

## **2016 Resource Analysis and Scientific Services**

The Resource Analysis and Scientific Services (RASS) Division of the Adirondack Park Agency is responsible for providing scientific and engineering advice to all other Agency divisions. Often times RASS staff act as the interface between other Agency Divisions offering technical determinations and providing insight on environmental issues. RASS staff are always engaged with addressing the linkages between science and policy and the interpretation of highly technical and complex material.

RASS staff work to educate the project sponsor regarding the resources of concern and the reasons for their protection with a high level of professionalism, civility and respect. RASS Division staff use a guiding principle to “Protect natural resources by applying relevant laws, regulations, standards and policies using good science and sound engineering judgment, while at the same time, being respectful and consistent with all those with whom we come in contact.”

Staff also provide wetland determinations and field delineations to landowners in the Adirondack Park. This is an integral and often first-step in the planning and design phases of projects and helps to avoid and/or minimize wetland impacts. RASS staff often spend long hours in the field advising design that will avoid adverse environmental impacts.

Through any given year RASS staff work on projects, enforcement cases, variances, and policies, and provide technical advice regarding a wide variety of topics including making height, navigability and mean high water mark determinations, identifying, delineating and evaluating wetlands, assessing wildlife impacts, assisting lake associations in management of aquatic invasive species, and assessing forest management activities. All Agency transactions that involve wetlands, soils, wastewater treatment, surface waters or forests pass through RASS for resource analysis and recommendations.

### **Engineering**

Evaluating existing and proposed development within the Park requires professional engineering services and technical analysis that is based upon sound science and engineering judgment and is consistent with applicable laws, regulations, standards, policies and guidance documents. RASS engineering staff routinely conduct site visits, review professionally prepared plans and provide recommendations and alternative designs where appropriate. Subject areas, include, but are not limited to: on-site wastewater treatment, site design and access, stormwater management, erosion and sediment control, dams, bridges, roads, traffic, noise and adequacy of municipal services. The technical analysis provided by RASS Engineering staff includes professional opinions that are protective of life, health, and the natural resources of the Park.

RASS staff continued tracking the number of engineering reviews by category as well as reviews by Agency division in 2016. The purpose of the tracking is to provide an overview of how engineering services are utilized at the Agency and the amount of time spent on some of the more common review areas. Engineering staff also completed 122 site visits in 2016, compared to 187 site visit in 2015.

In 2016 RASS Engineering staff provided written technical recommendations (by Division) as follows (see Figure 1):

- Regulatory Programs (Permit Applications) – 368
- Legal (Jurisdictional Office, legal reviews) – 101
- Legal (Enforcement) – 85
- Planning (Local Government/Map Amendments/  
State Land) – 45

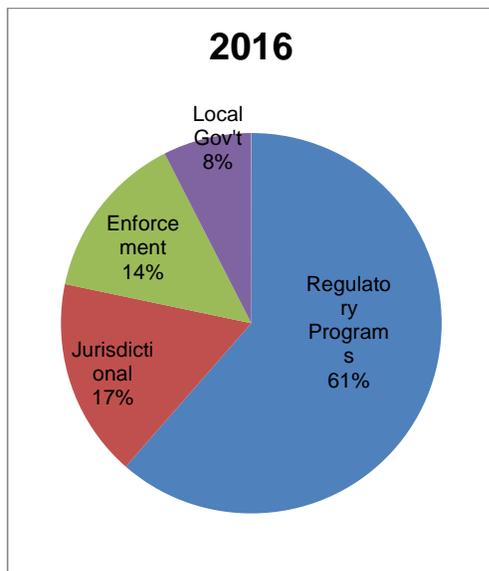


Figure 1. Engineering reviews by Agency Division (2016)

Engineering staff also organized reviews by category which is found in Table 1 and depicted in Figure 2. The following is a description of categories reviewed by Agency engineers:

On-Site Wastewater Treatment Systems - typical reviews consist of evaluation of plans prepared by a New York State Licensed Professional Engineer for compliance

with applicable laws, regulations, standards and policies for protection of health and water resources.

Stormwater Management - typical reviews consist of evaluation of plans prepared by a qualified professional for compliance with applicable laws, regulations, standards and policies. Through the application of the Agency's Development Considerations, the goal is to prevent surface and groundwater impacts from stormwater runoff associated with development proposals. Potential impacts from untreated stormwater runoff include a decline in surface water quality, diminished groundwater recharge and quality, stream channel erosion and habitat degradation, increased overbank flooding, floodplain expansion and impacts to aquatic organisms.

Shoreline - reviews include a broad spectrum of programs including projects, variances, jurisdictional determinations, State land and enforcement cases. Typical evaluations include both office plan reviews and site visits for structures such as new and expanded single family dwelling construction, retaining walls, boathouses, docks, boardwalks, decks and other accessory structures.

Shoreline Variance Proposals - reviews include proposals submitted which require variances, jurisdictional determinations, or enforcement cases.

Table 1. Engineering reviews by category

OSWTS Reviews	273
Stormwater Management	210
Shoreline Reviews	210
Shoreline Variance Proposals	130

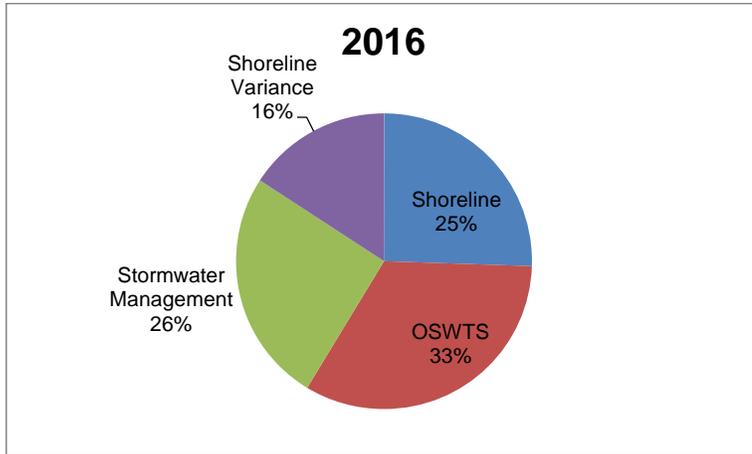


Figure 2. Engineering reviews by category (2016)

### Soils

A qualified soil scientist on the Agency staff provides an essential service to the public with provides information and analysis about the soil component of on-site wastewater treatment systems (OSWTS). This process is vital so Agency engineering staff can efficiently issue approvals for submitted OSWTS designs.

In 2016 a total of 82 projects involving 177 deep-hole test pits (DHTPs) were reviewed by Agency staff (Table 2). Of the 177 DHTPs, 138 were described by Agency staff and 40 were described by outside consultants. All data submitted by consultants is checked by Agency staff to ensure soil profile accuracy, separation requirements, and appropriate setback distances. In 2016, 46 percent of the test pits were approved for conventional on-site wastewater treatment systems (OSWTSs), 37 percent were approved for shallow absorption OSWTSs, and 18 percent did not meet Agency guidelines (Figure 4).

Of the approved shallow systems 59 percent were due to shallow seasonal high groundwater and 6 percent were due to shallow bedrock.

<b>Deep Hole Test Pit Statistics</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>YTD</b>
<b>Projects Involving DHTPs</b>	<b>5</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>6</b>	<b>11</b>	<b>10</b>	<b>5</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>82</b>
DHTPs Described by APA	9	7	8	7	11	9	21	14	17	12	19	4	138
DHTPs Described by Consultants	4	3	1	15	0	0	5	3	0	4	2	3	40
<b>Total DHTPs</b>	<b>12</b>	<b>10</b>	<b>9</b>	<b>22</b>	<b>11</b>	<b>9</b>	<b>26</b>	<b>17</b>	<b>17</b>	<b>16</b>	<b>21</b>	<b>7</b>	<b>177</b>
Approved Conventional Systems	10	1	3	10	5	0	16	6	5	12	10	4	82
Approved Shallow Systems	2	5	5	12	6	3	8	9	5	3	5	2	65
Did not Meet Agency Guidelines	1	4	1	0	0	6	2	2	7	1	6	1	31
Approved Conventional Systems %	83%	10%	33%	45%	45%	0%	62%	35%	29%	75%	48%	57%	46%
Approved Shallow Systems %	17%	50%	0%	55%	55%	33%	31%	53%	29%	19%	24%	29%	37%
Did not Meet Agency Guidelines %	8%	40%	11%	0%	0%	67%	8%	12%	41%	6%	29%	14%	18%
<b>Shallow Systems Breakdown</b>													
Approved Shallow Systems	2	5	5	12	6	3	8	9	5	3	5	2	65
Shallow Systems due to SHGWT	2	5	5	12	6	3	4	8	5	3	4	2	59
Shallow Systems due to Bedrock	0	0	0	0	0	0	4	1	0	0	1		6
Shallow Systems due to SHGWT %	100%	100%	100%	100%	100%	100%	50%	89%	100%	100%	80%	100%	91%
Shallow Systems due to Bedrock %	0%	0%	0%	0%	0%	0%	50%	11%	0%	0%	20%	0%	9%

Table 2. Deep-hole test pit statistics for 2016

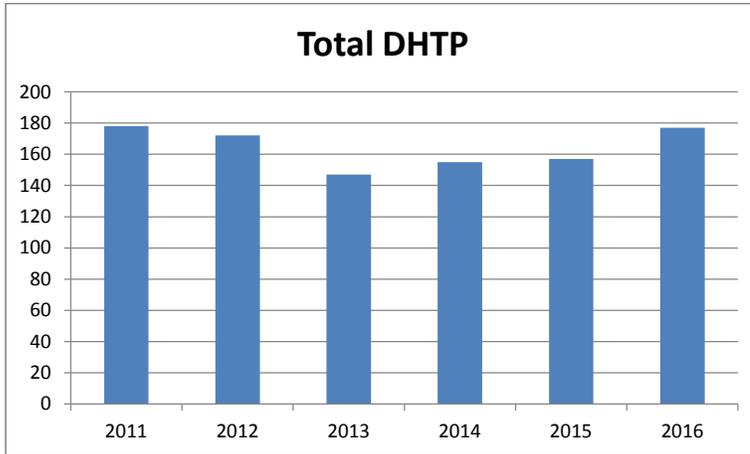


Figure 3. Deep-hole test pits described by the APA (2011- 2016)

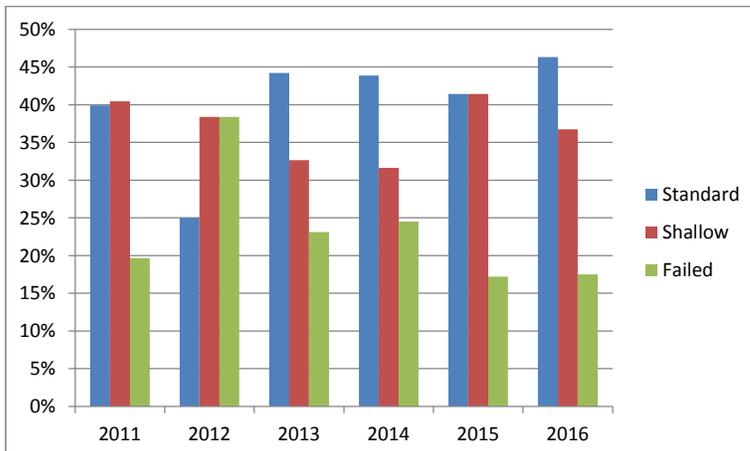


Figure 4. Number of approved shallow and conventional systems and number of systems that did not meet Agency guidelines.

### Wetlands

Wetland involvement is a common Agency jurisdictional trigger. The NYS Freshwater Wetlands Act and the APA Act have stringent requirements for regulated activities involving wetlands. The Agency's wetlands protection program including mapping, delineation, evaluation, mitigation, and impact analysis is proactive, responsive to public needs, and technologically advanced. RASS wetlands staff provide a level of service to the public that has no parallel.

During 2016 a total of 265 wetland visits were made throughout the Park (Figure 5). This represents a slight increase from 2015 which had 247 site visits. Each visit involved a

wetland determination and/or delineation and most involve some educational component. Some of the wetland delineations, due to wetland size, took several days to complete. The average processing time of all 265 visits was 11 days (Table 3).

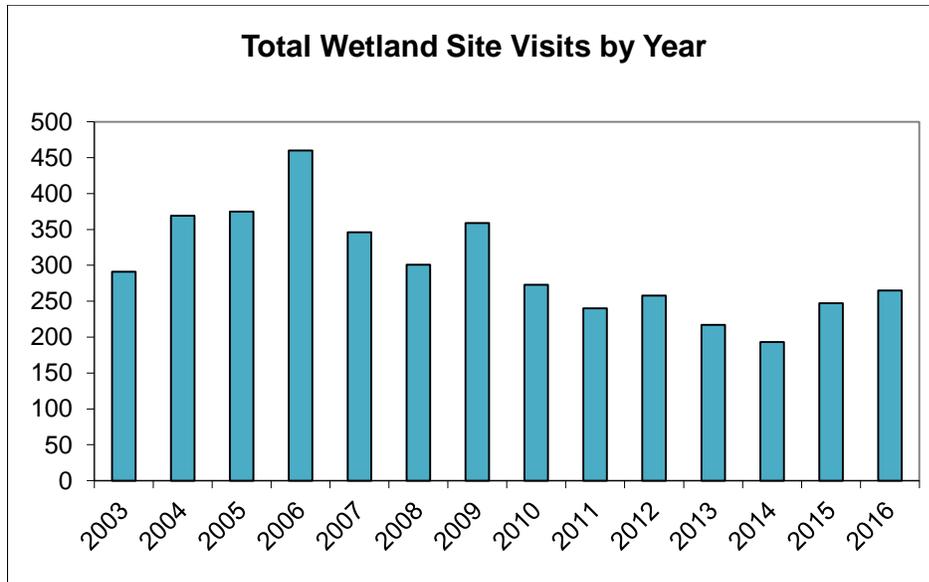


Figure 5. Wetland visits by year (2003 to 2016).

<b>Time Period</b>	<b>Number of requests received during month</b>	<b>Number completed</b>	<b>Interval for processing. (Date received to date scheduled for those received in that month)</b>	<b>Number pending</b>
January	1	1	N/A	0
February	4	3	N/A	1
March	34	10	N/A	25
April	27	38	13	14
May	42	36	19	20
June	34	34	14	20
July	25	33	12	12
August	36	38	13	10
September	19	24	8	5
October	26	23	9	8
November	16	20	7	4
December	1	5	0	0
Cumulative for 2016	265	265	Average = 11	0

Table 3. Total wetland site visits by month and average processing time for wetland site visits.

### **Remote Sensing**

RASS staff conducted 477 wetland air photo interpretations in 2016, mostly in support of other Agency divisions as summarized in Table 4 and depicted in Figure 6. Air photo interpretations are conducted with high-resolution digital stereo pairs of air photos viewed with state-of-the-art hardware and software bought through previous Environmental Program Agency (EPA) grants. The equipment enables staff to respond to requests for wetland determinations in a timely manner and significantly reduces the need for on-the-ground wetland field visits. The number of air photo interpretations increased significantly in 2016 as depicted in Figure 7.

	JIF	Referrals	Project Review	Enforcement	For Citizens	For Other Staff	Other	Total
Jan.	12	1	5	3	1	2	2	26
Feb.	16		11	2		3	2	34
March	33	1	13	2		3	6	58
April	23	4	9	4	1	4		45
May	23	4	10	4		2		43
June	21	4	10	5		2	5	47
July	20	2	6	4	1	1	4	38
Aug.	13	7	3	3	2	1	5	34
Sept.	25		23	3		2	6	59
Oct.	16		8	6	4	3	1	38
Nov.	17	5	5	3	1	2	4	37
Dec.	12	1	2			1	2	18
Total	231	29	105	39	10	26	37	477

Table 4. Air photo interpretations by request.

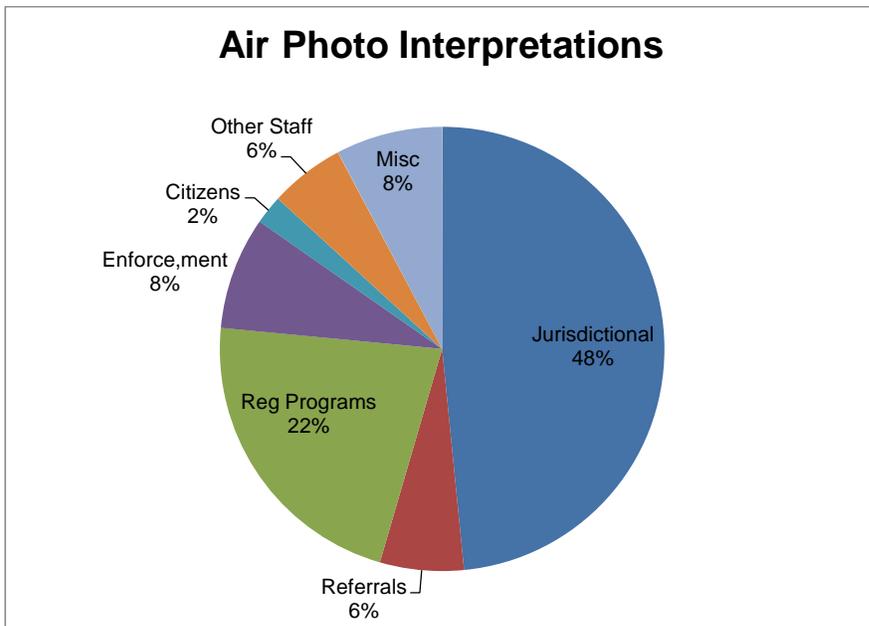


Figure 6. Air photo interpretations by request.

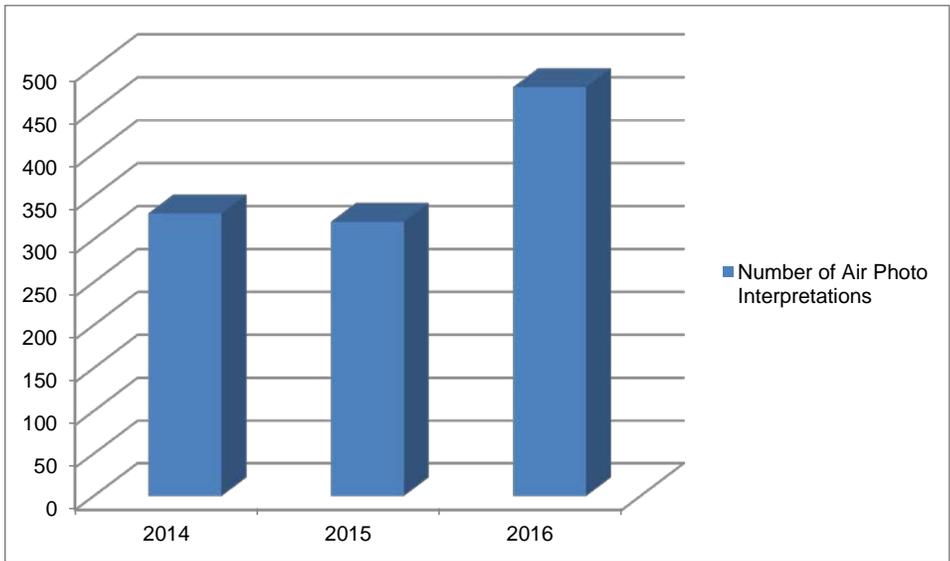


Figure 7. Total number of air photo interpretations by year

**Biological, Freshwater and Forestry Resources**

RASS ecologists and forestry specialist staff track the number of biological, freshwater wetlands, and forestry related reviews by category. The purpose is to provide an overview of time spent on some of the more common review areas for staff and provides an overview of how wetland biologists, freshwater ecologist and forestry specialist services are utilized at the Agency. As depicted in figure 8, wetland related project reviews accounted for approximately 60 percent of the reviews and freshwater resource related projects, mostly attributed to aquatic invasive species management, and represented 25 percent of the reviews. Forestry related reviews also accounted for 8 percent by category.

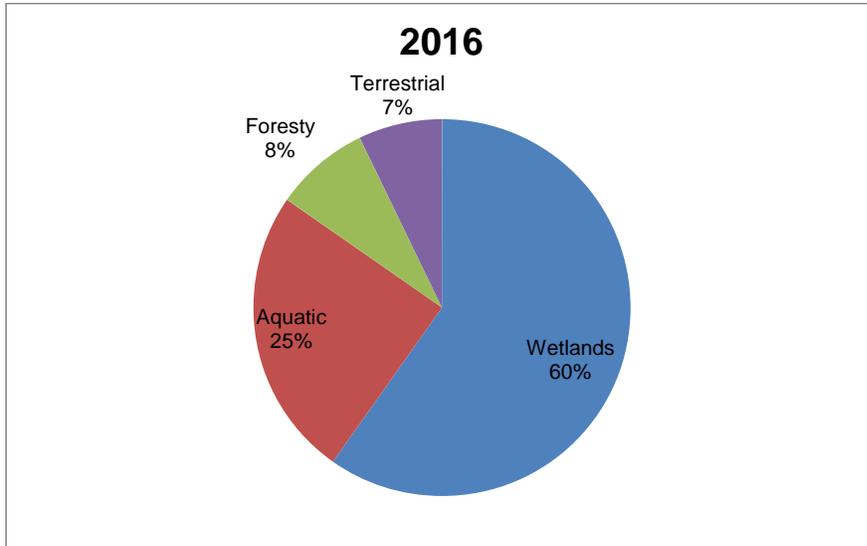


Figure 8. Wetlands, biological resources, freshwater resources (aquatic) and forestry project reviews.

### Freshwater Resources

In early 2016 Agency staff worked with lake associations and local municipalities to issue new general permits for aquatic invasive species management activities. The new permits were required to replace general permit 2008G-1B, which these entities had originally been issued. The permit had expired and a new permit had to be issued before management activities could continue. In the spring, staff reviewed the operational aspects of a Diver Assisted Suction Harvester (DASH – essentially a vacuum used to transport harvested plants from the lake bottom to a boat) and issued a conditional letter of non-jurisdiction when its use is associated with an otherwise permitted activity. By doing this lake associations/managers are given greater flexibility when undertaking aquatic invasive species management activities.

During the summer Agency staff participated in conference calls regarding the Lake Champlain Basin Program's Rapid Response review of a newly discovered Asian clam infestation in Bomoseen Lake (Vermont). The Rapid Response team was established in 2009 to provide technical guidance regarding new introductions of aquatic invasive species anywhere within the Lake Champlain watershed.

Agency staff served on the Invasive Species Council, the Adirondack Aquatic Invasive Species Advisory Committee, the NYS Benthic Barrier workgroup, and the Lake George Asian Clam task force. Staff assisted the Lake George Park Commission in their annual Lake George lake-wide Asian Clam survey, assisted Adirondack Park Invasive Plant Program (APIPP) in the monitoring of two large water bodies for spiny water flea, and

assessed seven backcountry waterbodies for the presence of AIS, the results of which were provided to APIPP. Agency staff also reviewed aquatic invasive species Invasiveness Rankings for APIPP.

Agency staff updated the APA's Triploid Grass Carp and Pond Reclamation on Forest Preserve permit applications and updated and expanded the APA's Water Resources Consultants List. This list of professionals is provided to lake associations and municipalities.

### **Forests**

The privately owned forests of the Adirondacks are perhaps the most visible of the park's natural resources. Factors such as invasive pests and pathogens, climate disruption, acidic deposition, and poor management pose the threat of significant impairment. The Agency has the ability to encourage good forest management practices on these lands that will result in a resilient, healthy forest more capable of resisting these perturbation factors.

In 2016, RASS staff reviewed eight proposals for jurisdictional timber harvesting projects. Each project was designed to meet specific silvicultural goals, based upon existing forest conditions, with the intent of creating favorable conditions for long-term forest health and timber value. Most of the project sites were within New York State Working Forest Conservation Easements, and subject to the rigorous standards of third-party forest certifications. These projects have been the result of a continued expansion of communications between Agency staff and managers of large tracts of Adirondack timberlands, which has enabled Agency review of a management activity integral to the fabric of the Adirondack Park.

### **EPA Grant**

The Adirondack Park Agency was awarded Wetland Protection Program Development grant (CD #97208000) in 2011 to establish a network of long-term wetland monitoring sites that enable analysis of wetland responses to climate change. The grant ended in 2015 but the Environmental Protection Agency (EPA) approved a no-cost extension for 2016 to continue monitoring wetlands considered vulnerable to climate change in the Adirondacks. This no-cost extension was overseen by the State University of New York College of Environmental Science and Forestry.

The objectives of the no-cost extension phase of this project were to 1) continue monitoring phenological indicators of targeted wetlands with citizen scientists; 2) complete wetland condition assessments at additional sites; and 3) continue with trial monitoring of important climate change indicators in targeted wetlands via installation of data loggers.

In 2016 the number of site visits and phenological surveys by citizen scientists more than doubled taking full advantage of the citizen science data interface built for the project. Six Tier III wetland condition assessments following protocols established by the project were also completed. In addition, data was retrieved from temperature, water level and precipitation data loggers to characterize environmental conditions at the study sites.

Project partners are actively exploring funding sources in order to continue citizen science outreach and data analysis in the future.

**Committee and Organizational Affiliations**

List of Committees or Organizations in which RASS Staff Participate

<b>Committee Name</b>	<b>Staff Participant</b>	<b>Number of Meetings in 2016</b>
Lake Champlain Basin Program Technical Advisory Committee	Snizek	10
Lake Champlain Basin Program Aquatic Nuisance Species	Snizek	2
Adirondack Aquatic Nuisance Species Committee	Walrath	Quarterly meetings
Northeast Aquatic Plant Management Society (NEAPMS)	Walrath	January 13-14, 2016
New York State Federation of Lake Association (NYSFOLA)	Walrath	Annual meeting
Adirondack Park Invasive Plant Program (APIPP)	Walrath	2
NYS Invasive Species Council	Snizek	Quarterly meetings
SUNY Plattsburgh Guest Lecturer (Wetland Ecology)	O'Dell	1
Lake George Asian Clam Taskforce	Walrath	Quarterly meetings
Lake Champlain Basin Program AIS Rapid Response Team	Walrath	1
NYS Hydrilla taskforce conference call	Walrath	4
NYS Benthic Barrier Workgroup	Walrath	1
Adirondack Lakes Alliance Meeting/Conference	Walrath	2
Lake George Watershed Coalition Meeting	Walrath	2
NYS Statewide PRISM webinar	Walrath	Monthly
Lake George Salt Summit	Walrath	4
Lake Champlain Basin Program Aquatic Invasive Conference	Snizek/Walrath	1
Forest Pest Conference	Snizek/Ziemann	1