



CITIZEN LAKE SCIENCE IN MAINE

Roberta J. Hill

Invasive Species Program Director

Maine Volunteer Lake Monitoring Program





Maine has some of the clearest and cleanest lakes in the US



VLMMP

Maine Volunteer Lake Monitoring Program



Keeping a watchful eye on the health of Maine lakes since 1971



VLMP MISSION

*to help protect Maine lakes through widespread
citizen participation in the gathering and
dissemination of credible scientific information
pertaining to lake health*

About the VLMP

- The oldest, and one of the largest, statewide citizen lake monitoring programs in U.S.
- Training and technical support for thousands of volunteer citizen scientists statewide
- 1000 certified VLMP volunteers who monitor approximately 500 Maine lakes
- Largest collector of lake data in Maine

Evolution of the Maine VLMP

- 1971 – VLMP is formed; authorized by Maine Legislature; initially hosted by University of Maine
- 1974– 1996 – Program moves to Augusta; administered and funded by Maine DEP
- 1996 - State funding shortfalls force exploration of alternative means of funding/administering program
- 1996 - VLMP transitions to freestanding nonprofit organization ; and experiences significant growth on a variety of fronts





COLLABORATION & VOLUNTEERISM





COLLABORATION

through

PUBLIC/PRIVATE PARTNERSHIP



Organizational Synergy

A large African elephant is the central focus, standing in a lush green savanna under a clear blue sky. A white egret is perched on the elephant's back, facing right. The elephant's trunk is visible, and it appears to be eating or drinking from the grass. The background shows a vast, open landscape with rolling hills and a bright horizon.

VLMP

- Recruits, trains, supports volunteers
- Expands the scope of monitoring & outreach
- Provides program administration, management and development through private funding and in-kind match

DEP

- Helps fund core activities
- Provides technical oversight, data management, quality assurance
- Collaborates with VLMP on special projects

OTHER COLLABORATORS

- Other Agencies
- Conservation NGO's
- Soil & Water Conservation Districts
- Maine's Indian Tribes
- Educational Institutions
- Civic Groups
- Businesses
- Municipalities
- Our Neighbors in Canada!



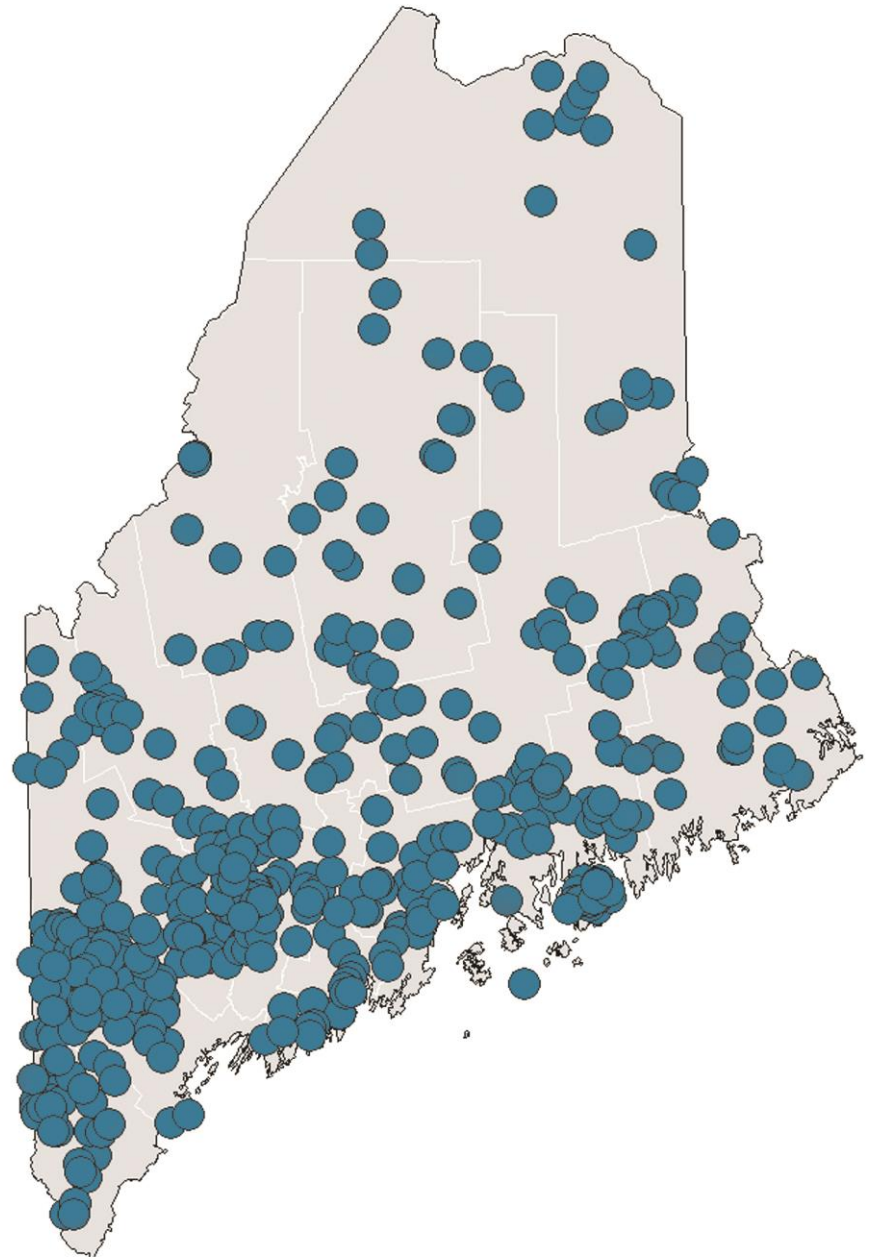
Staff from Maine DEP and Quebec Ministry of the Environment participating in a VLMP workshop



VOLUNTEERISM!



Lakes
monitored by
VLMP
volunteers



What do our volunteers do?



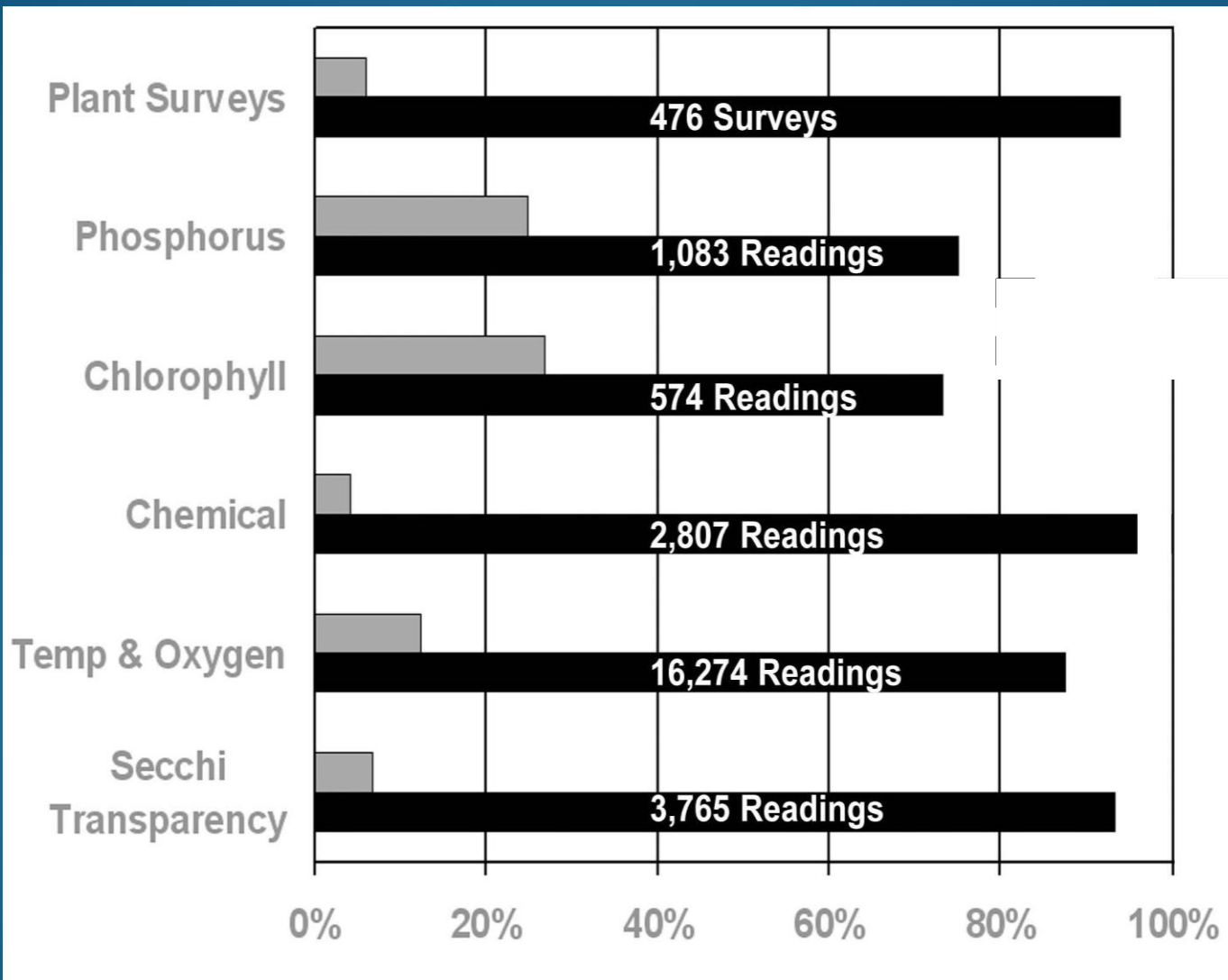
- Monitor a wide range of indicators of water quality
- Assess watershed health and function
- Screen lakes for invasive aquatic plants and animals
- Inventory native aquatic plants
- Help track the affect of climate change on lakes
- Develop and lead conservation efforts on their lakes
- Play key leadership roles in communities & the VLMP



Much of what is known about Maine's lakes and ponds is the result of the work of VLMP volunteers




Annual data submitted by VLMP volunteers (black bars) as compared to data collected by Maine DEP (gray bars)





BEYOND THE DATA



A diver wearing a red wetsuit and a diving mask is underwater. The diver is holding a camera in their right hand and is looking towards the camera. The background is dark and murky, with some greenish-brown vegetation visible at the bottom. The lighting is dim, with a strong light source from the camera or a nearby light, creating a bright spot on the diver's mask and the camera.

IPP Dennis Roberge -
First complete IAP screening
survey of 900 acre Mousam Lake,
snorkeling more than 100 miles to
cover the entire littoral zone

Passion!

Determination



Moosehead Lake
IPP Jump-Start Team

Commitment



Tom Hannula
Sebasticook Lake, 25 years



Joe Emerson
Upper Narrows Pond
36 years

Knowledge, Experience, Innovation



Richard Offinger
VLMP Water Quality Data
Entry System



Ross Wescott
View Scope Design &
Construction

Love of Learning



Willingness to Share



Volunteer Ross Wescott, leading VLMP's
View Scope Clinic

Stewardship





Can-Do Spirit



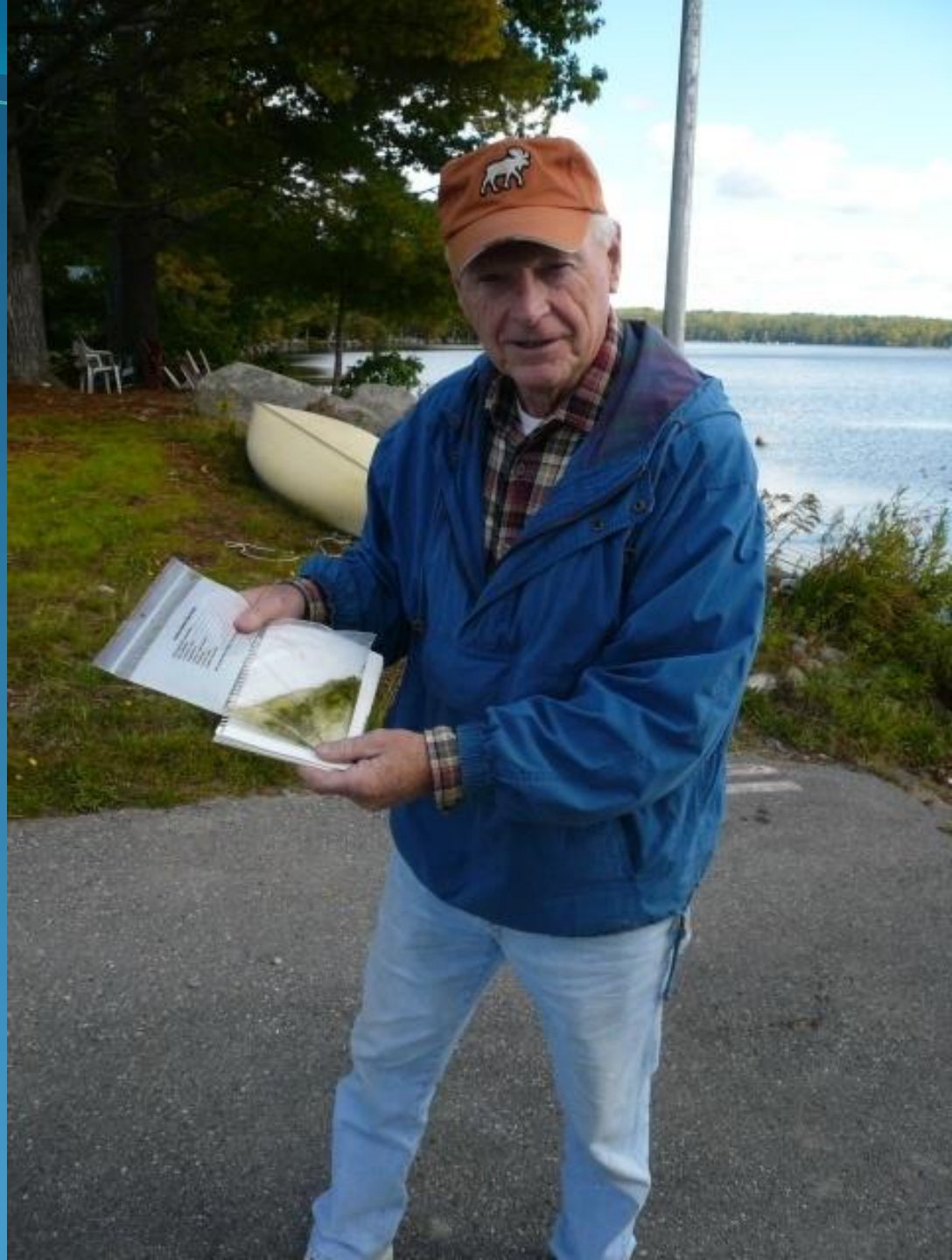
Love of Lakes, Fellowship & Fun





Leadership!

Meet
Dick
Butterfield . . .





This is what Dick saw during his
first survey



This is what he found

Hydrilla verticillata



Maine DEP Rapid Response



IPP First Responders followed by organization of state's largest IPP Team, and full Level-3 survey

Disaster averted

Hydrilla infested lake in Florida



?





Vol. Board of Directors & Board of Advisors





STAFF

4 permanent
full-time
1 part-time
3-4 seasonal
student interns



QUALITY ASSURANCE & QUALITY CONTROL



QA/QC is essential to ensuring the
credibility of our data



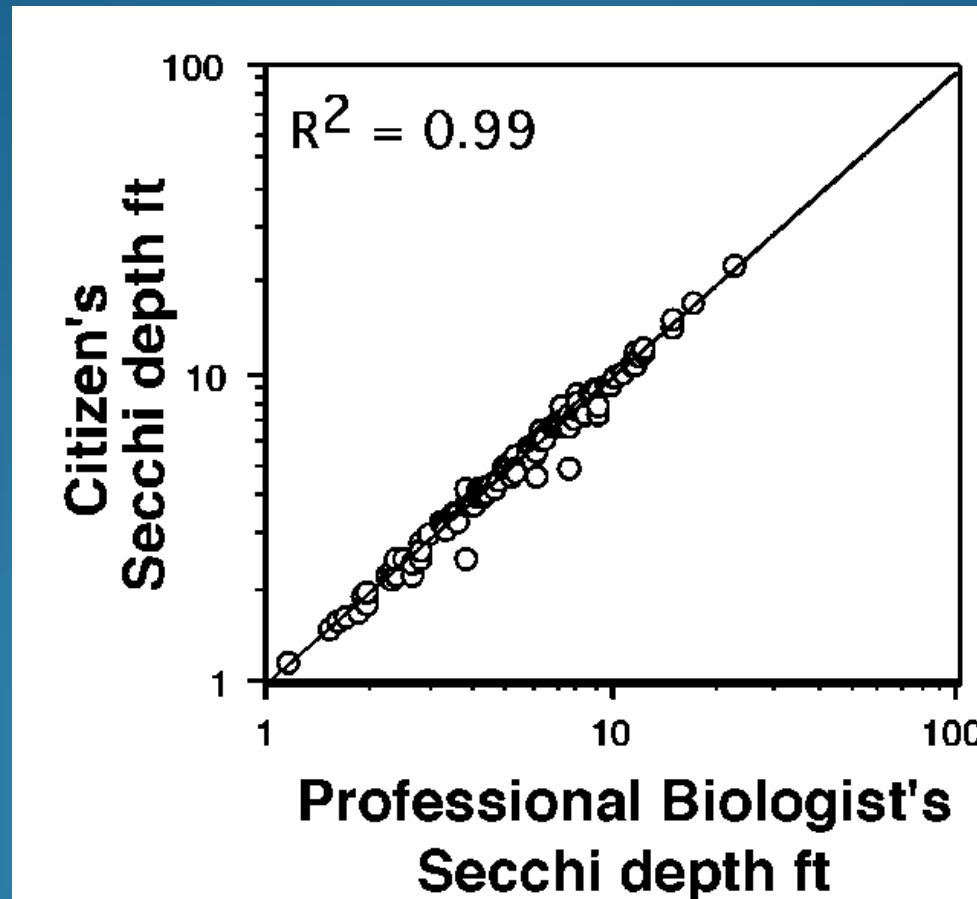
Dissolved oxygen recertification session

VLMP Ensures QA/QC Through

- High-quality, comprehensive, hands-on training
- Certification & recertification
- Lifetime technical support
- Education and networking
- Multiple level QA check systems
- Ongoing program evaluation



Comparison of Data Collected by Trained Volunteers and Professional Biologists: *Data Virtually Indistinguishable*



Study by Dan Canfield, University of Florida Lake Watch Program



STANDARDIZATION

of protocols, technical resources, documentation forms, etc.

Goals of Standardization:

- Increased quality assurance
- Increased efficiency
- User friendliness
- Adaptability

INVASIVE AQUATIC PLANT SCREENING SURVEY DOCUMENTATION FORM

Please complete a separate documentation form for each distinct survey; each waterbody. Submit a copy of each completed form by maine@maine.gov or by mail to the Maine Center for Invasive Aquatic Plants, 1000 State Street, Bangor, ME 04410.

Section 1: General Information

Waterbody _____ Town _____
MIDAS # _____ Date/s _____
Sector's Location _____
Lead Surveyor _____ Cert # _____
Email _____
Surveyor Type (check one) IPP Volunteer _____ Agency _____
Additional Surveyor # 1 _____
Additional Surveyor # 2 _____
Additional Surveyor # 3 _____

Survey Level (check one)
 Limited
 Infestation
 Surveillance
Level 1 _____ (Check one)
Level 2 _____ By Sector _____
Level 3 _____ Entire _____

Screening Method (check one)
VISUAL METHOD
Random Point _____
Plot Point _____
Transect _____
GRAB SAMPLE _____
Random Sample _____
Targeted Sample _____
Plot Point _____

Relative Water Level (check one)
 Above
 Normal High
 Below
Maximum _____

Screening Target/s (check all that apply)
 Complete (all 11 invaders on S. 1)
 Partial (Use codes from Sec. 2)

Additional Survey Goals (check all that apply)
 Inventory of dominant native plants
 Inventory of dominant non-native plants
 Complete inventory of species

Plant Conditions (check one)
 Pre-Mature
 Mature

Section 2: Invasive Aquatic Plant Screening

Suspicious Plant Subspecies
Brazilian Elodea (BE)
Parrot Feather (PF)

IAP CODE

Forms available on-line at www.maine.gov

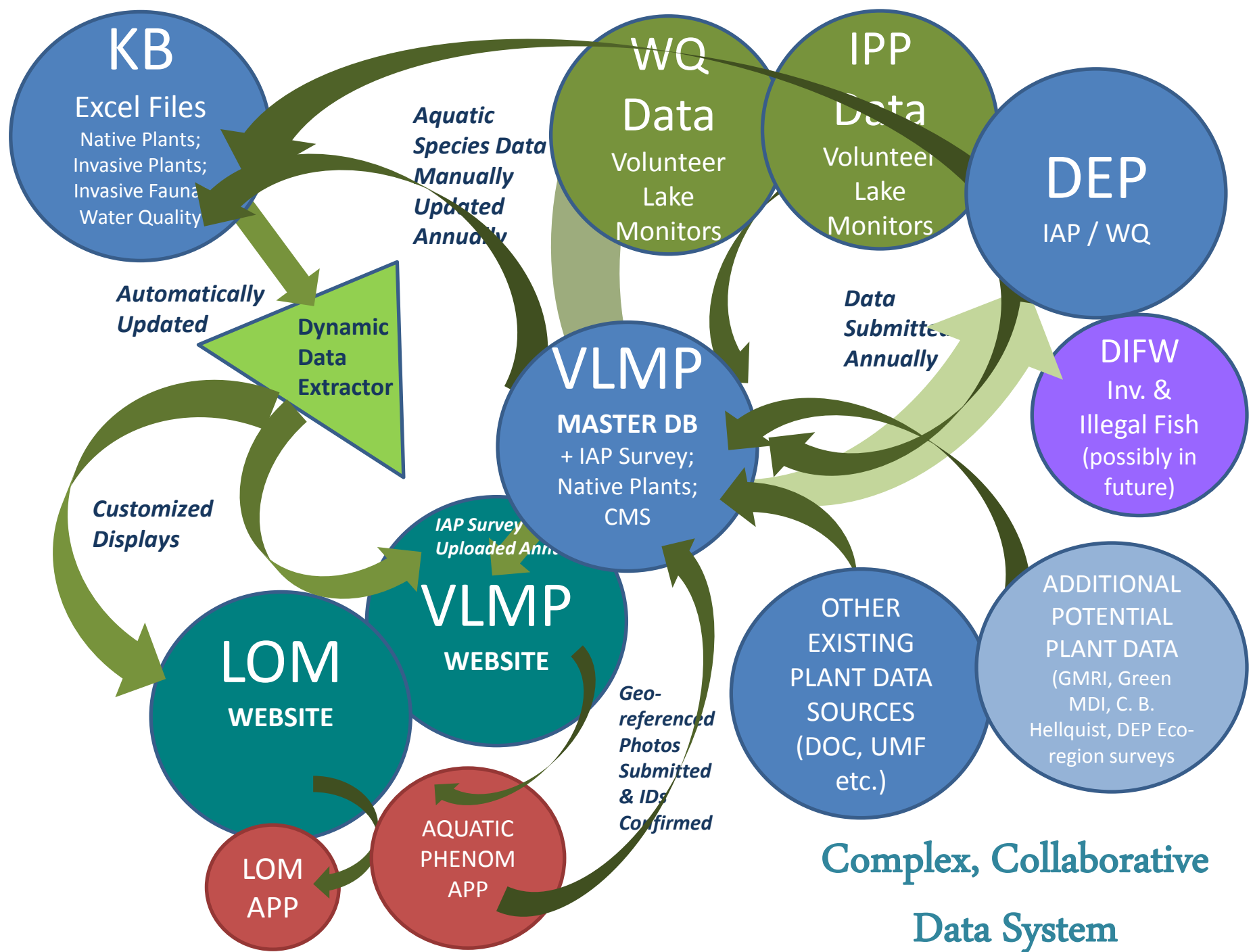
TECHNOLOGY & ON-LINE TOOLS



*Maine Field Guide to
Aquatic Phenomena*




VLMP Secchi Simulator, on-line recertification



Home

Watershed Survey Water Quality



Invasive Plant Patrol Volunteer Leadership

AVAILABLE VLMP WORKSHOP OPTIONS

VLMP WORKSHOPS VOLUNTEER RESOURCES 2012 MAINE LAKES REPORT

Maine Volunteer Lake Monitoring Project - Missi...



Watch video to learn more about the VLMP

SEARCH for YOUR LAKE

VLMP Lakes of Maine

VIEW CURRENT WATER QUALITY CONDITIONS ON MAINE LAKES

Website Underwriters



KnowledgeBase

Two Integrated Websites



www.mainevlmp.org

www.lakesofmaine.org

Information about Maine Lakes...
...Maps, Charts, Data, Documents & more

For...

- Lake associations in Maine
- Researchers in Maine & elsewhere
- Anglers, boaters, swimmers & other Maine lake users
- Lake managers

This site can also help you make connections with "lake minded" people in your community, as well as virtually all of the organizations, agencies, educational institutions and others who provide information and services pertaining to Maine lakes. We hope your search is productive, and welcome your feedback about LakesOfMaine.org.

What can you do at LakesOfMaine.org?

Learn

- Track the water quality of your lake. How does it compare with other Maine lakes?
- Discover the native & non-native plants & animals that inhabit Maine lakes
- Uncover the complexity of lake ecosystems

Research

- Download data
- Search hundreds of documents by lake or by topic
- Generate your own maps and graphics using dynamic data tools

SEARCH for YOUR LAKE

Lake
or
Town
or
Zip
or
MIDAS

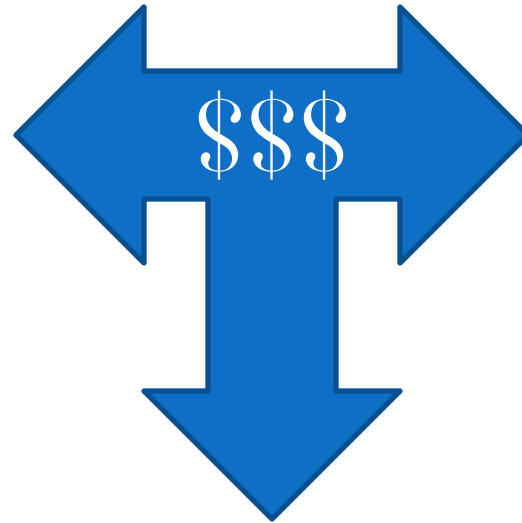
Search

CITIZEN LAKE SCIENCE
GET INVOLVED!





Funding Challenge

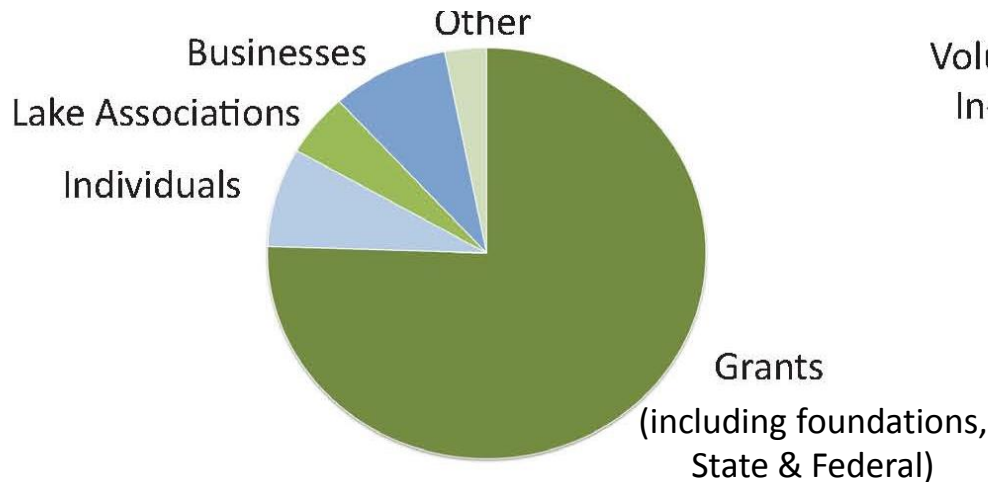


Initially,
the VLMP was
100% funded by
State & Federal
sources

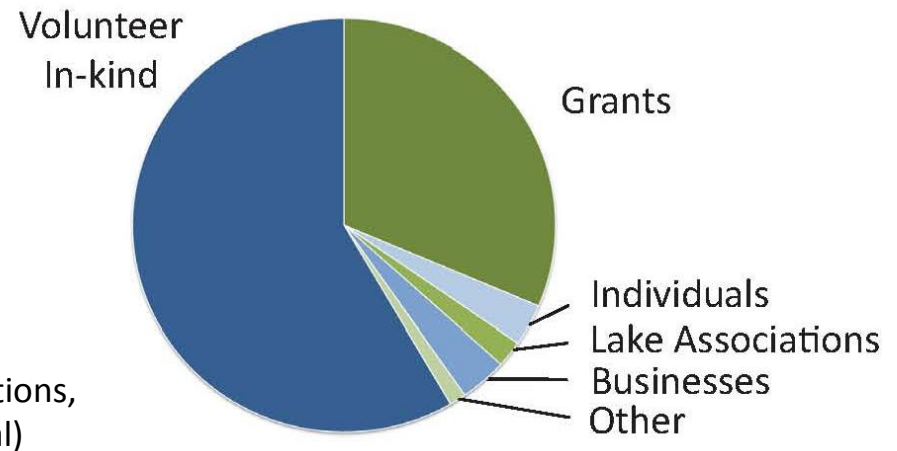


These sources are not
reliable year by year;
some government
grants have been
discontinued, others
flat-lined

2014 VLMP Operating Revenue



Before in-kind contribution



After in-kind contribution

We are striving to diversify our funding sources

Learning to be marketers and fund-raisers

LEVERAGE

The in-kind value of the work of VLMP volunteers is highly regarded, and attractive to those who support the organization financially

Every dollar that you invest in the VLMP is matched more than 10 times* over by the in-kind support of our dedicated volunteers



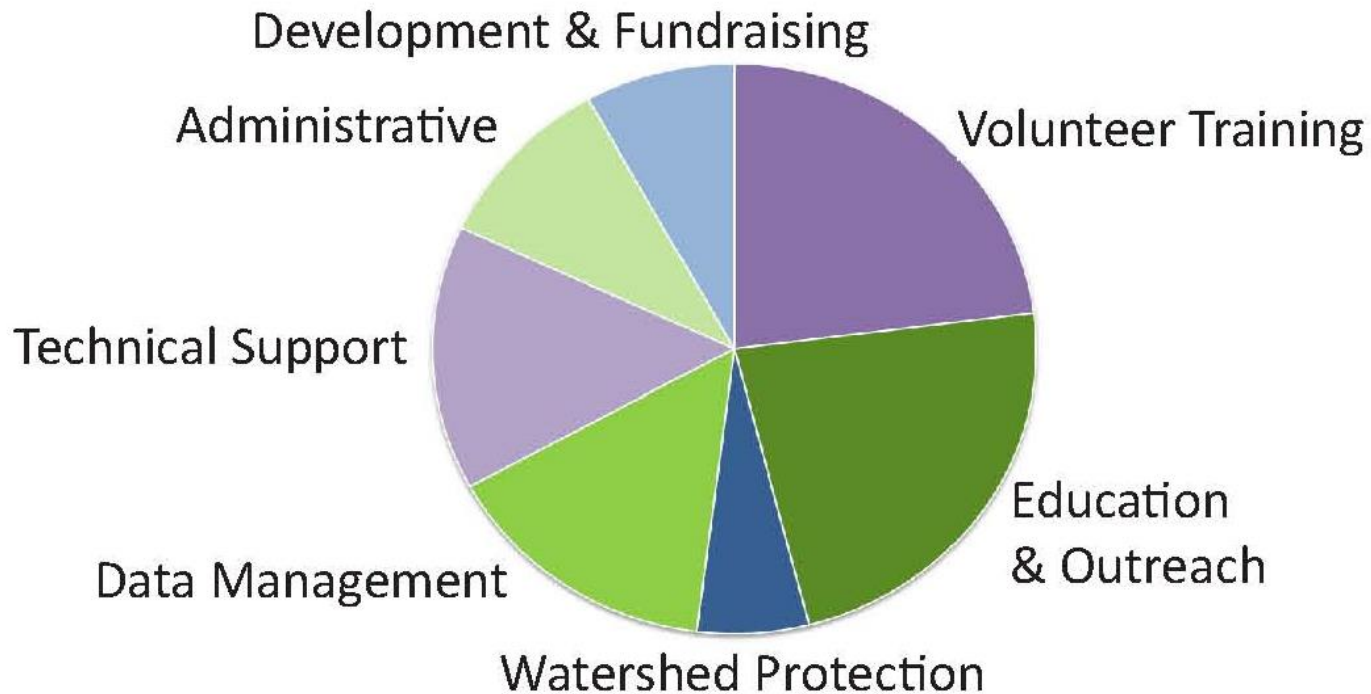
Your Dollar

*Volunteer
In-kind Match*



*based on 2010 levels of giving and in-kind support

2014 VLMP Operating Expenses



The majority of funds raised by the VLMP are used to support programs that directly benefit Maine Lakes



HYDROLOGIC CHALLENGE

6000 lakes and ponds

Thousands of miles of stream habitat

Addressing the Challenge

How do we address current gaps in the system?

How do we continue to grow while sustaining the effort over next 10, 20, 30 years?





**VLMP'S
INVASIVE
PLANT
PATROL
PROGRAM**



18 – 20 IPP Workshops Annually

- 8 – 10 Introductory
- 4 - 6 Survey Field Methods
- 1 Advanced Plant ID
- 2 - 3 IPP Leadership Trainings
- 2 Manual Control Workshops
- 1 – 2 School-based Trainings
- 350 – 400 individuals trained each year
- ~ 3500 IPPs trained to date
- nearly 600 of these opting for certification



IPP Introductory Workshops

6 hours, 4 segments, meal and breaks:

- Overview of IAS in Maine and beyond
- Identification of 11 listed IAP and look-alikes
- Hands on Plant ID exercise
- How to conduct and IAP screening survey



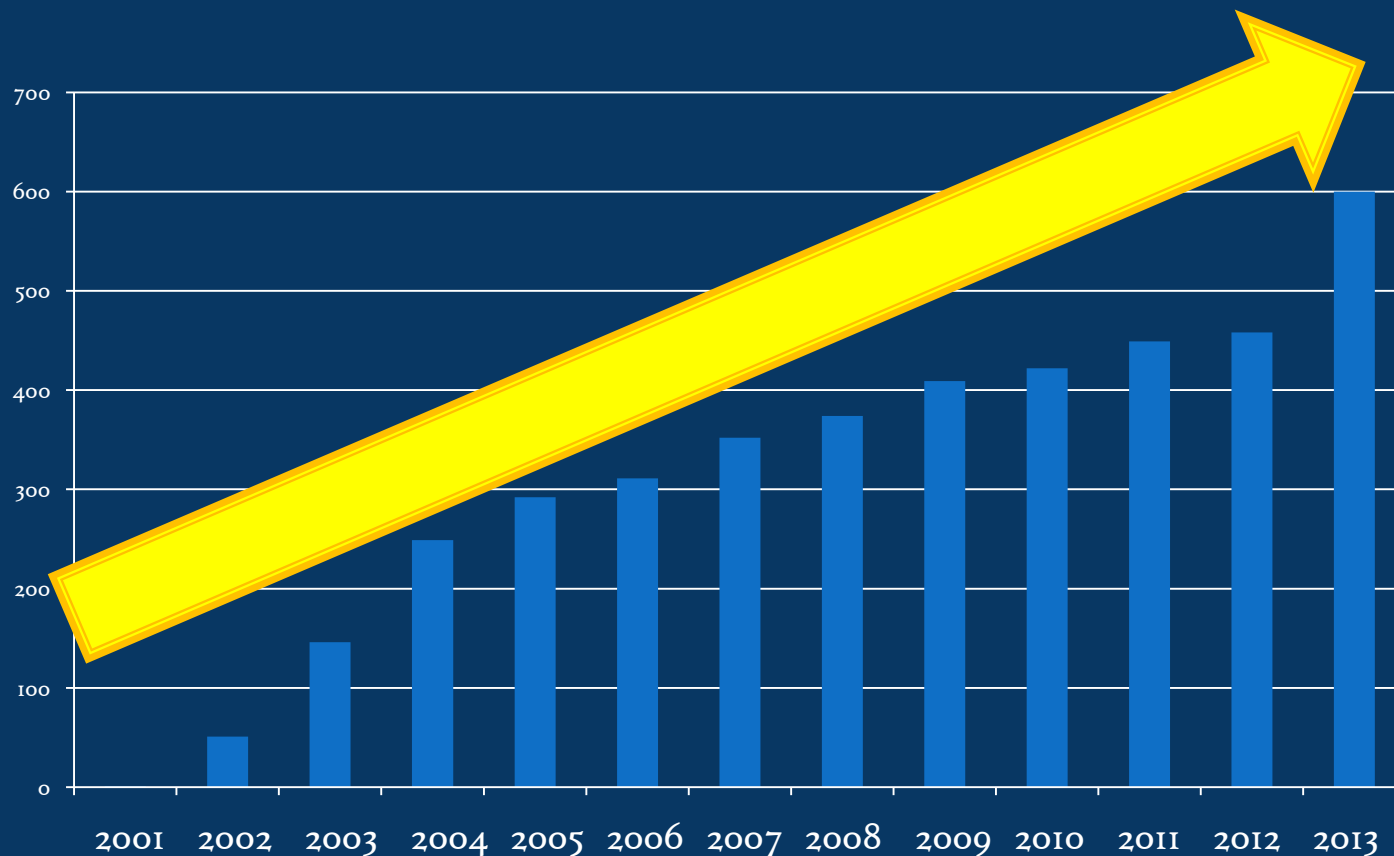
IAP Survey Field Methods

4.5 hours, 5 segments, meal:

- Intro and orientation
- OTW learning stations
- OTW guided practice
- Plant ID
- Wrap-up



The Challenge of Program Growth



- More IPP's trained each year
- More resources and technical support needed
- More surveys reported and data to process



SOLUTION IPP LEADERSHIP !



VOLUNTEER LEADERSHIP AT EVERY LEVEL

INDIVIDUAL LEVEL

Invasive Plant Patrollers

Trained Invasive Plant Patrollers, generally working in tandem, are taking action on the front-lines to protect Maine waters from the threat of aquatic invaders

LAKE LEVEL

Volunteer Lake Team Leaders

Team leaders help to organize teams, manage data, and provide technical assistance to team members

REGIONAL LEVEL

Volunteer IPP Regional Coordinators

Often working in concert with paid regional lake & watershed association staff, volunteer regional coordinators help to organize and support IPP team efforts on the lakes in their region

STATEWIDE LEVEL

Volunteer IPP Leaders

IPP Leaders work directly with VLMP and State Agency Partners to support statewide early detection and rapid response efforts

LEADERSHIP TRAINING & CERTIFICATION OPPORTUNITIES

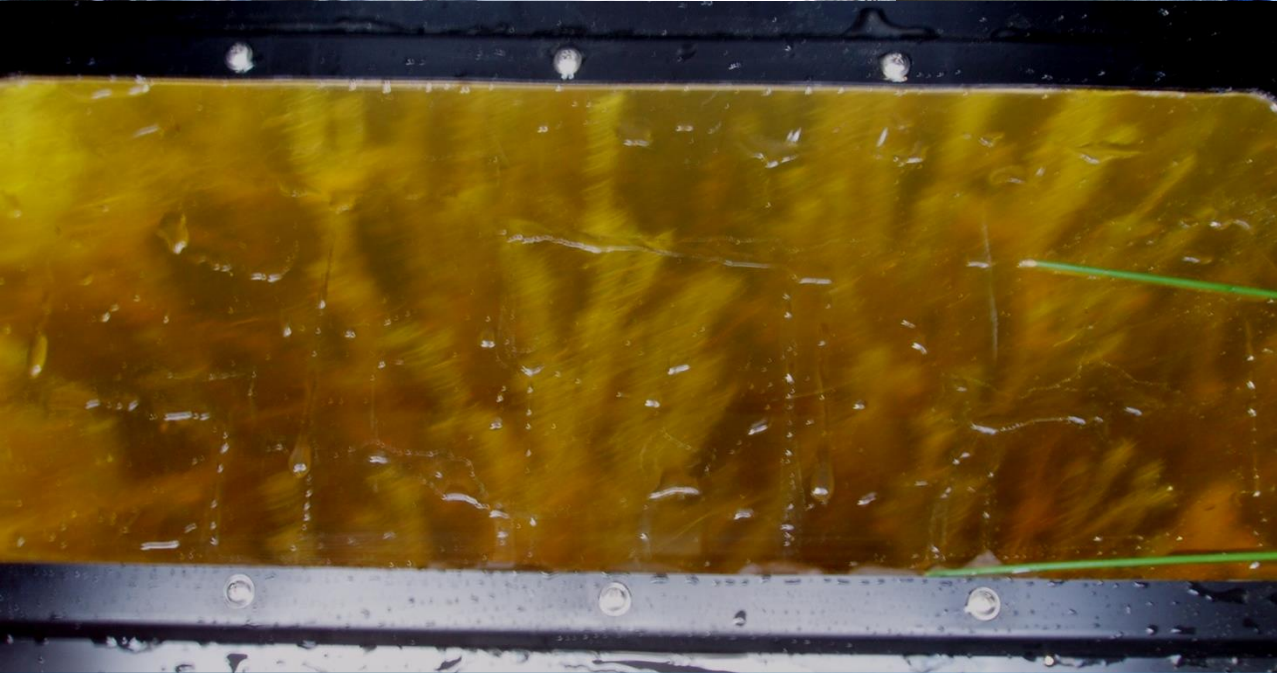


How to Lead a Plant Paddle



Spring Scope Clinic





Trunk Scope



Kayak Scope



Aquatic Plant Identification Proficiency Certification

IPP Jump-Start

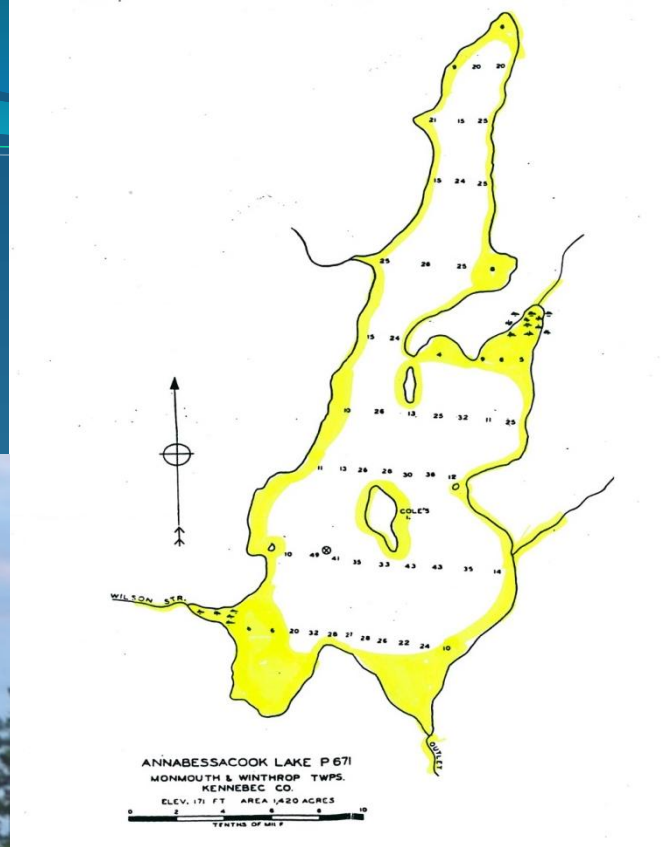
Moosehead Level-3 Survey Complete!

NO IAS FOUND

110 Aquatic Plants Documented



IPP First Responders



EMPHASIS ON TEAMS



The more eyes on the water the better

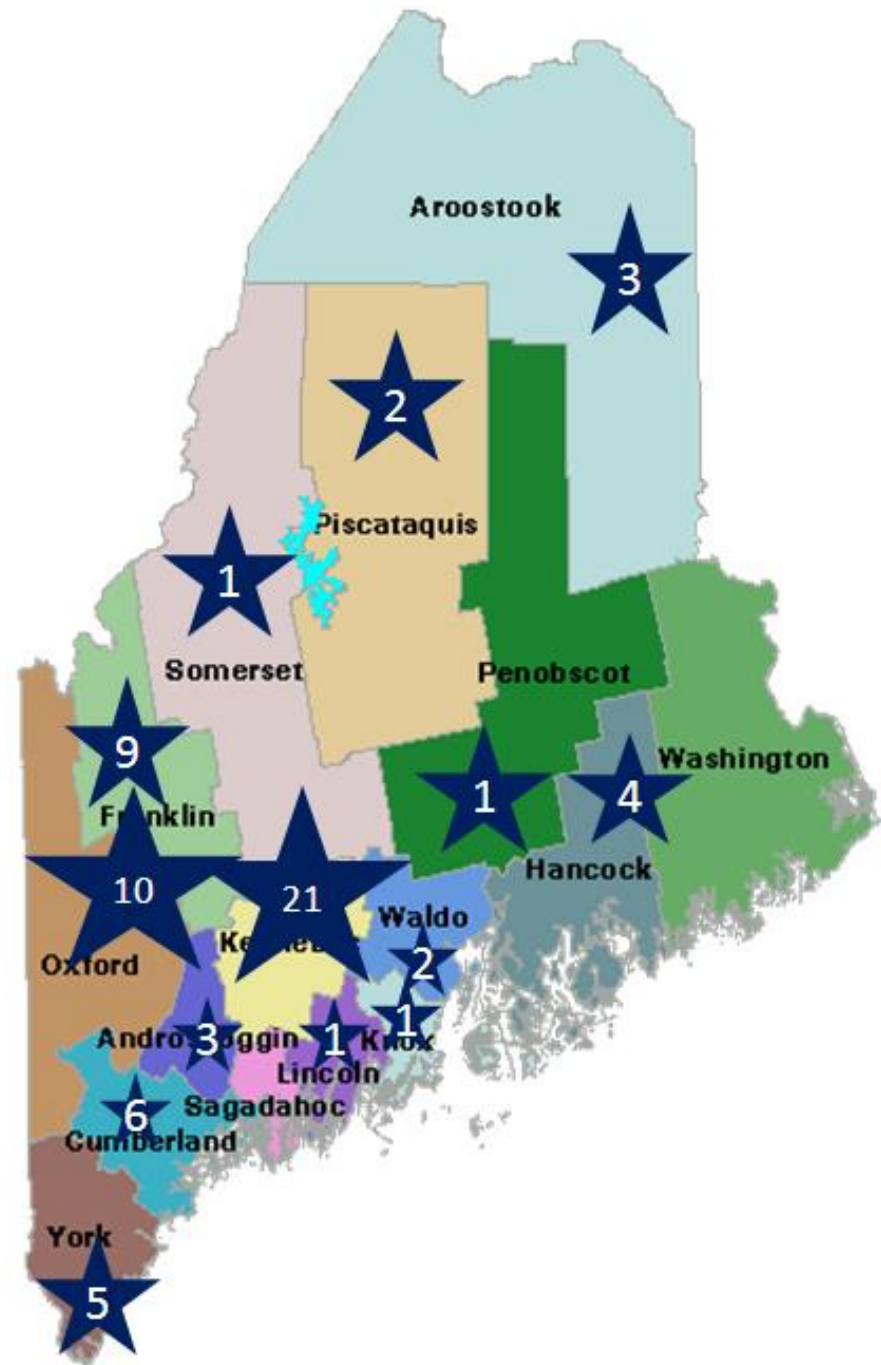
Better quality assurance

Long term sustainability

More fun!!

**80 plus
TEAMS &
counting!**

(active or actively forming)



It is Working!

**THREE LAKES HAVE BEEN
DELISTED!**

Great East Lake (VWWM)

Middle Range Ponds (VWWM)

Salmon Lake (EWM)

**SEVERAL MORE ARE GETTING
THERE . . .**

Cushman Pond (VWWM)

Pleasant Lake (VWWM)

Lily Brook (VWWM)

Pickerel Pond (HYDRILLA)



In almost every case . . .



*. . . early detection and dedicated volunteer effort have
been the keys to success*

Lew Wetzel & Pixie Williams, PLPPA

Fini!



Merci!

Please contact me for
more information



Roberta Hill

Invasive Species Program Director

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www.MaineVLMP.org