

# Lake Papakeeche Sustainability Initiative (LaPSI)

## Summary of Activities from 2012 – 2016

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1. LaPSI's studies on Lake Papakeeche began in the 2012 when Professor Anthony Serianni (professor of biochemistry at the University of Notre Dame and Lake Papakeeche home owner) approached the PPA Board to seek permission to establish a science-based program to monitor and document the chemical and biological health of the lake and its immediate environs. Dr. Serianni's company, Omicron Biochemicals, Inc., donated \$2,000 to launch the endeavor. Over the next two years, Omicron contributed an additional \$2,000 and also donated scientific equipment to support the work. The Papakeeche Protective Association matched the financial donations. Funds have been used mainly for testing purposes and to cover the costs of the recent fish and plant surveys.
2. During the spring of 2013, grants from the University of Notre Dame, totaling ~\$8,000, were applied for and funded to allow several Notre Dame students to conduct lake studies for LaPSI and for the WACF (Wawasee Area Conservancy Foundation). These students began the testing process and then trained LaPSI members and lake residents (John Hart and Diane Tulloh) in the procedures.
3. The following winter/spring), Anthony Serianni, Kendall Floyd, Jody Hedges and Diane Tulloh earned professional certificates in watershed management from the Indiana Watershed Leadership Academy of Purdue University. This 4-month course provided a valuable opportunity to learn about our watershed and to connect with people who share an interest and passion in improving water quality in Indiana. The enrollment fees for this course were paid for by Omicron Biochemicals, Inc. and PPA. (This course is ongoing and open to anyone interested).
4. During the Indiana Watershed Leadership Academy course, LaPSI members developed and distributed to residents two brochures and a refrigerator magnet outlining actions to reduce nutrients entering the lake in order to maintain and improve our lake's health (Tulloh, Floyd and Hedges) and to educate lake residents on the different types of lake water tests that are available (Serianni). Recommendations included: properly maintaining septic systems, growing native plants along our shoreline, avoiding fertilizers with phosphorus, not raking leaves and grass clippings into the lake, and cleaning up after pets.

5. LaPSI has sponsored an external speaker each year since its inception. LaPSI member Virginia Surso communicated speaker information to local newspapers and arranged the Syracuse Community Center as the speaking venue. Speakers to date have included: Dr. Nate Bosch from The Center for Lakes and Streams at Grace College who talked about basic lake health, Martha Ferguson from Riverside Nursery who shared information on the importance of growing native plants along our shoreline, and Jim Donahoe, owner of Aquatic Weed Control, who spoke about the herbicides used in our lake.
6. LaPSI members communicate with other lake organizations in our area on a regular basis (e. g. Wawasee Area Conservancy Foundation – see #7, Tippecanoe Watershed Foundation, Clean Lakes – see #8, Hoosier Riverwatch – see #12, and the Center for Lakes and Streams – see #17). The Tippecanoe Watershed Foundation has been a tremendous resource to LaPSI members, answering our questions as they arise about a variety of topics.
7. LaPSI learned from the Wawasee Area Conservancy Foundation (WACF) about the ways that WACF is successfully working to reduce the amount of nutrients and microorganisms entering into their lake, primarily from adjacent farms. Since 2013, LaPSI member, Anthony Serianni, has served as a member of the ecology of the Wawasee Area Conservancy Foundation. This connection serves as a useful vehicle for the exchange of information between the two lakes, and has resulted in useful collaborations, some funded by the university of Notre Dame.
8. In the spring of 2015, several members of LaPSI (Kendall Floyd, Charlotte Hill, Jody Hedges and Diane Tulloh) attended a training session sponsored by Clean Lakes. This training focused on how to identify invasive aquatic plants. These plants can take over large sections of water as well as an entire lake, and need to be closely monitored. This knowledge was shared with additional lake residents: Jon and Sue Clark, John Webb, Barb Erst, Georganna Hart, Virginia Surso, and Jan and Mark Laurent. LaPSI member, Charlotte Hill, oversees our invasive plant monitoring plan.
9. Much of the water that flows into Lake Papakeechee comes from the Tri-County Fish and Wildlife Area to our south. Jerry Yoder arranged a tour of the Fish and Wildlife Area with then Assistant Manager, Dericke Lavoine. Dericke took LaPSI members on a tour of the area explaining how the ponds/lakes in the area are connected and how the flow of water is controlled.
10. In the summer of 2015, Jan Laurent and Jody Hedges attended a workshop sponsored by Lakes Country Cluster of The Stewardship Network addressing wetlands development. The workshop addressed different methods of eradicating cattails and purple loosestrife.

11. Dr. Serianni developed an extensive LaPSI website (Lake Papakeechee Sustainability Initiative, [nd.edu/~aseriann/LAPSI.html](http://nd.edu/~aseriann/LAPSI.html)) during the summer of 2015. This website explains LaPSI's history, mission, work and scientific data, and provides numerous links to valuable resources of importance to best practices in lake management.
12. Over the last several years, LaPSI members (Barbara Quandt, Ann Serianni and her two daughters, Patrice and Catherine Serianni, Jody Hedges, and Diane Tulloh) attended workshops sponsored by Hoosier Riverwatch. This organization's goal is to involve the citizens of Indiana in becoming active stewards of Indiana's water resources. The training was helpful in allowing us to monitor the water that comes into our lake from the Tri County Fish and Wildlife Area. In 2016, Barbara Quandt, Jody Hedges, Jan Laurent and Diane Tulloh began collecting data for Hoosier Riverwatch from the creek along Holiday Lane. (This training is offered yearly and is available to anyone interested. Search "Hoosier Riverwatch" for additional information).
13. LaPSI established a professional connection with the Turkey Creek Sewer District (TCSD). Through them, LaPSI has been able to obtain total phosphorus data for \$12.00 per sample vs. \$32.00 per sample at most labs. Tim Woodward, the Director at TCSD, would like to speak to the board and interested lake residents regarding the possibility of installing sewer lines and connecting our area to the TCSD.
14. Dr. Gary Lamberti, from the Department of Biological Sciences at the University of Notre Dame, spoke with Diane Tulloh and Larry Clough by telecom (arranged by colleague Dr. Serianni) to discuss the detrimental effects of harvesting lake weeds and allowing the remains to decay in the lake. He walked us through a method to estimate how much nutrient material would normally be contained in a given quantity of weed harvest. By reviewing harvester data, Terry Radtke and Larry Clough estimated that over the last 5 years (2012 through 2016) the annual quantity of weeds harvested has averaged about 112,000 pounds. Using Dr. Lamberti's formula, this quantity of weeds contains about 1,120 pounds of nitrogen and 70 pounds of phosphorus. Most harvested weeds have been disposed in shallow basins at the edge of the lake. Dr. Lamberti also informed us that we could rid ourselves of the nitrogen content of the weeds by burning them. However, the phosphorus would remain in the ash residue.
15. Diane Tulloh attended the 28<sup>th</sup> Annual Indiana Lakes Management Conference in March of 2016. The conference emphasized the importance of our efforts to monitor our lake for invasive aquatic plants, and reinforced our training with Clean Lakes that quantitative scientific data are extremely important. Another session at the conference emphasized how easily invasive plants can travel from one lake to another on boats.

16. Since its inception, LaPSI has been testing lake water at discrete locations for: dissolved oxygen, temperature, turbidity, and microorganisms. In 2016 LaPSI added testing for the nutrients: dissolved nitrogen and total and soluble phosphorus. The goal of the later testing is to determine possible high sources of nutrients entering the lake. If a high volume source is detected and is reduced or eliminated, it would have a huge impact on the future health of our lake.
17. During the summer of 2016, LaPSI, along with two members of the PPA board (Paul Garl and John Hart), arranged to have submerged aquatic plant and fish surveys completed on our lake by Aquatic Control Inc. This was a major goal of LaPSI articulated in 2013. The fish survey provides the PPA with knowledge of the species present in the lake and assists in determining how best to manage the fish population for the benefit of all residents. The plant survey will help determine how best to treat submerged aquatic plants found in the lake.
18. LaPSI has met several times with Professor Nate Bosch at the Center for Lakes and Streams at Grace College. His lab helped us analyze and identify, at no charge, a blue-green algae bloom in our lake last summer. The initial testing indicated the presence of a blue-green algae called anabaena and a second algae called oscillatoria which can produce toxins. Further testing (which The Center for Lakes and Streams does not do) was required to determine if the algae contained harmful toxins. When another bloom occurred in the fall of 2016, additional testing was done at EnviroScience, a testing facility in Stow, Ohio. The cost of \$560.00 was funded via Omicron Biochemicals, Inc. EnviroScience was able to do additional testing to determine that the algae at that time contained a high level of the toxin known as microcystin.

To view the reports from EnviroScience or Aquatic Control Inc. go to: LaPSI's website [www.nd.edu/~aseriann/LAPSI.html](http://www.nd.edu/~aseriann/LAPSI.html), or the PPA website [www.lakepapakeeche.org](http://www.lakepapakeeche.org).

In the future, LaPSI will work independently from the PPA Board, and plans to operate as a not-for-profit organization. It will continue to be funded via Omicron Biochemicals, Inc., in addition to applying for external grants to support its activities. All findings and activities by LaPSI will be shared with the PPA Board on a regular basis.

### Volunteers Welcome

If you are interested in helping with any of LaPSI's activities, or would just like to get out on the lake, please contact one of the following LaPSI members: Ann or Anthony Serianni (574 631-7807), Jan or Mark Laurent (260 433-2636) [jlaurentmusic@gmail.com](mailto:jlaurentmusic@gmail.com), Jody or Mac Hedges (260 615-9977), Charlotte Hill (574 529-0767), Virginia Surso (260 856-2098) [virginiasurso@gmail.com](mailto:virginiasurso@gmail.com), or Diane Tulloh (317 670-9991) [dtulloh@gmail.com](mailto:dtulloh@gmail.com).