

## **2015 Resource Analysis and Scientific Services**

The Resource Analysis and Scientific Services (RASS) Division of the Adirondack Park Agency is tasked to provide sound, independent scientific and engineering advice to all other Agency divisions. RASS staff are often the interface between other Agency divisions offering technical determinations and providing insight on environmental issues. RASS staff always address 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 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 on design plans that will avoid adverse environmental impacts.

Throughout 2015, RASS staff worked on projects, enforcement cases, variances, and provided technical advice regarding a wide variety of topics including making navigability, mean high water mark, and structure height determinations. Staff also identified, delineated and evaluated wetlands, assessed wildlife impacts, assisted lake associations in management of aquatic invasive species, and assessed forest management activities. All Agency transactions that involve wetlands, soils, wastewater treatment, surface waters or forests are reviewed by RASS for resource analysis and recommendations. In addition, RASS professionals can be called upon to provide expert testimony regarding their areas of specialization.

### **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 site visits and reviews by category as well as reviews by Agency Division in 2015. The purpose 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. RASS engineers completed a total of 187 site visits in 2015, compared to 137 site visits in 2014.

In 2015 RASS Engineering staff provided written technical recommendations (by Division) as follows (see Figure 1):

- Regulatory Programs (Permit Applications) – 295
- Legal (Jurisdictional Office, legal reviews) – 102
- Legal (Enforcement) – 71
- Planning (Local Government/Map Amendments/State Land) – 31

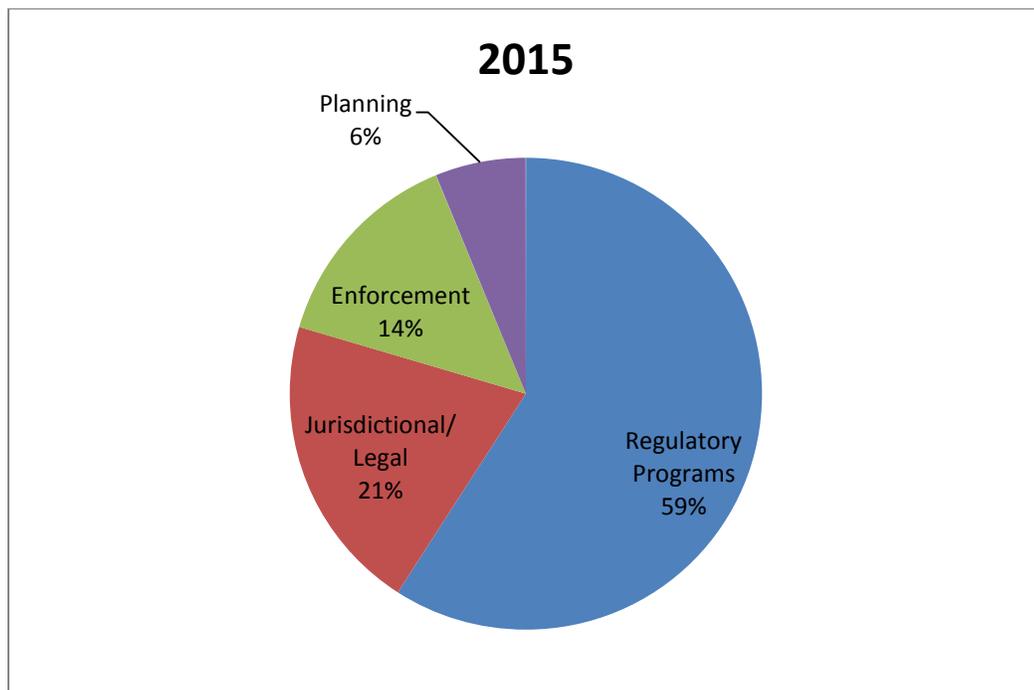


Figure 1. Engineering reviews by Agency Division

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.

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.

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.

OSWTS Reviews	198
Stormwater Management	187
Shoreline Reviews	212

Table 1. Engineering reviews by category

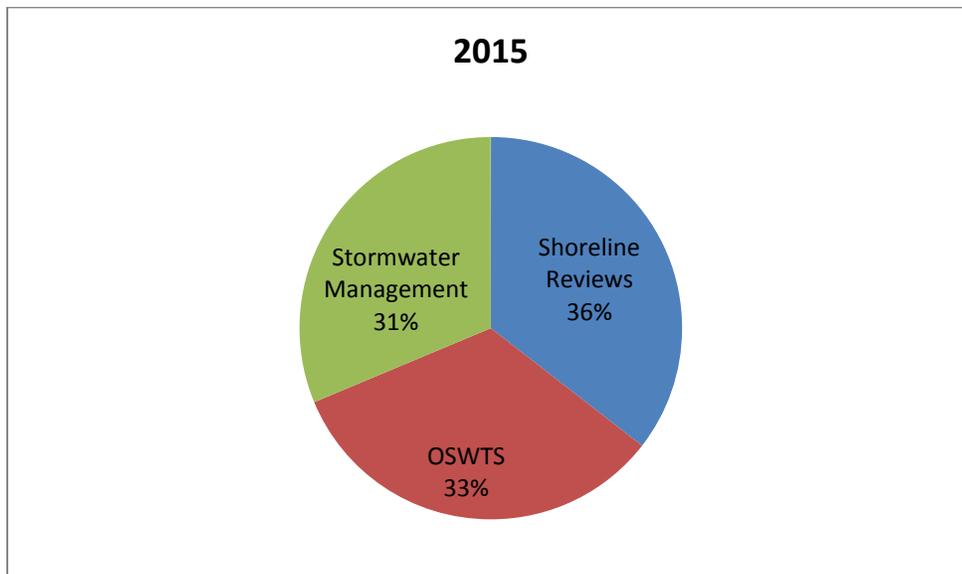


Figure 2. Engineering reviews by category.

## Soils

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

In 2015 a total of 91 projects involving 157 deep-hole test pits (DHTPs) were reviewed by Agency staff (Table 2). Of the 157 DHTPs, 133 were described by Agency staff and 24 were described by outside consultants (Figure 3). All data submitted by consultants is checked by Agency staff to ensure profile accuracy, separation requirements, and appropriate setback distances. In 2015 forty-one percent of the test pits were approved for conventional on-site wastewater treatment systems (OSWTSs), 41 percent were approved for shallow absorption OSWTSs, and 17 percent did not meet Agency guidelines (Figure 4).

Of the approved shallow systems 89 percent were due to shallow seasonal high groundwater and 11 percent were due to shallow bedrock (Figure 5).

Deep Hole Test Pit Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
<b>Projects Involving DHTPs</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>16</b>	<b>17</b>	<b>8</b>	<b>14</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>91</b>
DHTPs Described by APA	0	1	0	15	12	24	21	9	22	14	9	6	133
DHTPs Described by Consultants	4	7	0	0	0	5	3	0	0	2	2	1	24
<b>Total DHTPs</b>	<b>4</b>	<b>8</b>	<b>0</b>	<b>15</b>	<b>12</b>	<b>29</b>	<b>24</b>	<b>9</b>	<b>22</b>	<b>16</b>	<b>11</b>	<b>7</b>	<b>157</b>
Approved Conventional Systems	4	7	0	3	2	14	13	5	6	5	3	3	65
Approved Shallow Systems	0	0	0	4	6	11	8	2	15	9	6	4	65
Did not Meet Agency Guidelines	0	1	0	8	4	4	3	2	1	2	2	0	27
Approved Conventional Systems	100%	88%	0%	20%	17%	48%	54%	56%	27%	31%	27%	43%	41%
Approved Shallow Systems	0%	0%	0%	27%	50%	38%	33%	22%	68%	56%	55%	57%	41%
Did not Meet Agency Guidelines	0%	13%	0%	53%	33%	14%	13%	22%	5%	13%	18%	0%	17%
Approved Shallow Systems				4	6	11	8	2	15	9	6	4	65
Shallow Systems due to SHGWT				3	5	9	8	2	14	9	4	4	58
Shallow Systems due to Bedrock				1	1	2	0	0	1	0	2	0	7
Shallow Systems due to SHGWT	0%	0%	0%	75%	83%	82%	100%	100%	93%	100%	67%	100%	89%
Shallow Systems due to Bedrock	0%	0%	0%	25%	17%	18%	0%	0%	7%	0%	33%	0%	11%

Table 2. Deep-hole test pit statistics for 2015.

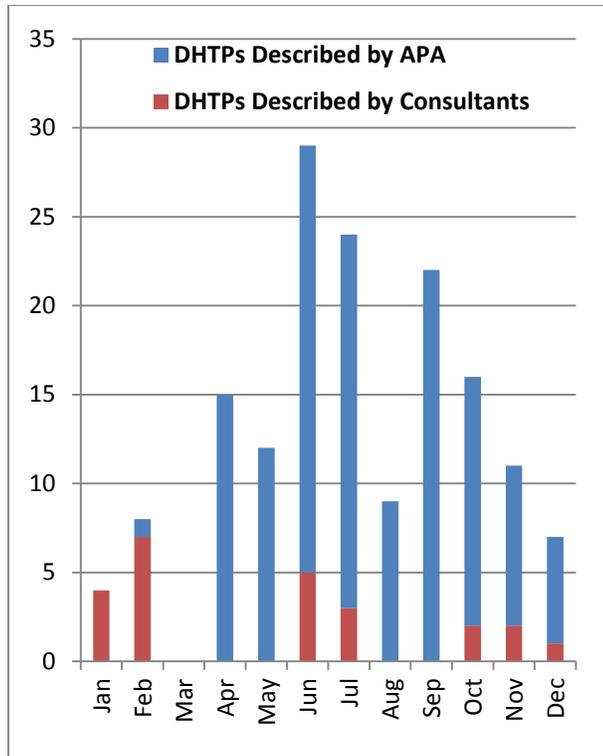


Figure 3. Deep-hole test pits described by the APA and consultants in 2015.

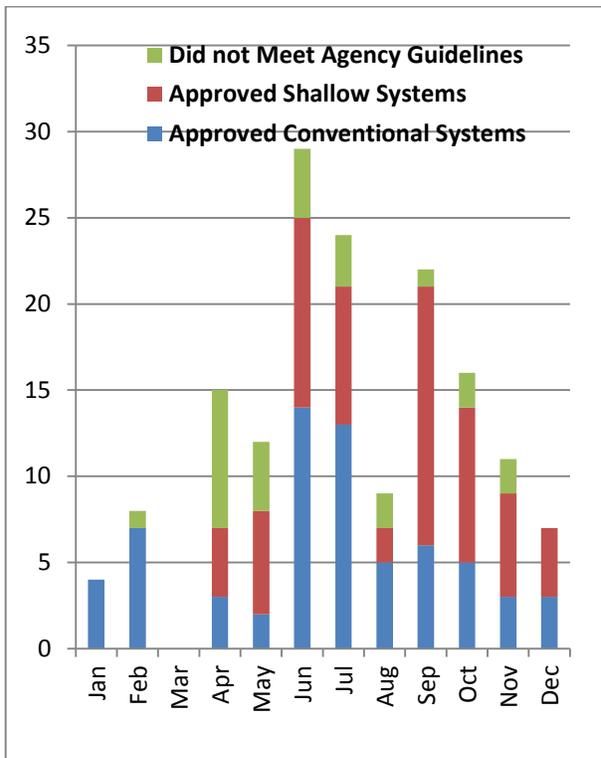


Figure 4. Number of approved shallow and conventional systems and number of systems that did not meet Agency guidelines.

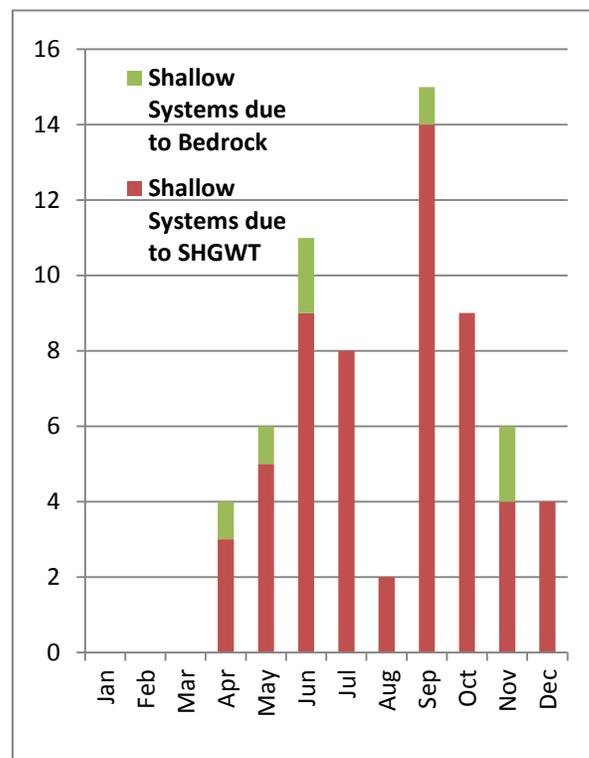


Figure 5. The number of approved shallow systems due to SHGWT and to bedrock. This graph is only accounting for shallow systems.

## Wetlands

Wetland involvement is a common 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 has been and is considered proactive, responsive to public needs, and technologically advanced. RASS wetlands staff provide a level of service to the public that has no parallel.

During 2015 a total of 247 wetland visits were made throughout the Park (Figure 6). This represents an increase from 2014 which had 193 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 247 visits was 14 days (Table 3).

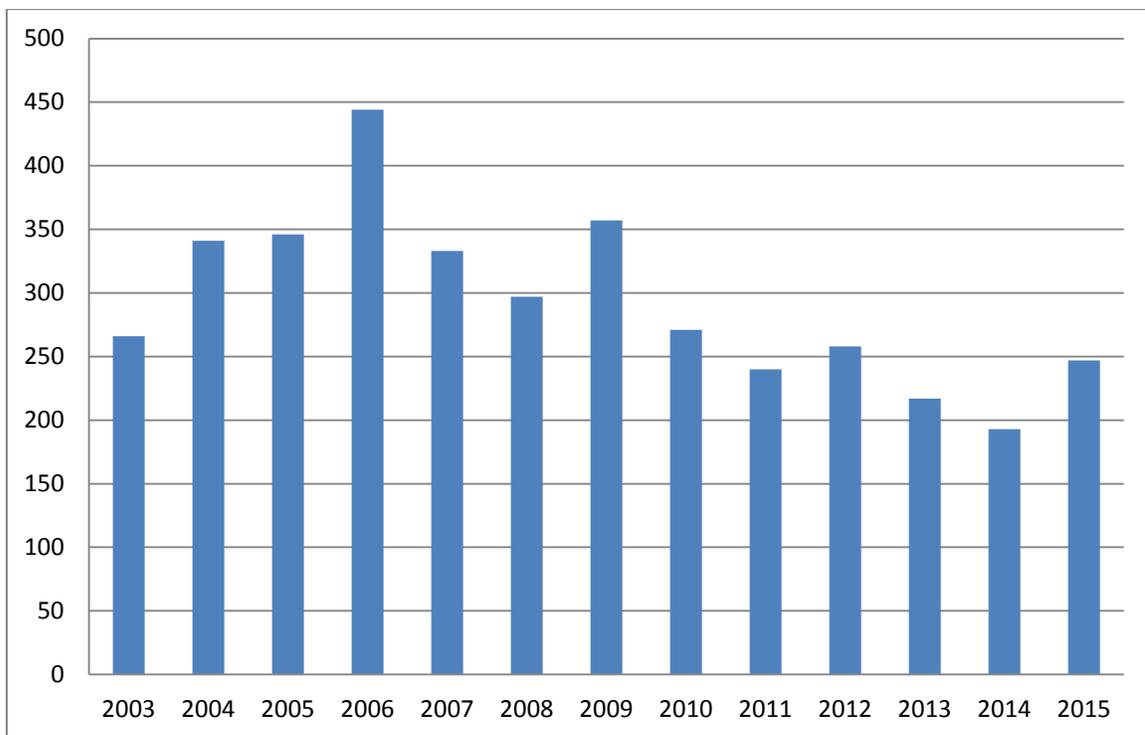


Figure 6. Wetland visits by year (2003 to 2015).

<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	2	2	N/A	0
February	1	0	N/A	1
March	0	1	N/A	0
April	40	8	16	32
May	33	36	26	29
June	39	49	24	19
July	28	36	12	11
August	16	18	15	9
September	31	28	11	12
October	27	32	11	7
November	18	17	8	8
December	12	20	5	0
Cumulative for 2015	247	247	Average = 14	0

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

### **Remote Sensing**

RASS staff conducted 345 wetland air photo interpretations in 2015, mostly in support of other Agency divisions as summarized in Table 4 and depicted in Figure 7. 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 our EPA grants. This allows staff to respond to requests for wetland determinations in a timely manner and significantly reduces the need for on the ground wetland field visits.

	JIF	Referrals	Project Review	Enforcement	For Citizens	Other Staff	Other	Total
Jan.	7		6				2	15
Feb.	11		6	1		3		21
March	16		10	3		6	5	40
April	33	5	7	3		4	2	54
May	13	2	5			1	1	22
June	17	1	3	5		0	1	27
July	17	1	3	3		1	2	27
August	21		2	1	1	2	1	28
Sept.	10		7	5	2	3	2	29
Oct.	20	3	3	5	1	0	3	35
Nov.	8	2	2	3	1	1	3	20
Dec.	14	2	7	1	1	0	2	27
Total	187	16	61	30	6	21	24	345

Table 4. Air photo interpretations by request.

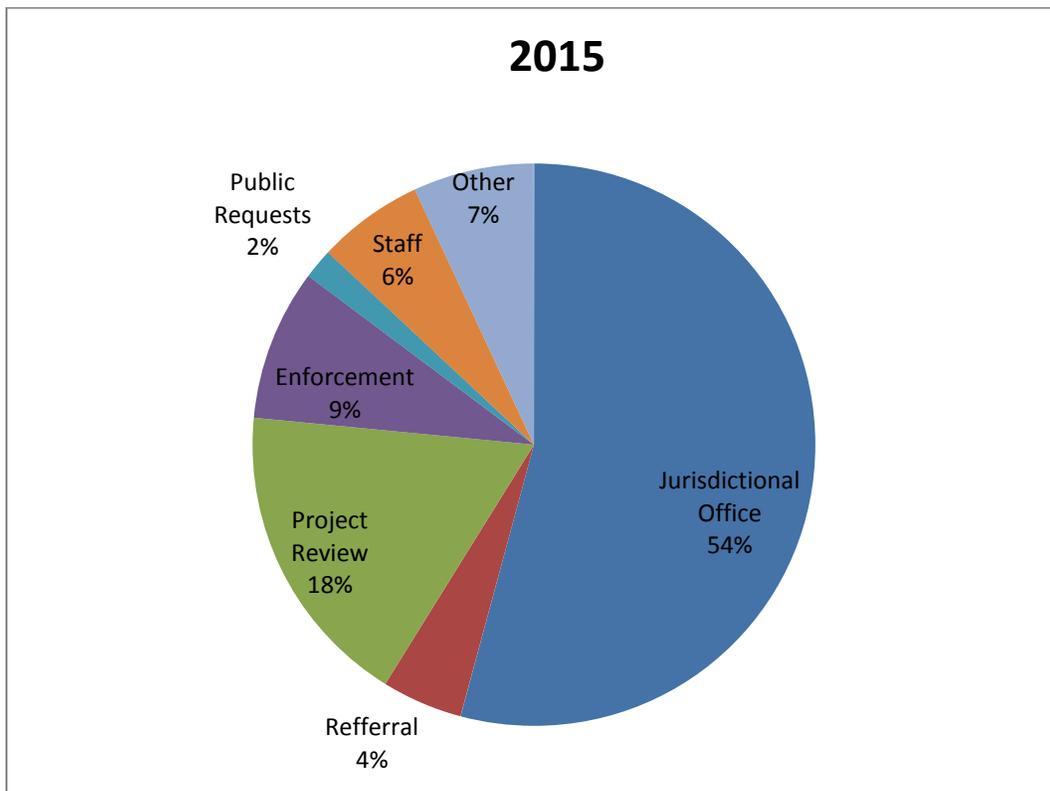


Figure 7. Air photo interpretations by request.

## **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 74 percent of the reviews. Forestry related reviews also accounted for 10 percent by category. Freshwater resource related projects accounted for 8 percent of the reviews, mostly attributed to aquatic invasive species management . Biological resource related reviews also accounted for 8 percent by category.

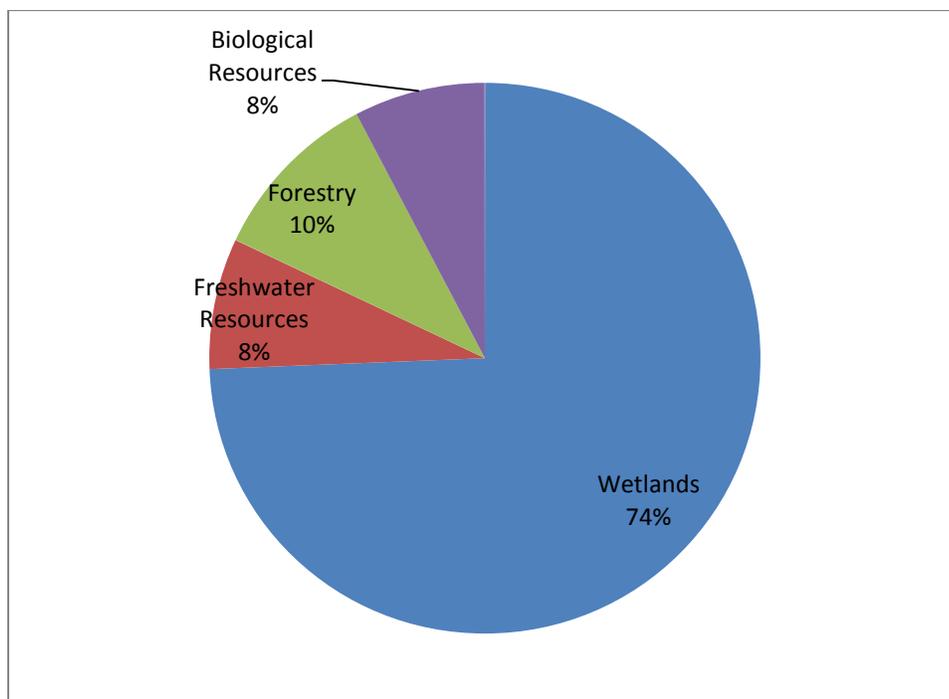


Figure 8. Wetlands, biological resources, freshwater resources and forestry project reviews.

## **Freshwater Resources**

In June 2015 the Adirondack Park Agency Board approved GP2015G-1, an Aquatic Invasive Species (AIS) rapid response / containment general permit authorizing the use of hand harvesting and benthic barriers. In November the Agency's Board approved general permit 2015G-2, which replaces a general permit that was in place since 2008. The 2008 permit expired at the end 2015 and had been modified several times to address new invasive threats, such as the introduction of Asian clams into Lake George. Agency staff also helped to adapt the Lake Champlain Region Rapid Response Work Plan into an Adirondack Region Work Plan

APA staff worked with NYSDOT, NYSDEC, APIPP and Paul Smith's College Aquatic Watershed Institute to expedite the planning and construction of regional boat wash and decontamination stations. These stations are part of a \$1M NYS funded project to prevent aquatic invasive species (AIS) introduction and spread in the Adirondack Park. The program seeks to reduce the impact that AIS have on the environment and economies of the north country.

Staff also inspected more than a dozen waterbodies to understand the extent of the AIS within each waterbody, and to provide support to the local lake associations and shoreland owners. An example is the Agency re-authorization of the use of a mechanical harvester on Hadlock Pond. The harvester is used to control nuisance and invasive species (EWM). Staff worked with the applicant to develop a plan which greatly improved operation efficiency and which included the removal of plant fragments (which were being generated by the harvesting operation) from the lake.

Staff were involved with updating the "*Inter-Agency Guidelines for Implementing Best Management Practices for Control of Terrestrial and Aquatic Invasive Species on Forest Preserve Lands in the Adirondack Park*" an appendix to the "*Memorandum of Understanding between the Adirondack Park Agency and the Department of Environmental Conservation Concerning Implementation of the State Land Master Plan for the Adirondack Park.*" The updates were approved by the Chairwoman and NYS DEC Commissioner Martens in June.

## **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 2015, 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. The project sites were all within New York State Working Forest Conservation Easements, and were 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 Grants**

The Environmental Protection Agency (EPA) Wetland Protection Program Development (WPPD) grant entitled, "Detecting Climate Change in Wetlands in the Adirondack Park: Phase II" was completed in 2015 and the final report will be finalized and submitted to the EPA. Phase II objectives included using the protocols established during Phase I and the

collection of phenological data by volunteer citizen scientist to monitor changes to vulnerable wetlands.

This is the 15<sup>th</sup> EPA WPPD grant award that the RASS Division has garnered dating back to 1993 and totaling over \$3 million dollars. The goal of the project is to assess the impact of climate change to the region's wetlands through the use of research and new technologies. The project has engaged citizen scientist volunteers, logging more than 200 hours of volunteer time, and has expanded the Agency's knowledge of vegetation composition and structure of vulnerable boreal peatlands across the Adirondacks.

### **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 2015</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)	Snizek/Walrath	Annual conference
New York State Federation of Lake Association (NYSFOLA)	Walrath	Annual conference
Adirondack Park Invasive Plant Program (APIPP)	Walrath	2
Lake Champlain Basin Program AIS Rapid Response Team	Snizek	1
NYS Invasive Species Council	Snizek	Quarterly meetings
Silvicultural Practices Review Group	Ziemann	1
SUNY Plattsburgh Guest Lecturer (Wetland Ecology)	O'Dell	1
Wetland field training for DEC foresters	O'Dell	1
NYS Wetlands Forum	Rooks/O'Dell	Annual conference
NYS Hydrilla taskforce conference call	Walrath	Monthly
Adirondack Lakes Alliance Meeting/Conference	Walrath/Snizek	2
North Country Stormwater Tradeshow and Conference	LaLonde/Purzycki	Annual conference
Erosion and Sediment Control Training	Purzycki	1

Aquatic Vegetation Identification Course (Submerged and Emergent Plants)	Walrath	1
Erosion and Sediment Control Training	Walrath	2
Action, Coordination and Efficiency (ACE) Team	LaLonde	Monthly