be mailed to the Burnett County Clerk of Courts prior to the initial appearance on the citation.
   b. That if the alleged violator makes such a deposit, he or she need not appear in court unless subsequently summoned.
   c. That, if the alleged violator makes a cash deposit and does not appear in court, he or she either will be deemed to have tendered a plea of no contest and submitted to the forfeiture plus costs or will be summoned into court to answer the complaint if the court does not accept the plea of no contest.
   d. That, if the alleged violator does not make a cash deposit and does not appear in court at the time specified, the court may consider the nonappearance to be a plea of no contest and enter judgment for the amount of the penalty listed on the citation, and that the County may commence an action against the alleged violator to collect this penalty.
8. A direction that if the alleged violator elects to make a cash deposit, the alleged violator shall sign an appropriate statement which accompanies the citation to indicate that he or she read the statement required under subd. 7. and shall send the signed statement with the cash deposit.
9. Such other information as may be deemed necessary.

(e) Sec. 66.011 [3]) (3), Wis. Stars., relating to violator's options and procedures on default, is hereby adopted and incorporated herein by reference.

Appendix H. News Articles

New law benefits county's lakes and rivers

- Boaters starting to realize Burnett County is serious about controlling invasive species.

By TODD BECKMANN
Sentinel News Editor

SIREN—Without ever intending to, Burnett County may be becoming somewhat of a proving ground for invasive specie control.

With local enforcement officials stymied by an ineffectual state law concerning the transport of Eurasian water milfoil (EWM) and other aquatic invasive species, the county took it upon itself to draft a county ordinance to handle the situation.

The ordinance, meant to protect the lakes in the county from falling victim to invasive species, took effect in April.

"Other counties may look at Burnett to see how the ordinance has worked here," Eric Lindberg said. "Only a few citations have been issued state-wide before Burnett County passed this ordinance."

Lindberg, of Environmental Safety Protection (ESP), is the designer of the ILIDS program, an automated video monitoring device, in use on seven Burnett County boat ramps to capture images of boats as they are being launched.

The idea is to capture video evidence of the handful of boaters who are launching boats with weeds attached, weeds which may contain milfoil.

"We don't get a second chance to keep Eurasian water-milfoil out of the lakes," Lindberg noted. "Once it's in, it's in."

This is an example of the image the ILIDS monitoring device captures at boat landings. Suspect footage is forwarded to the sheriff's department for a possible citation. Special photo

Lindberg said it has been a successful summer with a number of citations having been issued.

"The new ordinance has not had very much impact on my office at all," Sheriff Dean Roland admitted. "I think it's actually been very minimal time spent."

He said the department's recreation officer, Josh Henry, looks at the video's which are submitted for evaluation.

"In viewing the footage, if he determines the ordinance has been violated, he issues a citation," Roland continued. "I think there have been five citations."

"We saw a lot more cleaning this year than we did last year, so people are aware of the ordinance," Lindberg said.

One citation has already worked its way through the court system when a Baldwin man pled no contest in early September to the illegal transport of aquatics/animals and was fined $154.50.

However, the grant the lake associations received from the Department of Natural Resources (DNR) to fund the video monitoring ends this year.

"I think most lakes are planning to continue with the monitoring irrespective of the grant status," Lindberg said.

In fact, Rick Doering, president of the Yellow Lake Association, said they have applied for another grant from the DNR.

"With the success we have had, we are quite confident we'll get that grant and continue use of the camera monitoring," he pointed out.

"We are being as proactive as we can to keep invasive species out of our waterway," he continued.

In an effort to provide recognition to those people cleaning their boats, Lindberg said [illegible] will be offering [illegible] gift certificates to the 10 best clean-offs they have seen this summer.

"We are making tremendous progress in this battle," he said.