



November 29, 2016

**VIA ELECTRONIC FILING**

Ms. Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

Re: FirstLight Hydro Generating Company, FERC Project Nos. 2485 and 1889  
Errata Notice on Study Report No. 3.3.1 (Instream Flow Study)

Dear Secretary Bose:

In response to an issue that was observed during a study report meeting held on October 31, 2016, FirstLight, licensee of the Northfield Mountain Pumped Storage Project No. 2485 and Turners Falls Project No. 1889, is filing an errata notice on Study Report No. 3.3.1 *Instream Flow Studies in bypass Channel and below Cabot Station*. The errata includes a replacement for Appendix G - *Reach 3 Habitat Persistence Maps* of Study Report No. 3.3.1, which was originally filed with FERC on October 14, 2016. The legend for the persistent habitat maps were incorrect (the colors were correct, but the legend did not match the correct color associated with the high or low flow conditions); however, the persistent habitat area shown on these maps is unchanged from the filed document. In addition, this change does not affect Appendix H - *Reach 3 Habitat Persistence Tables* that were filed with Study Report No. 3.3.1.

In addition, there were some typos in Table 7.1.1.1-1 of Study Report No. 3.3.1 and those changes are highlighted and shown in track changes in the attached revised table. We also added text in the header for the fifth column of the table for clarification purposes.

If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Gus Bakas", is written over a white rectangular area.

Gus Bakas

Enc: revised Table 7.1.1.1-1 and revised Appendix G

**Gus Bakas**

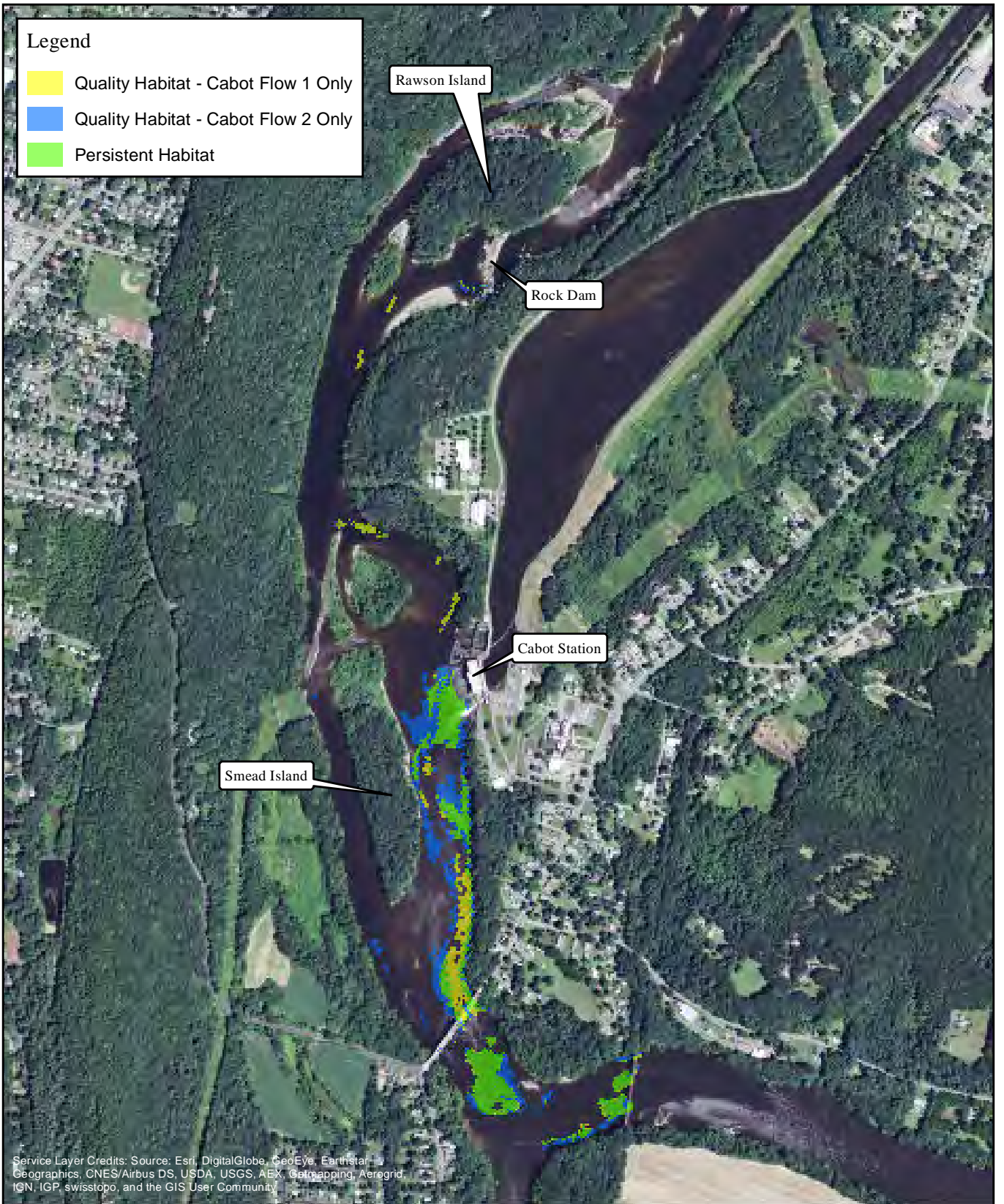
Director- Massachusetts Hydro  
FirstLight Power Resources, Inc.  
99 Millers Falls Road  
Northfield, MA 01360  
Tel. (413) 422-5915/ Fax (413) 659-4459  
E-mail: [gus.bakas@firstlightpower.com](mailto:gus.bakas@firstlightpower.com)

**Table 7.1.1.1-1: Percentage of the Maximum Weighted Usable Area (WUA) for Various Flows within Reach 1 (Right Channel-Flow shown is full bypass flow)**

Species	Life stage	Months Present	Maximum WUA Total Flow (cfs)	Maximum WUA Flow in the Right Channel (cfs)	Maximum WUA (ft <sup>2</sup> )	562	591	802	1,281	1,583	1,719	2,106	2,551	3,062	4,105
						(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
						0.08	0.08	0.11	0.18	0.22	0.24	0.3	0.38	0.43	0.53
						(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
Fallfish	Spawning/Incu	May-June	802	250	86,628	90%	95%	100%	88%	68%	56%	34%	26%	20%	13%
Fallfish	Fry	May-June	591	140	66,936	99%	100%	79%	65%	43%	39%	32%	17%	12%	8%
Fallfish	Juvenile	Year Round	802	250	83,561	83%	89%	100%	83%	77%	68%	46%	35%	32%	24%
Fallfish	Adult	Year Round	1583	662	33,506	49%	52%	72%	96%	100%	98%	88%	76%	66%	39%
Longnose Dace	Juvenile	Year Round	802	250	83,561	83%	89%	100%	83%	77%	68%	46%	35%	32%	24%
Longnose Dace	Adult	Year Round	591	140	74,344	98%	100%	97%	63%	43%	37%	29%	23%	21%	13%
White Sucker	Spawning/Incu	May-June	591	140	41,330	98%	100%	87%	70%	48%	37%	26%	28%	21%	8%
White Sucker	Fry	Apr-May	591	140	66,936	99%	100%	79%	65%	43%	39%	32%	17%	12%	8%
White Sucker	Adult/Juvenile	Year Round	562.0	0	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Walleye	Spawning/Incu	April-May	3062	1,500	86,372	8%	10%	21%	45%	60%	72%	92%	98%	100%	99%
Walleye	Fry	April-May	562	125	13,105	100%	92%	42%	16%	5%	9%	16%	1%	3%	2%
Walleye	Juvenile	Year Round	591	140	58,234	98%	100%	75%	47%	30%	25%	18%	24%	13%	5%
Walleye	Adult	Year Round	562.0	0	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Tessellated Darter	Adult/Juvenile	Year Round	562	125	38,259	100%	98%	54%	28%	16%	12%	17%	17%	5%	5%
Sea Lamprey	Spawning/Incu	May-June	1583	662	18,221	60%	65%	77%	83%	100%	87%	58%	32%	33%	16%
Macroinvertebrates	Larva	Year Round	1719	750	74,190	41%	45%	68%	95%	99%	100%	96%	93%	87%	79%
Shallow Slow	Shallow Slow	Year Round	562	125	45,830	100%	91%	44%	23%	3%	7%	23%	1%	2%	4%
Shallow Fast	Shallow Fast	Year Round	562	125	56,586	100%	97%	69%	32%	23%	20%	22%	16%	8%	5%
Deep Slow	Deep Slow	Year Round	1281	500	14,944	7%	17%	66%	100%	36%	16%	0%	0%	0%	0%
Deep Fast	Deep Fast	Year Round	1719	1,000.750	98,741	0%	3%	24%	70%	89%	96%	100%	89%	80%	63%

**Legend**

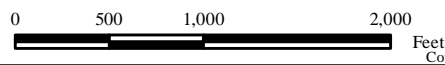
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- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

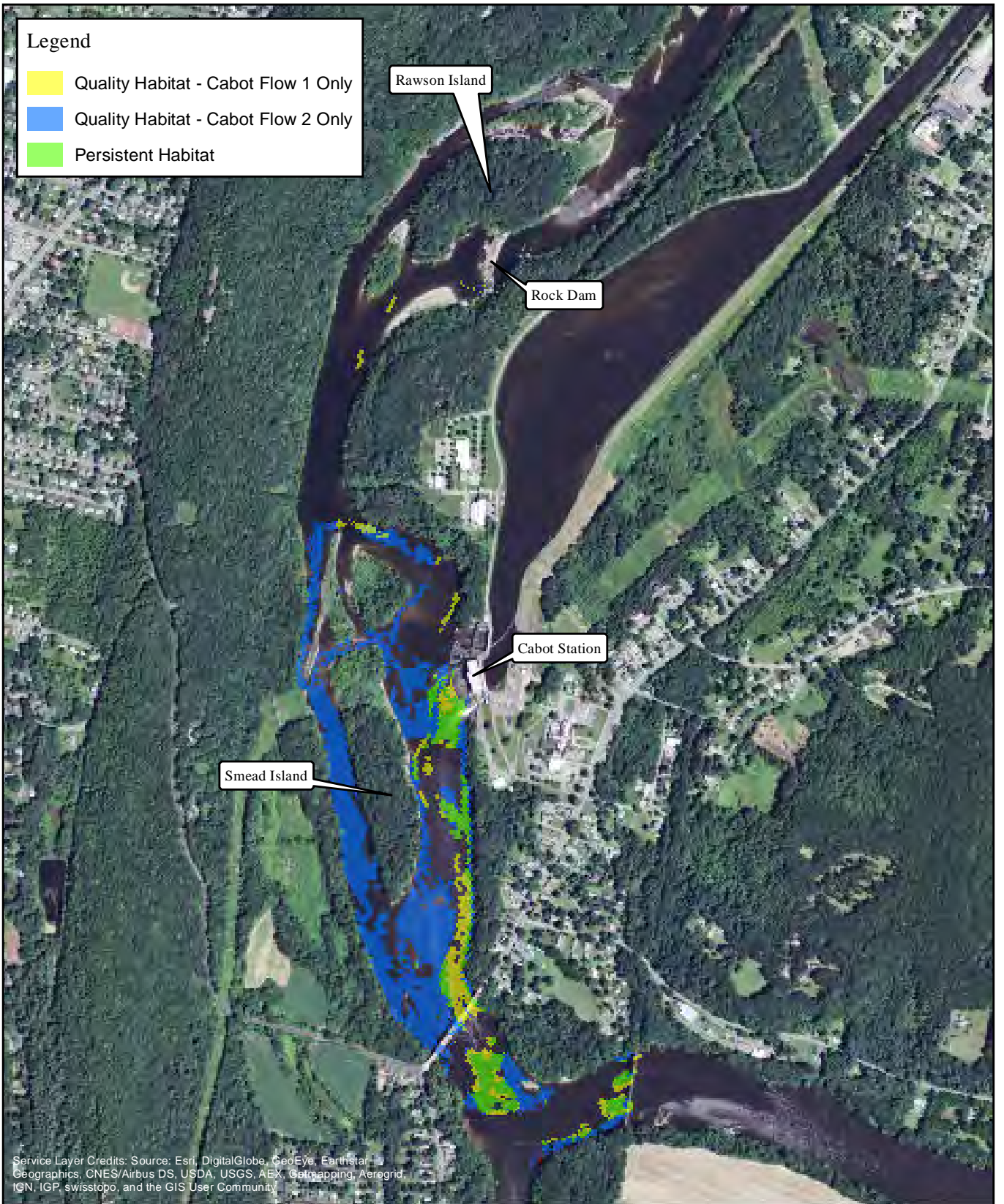


**Persistent Habitat**  
**Species/Life Stage:**  
 American Shad Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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Legend

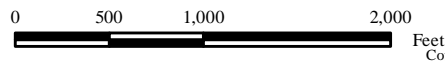
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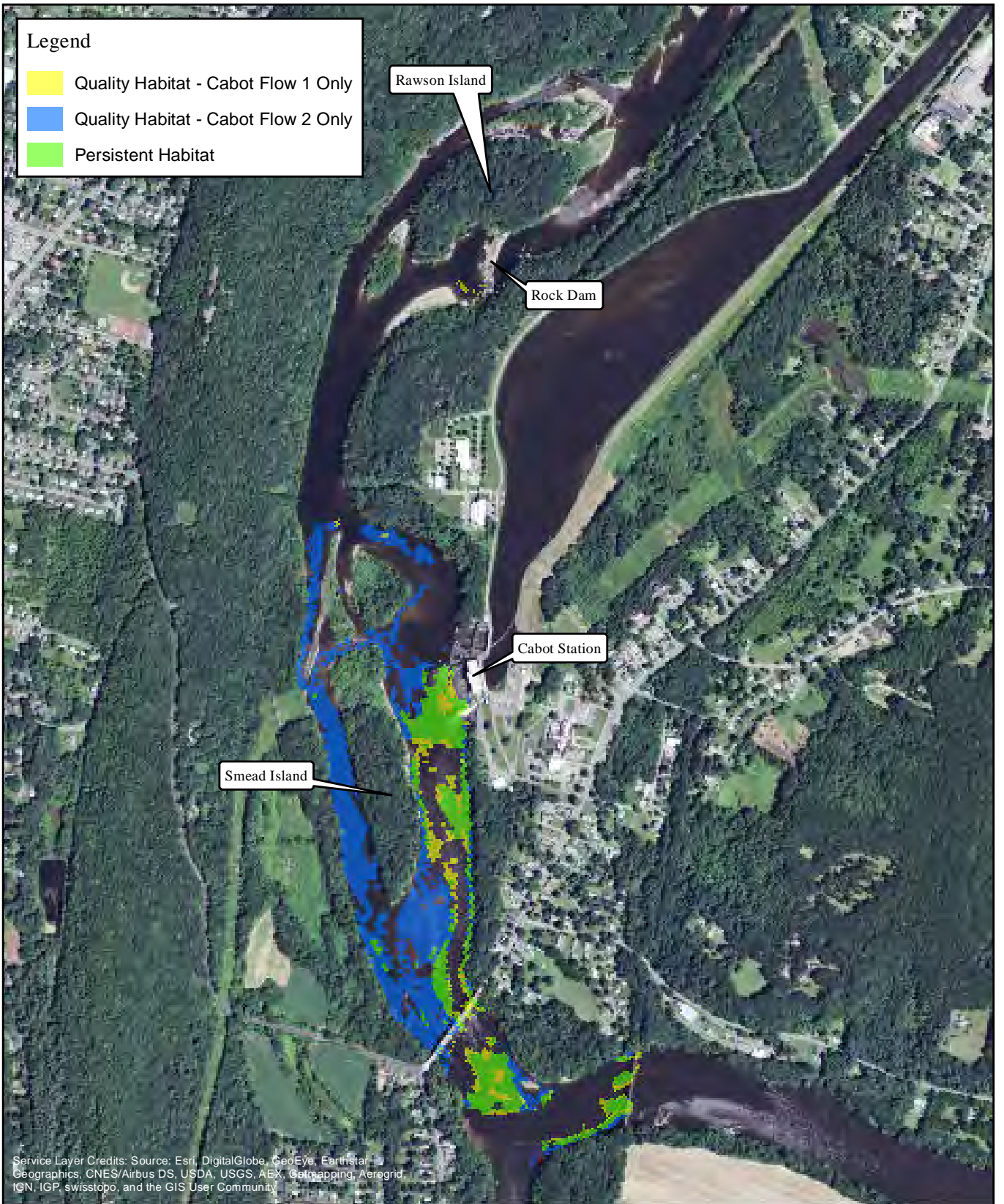


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Species/Life Stage:  
American Shad Spawning  
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**Legend**

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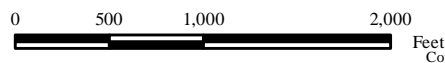


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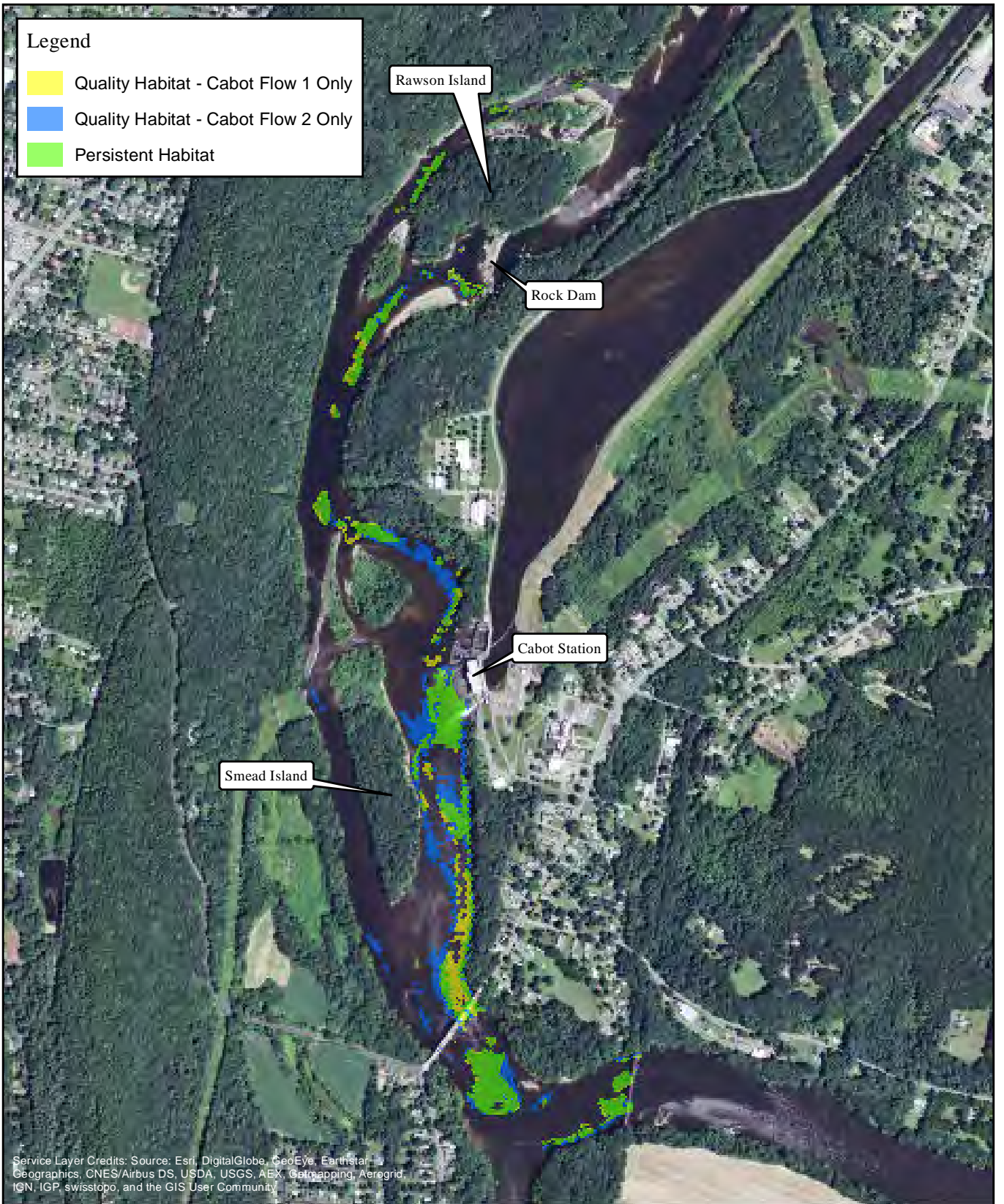
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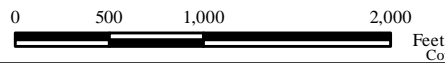
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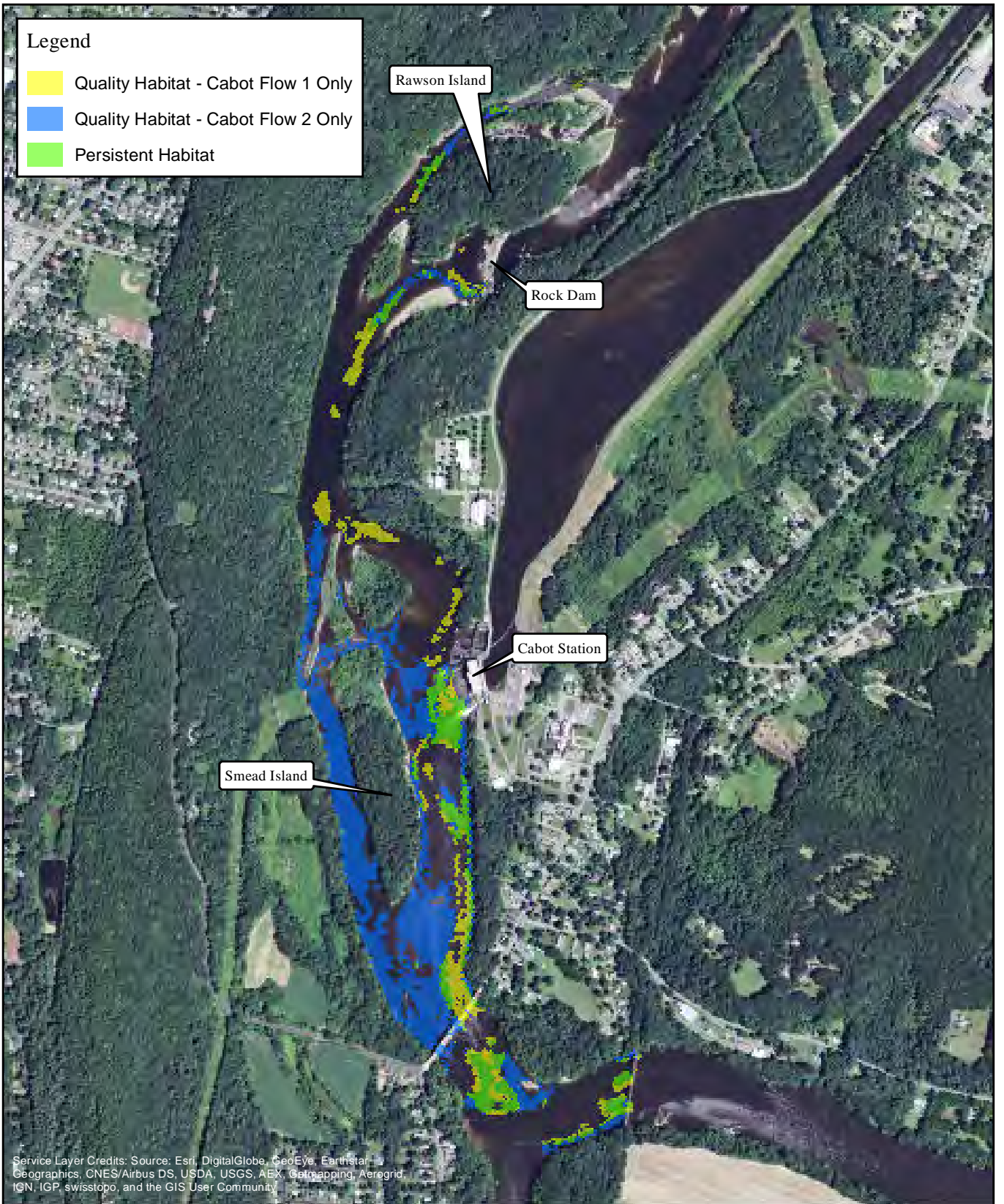


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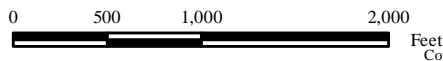
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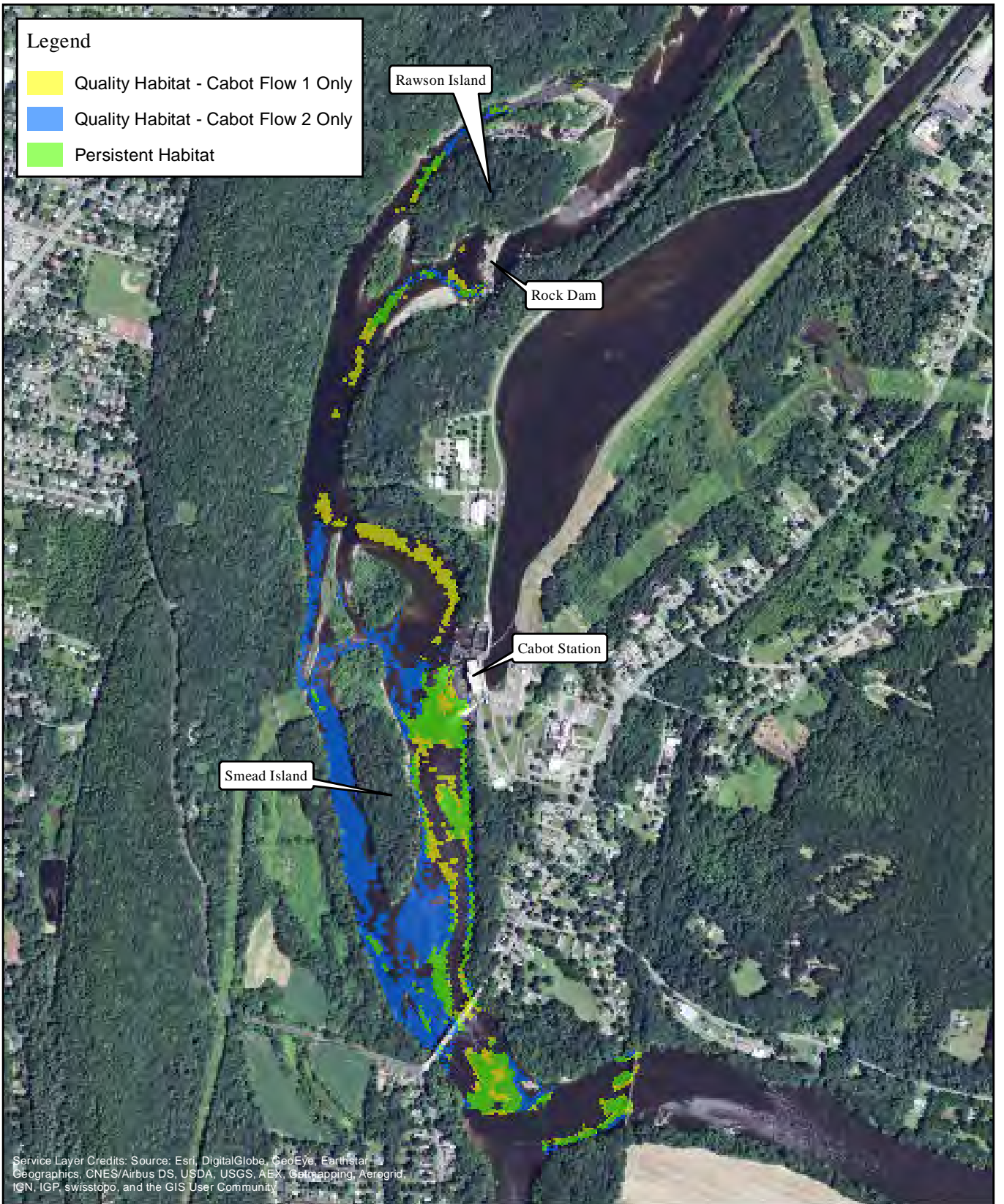


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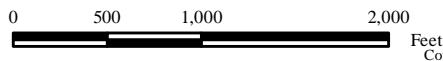
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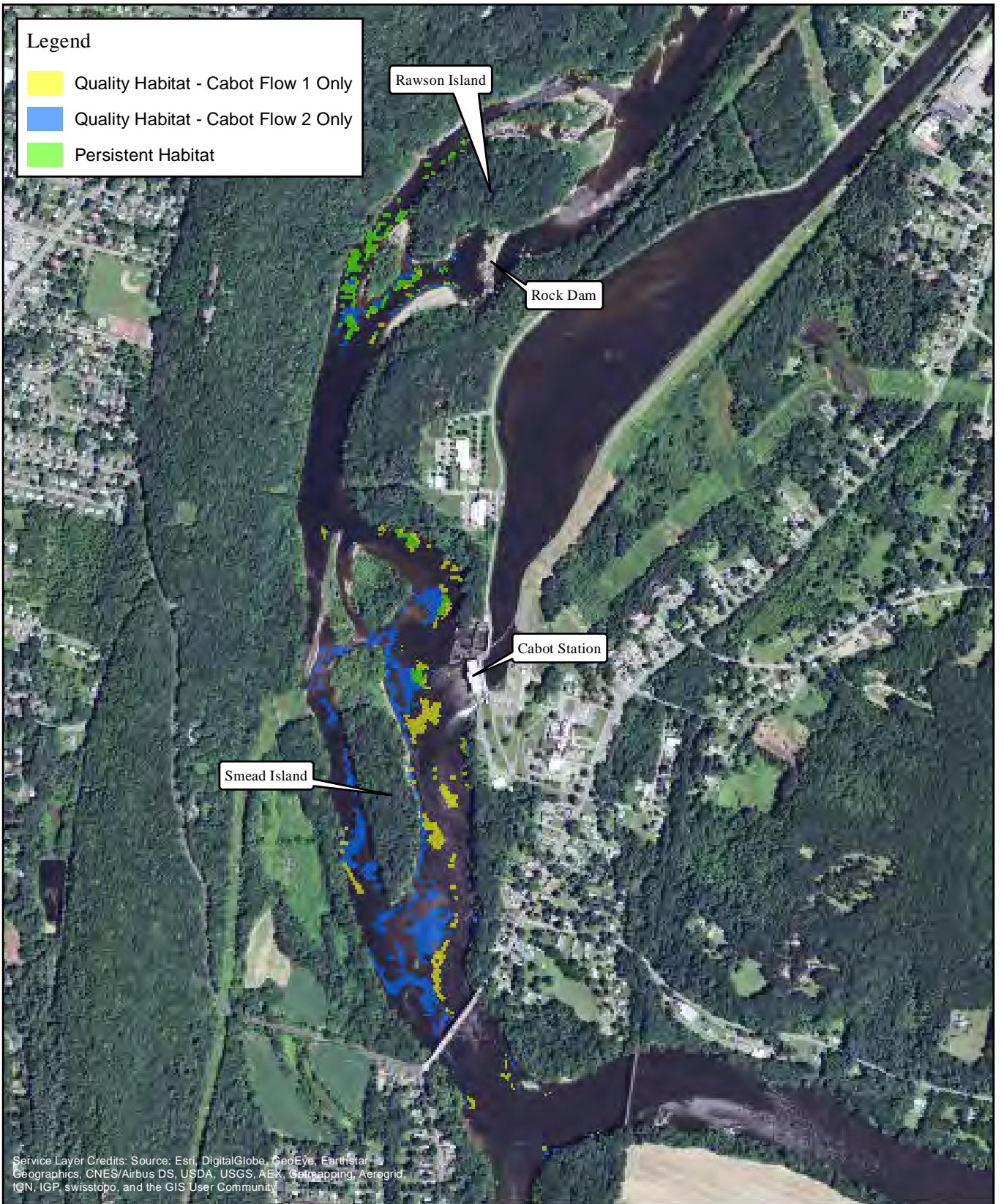
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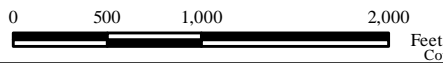
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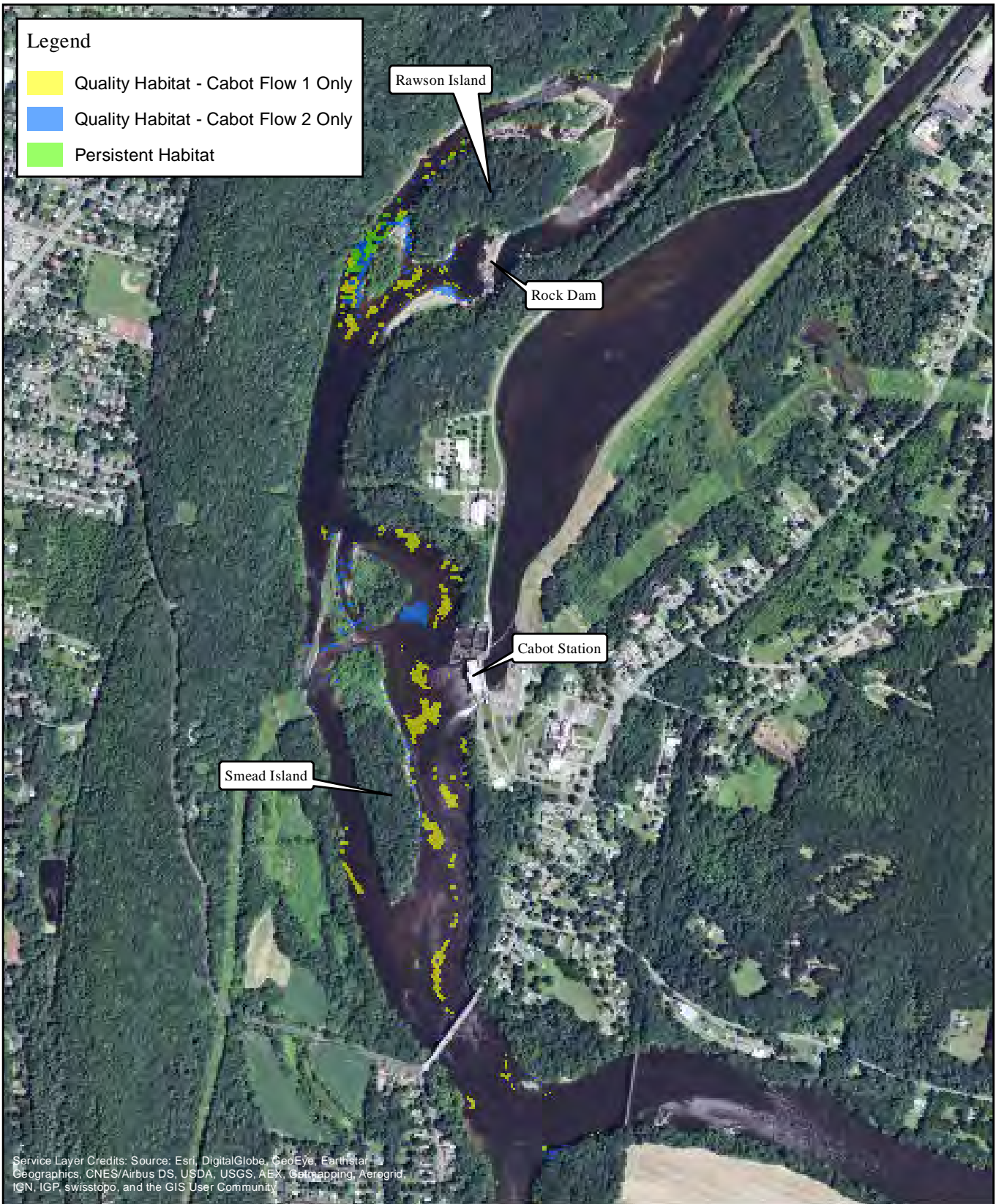


Persistent Habitat  
Species/Life Stage:  
Fallfish Spawning  
Bypass Flow: 200 cfs  
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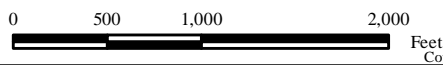
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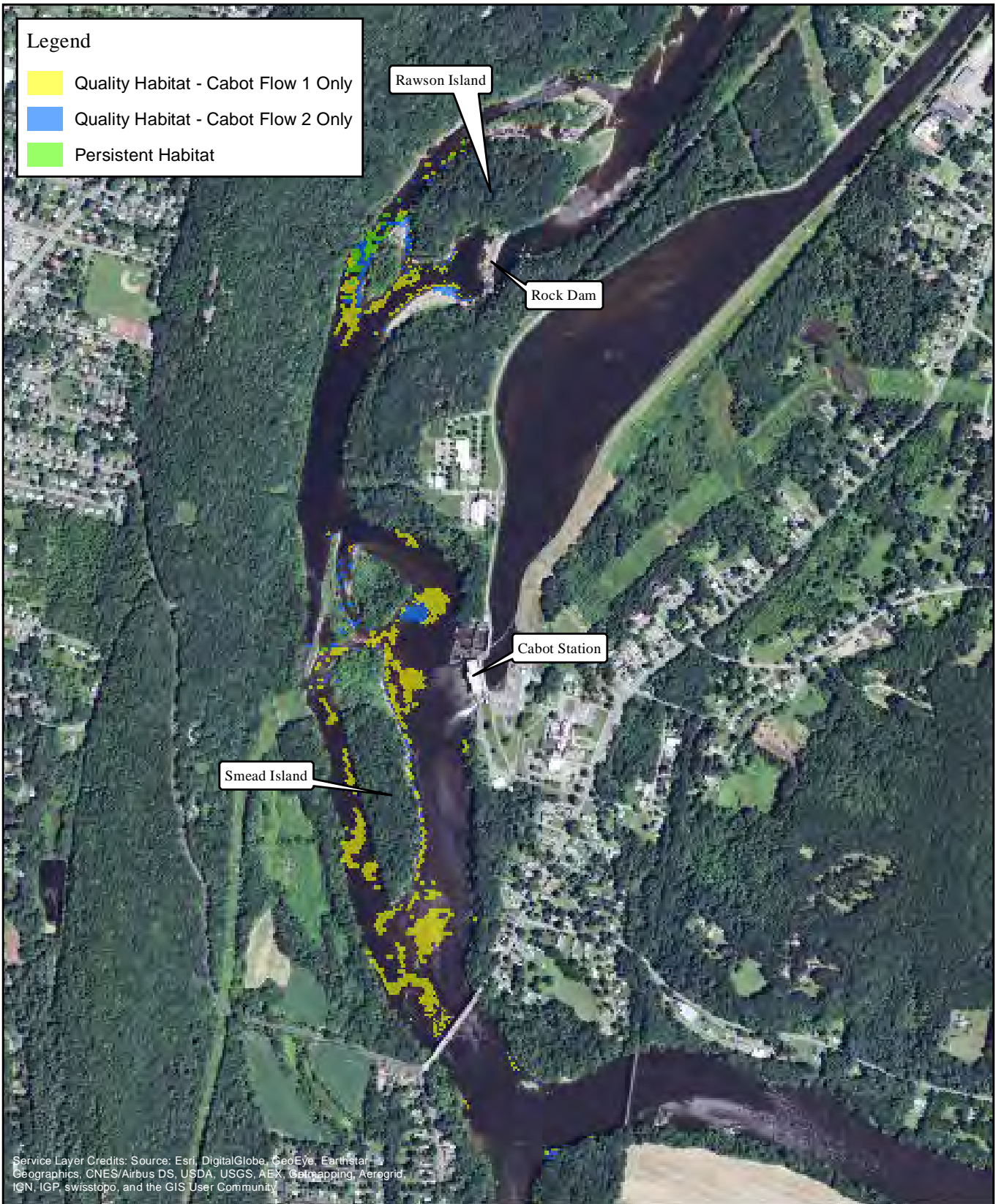


**Persistent Habitat**  
 Species/Life Stage:  
 Fallfish Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

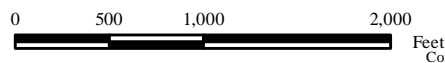
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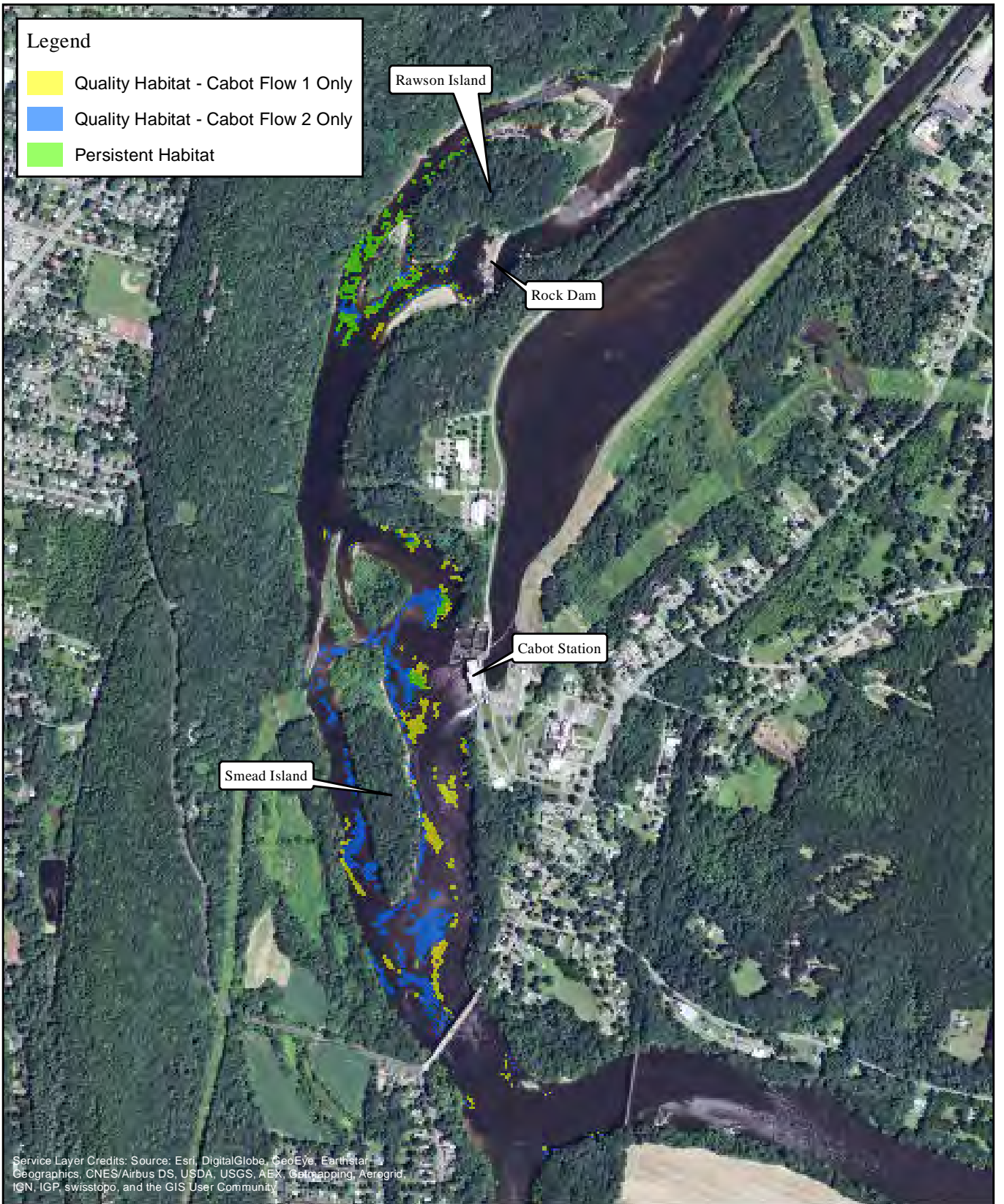


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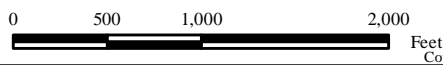
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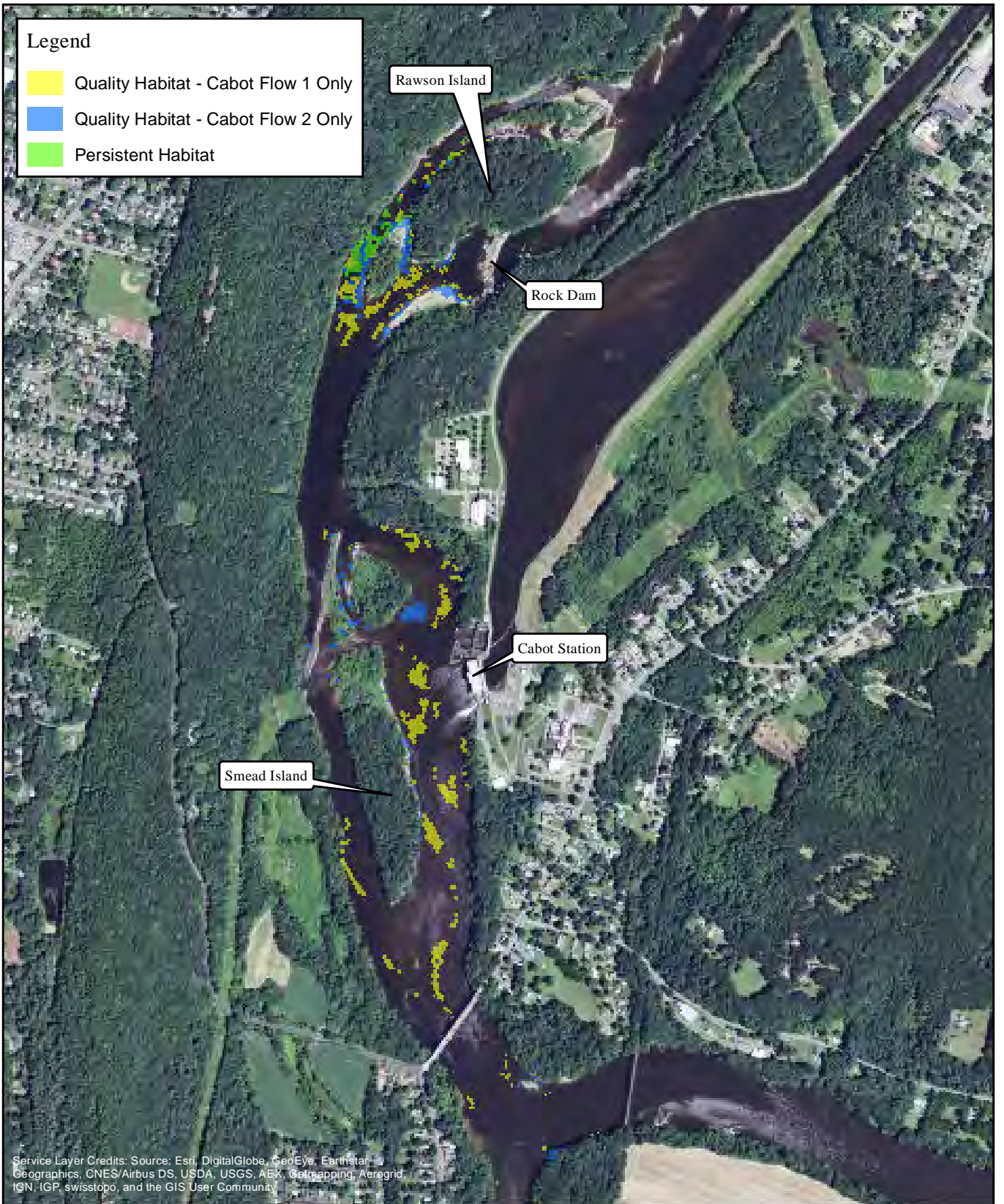


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**Species/Life Stage:**  
 Fallfish Spawning  
 Bypass Flow: 500 cfs  
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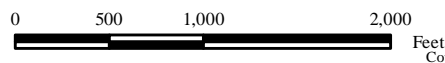
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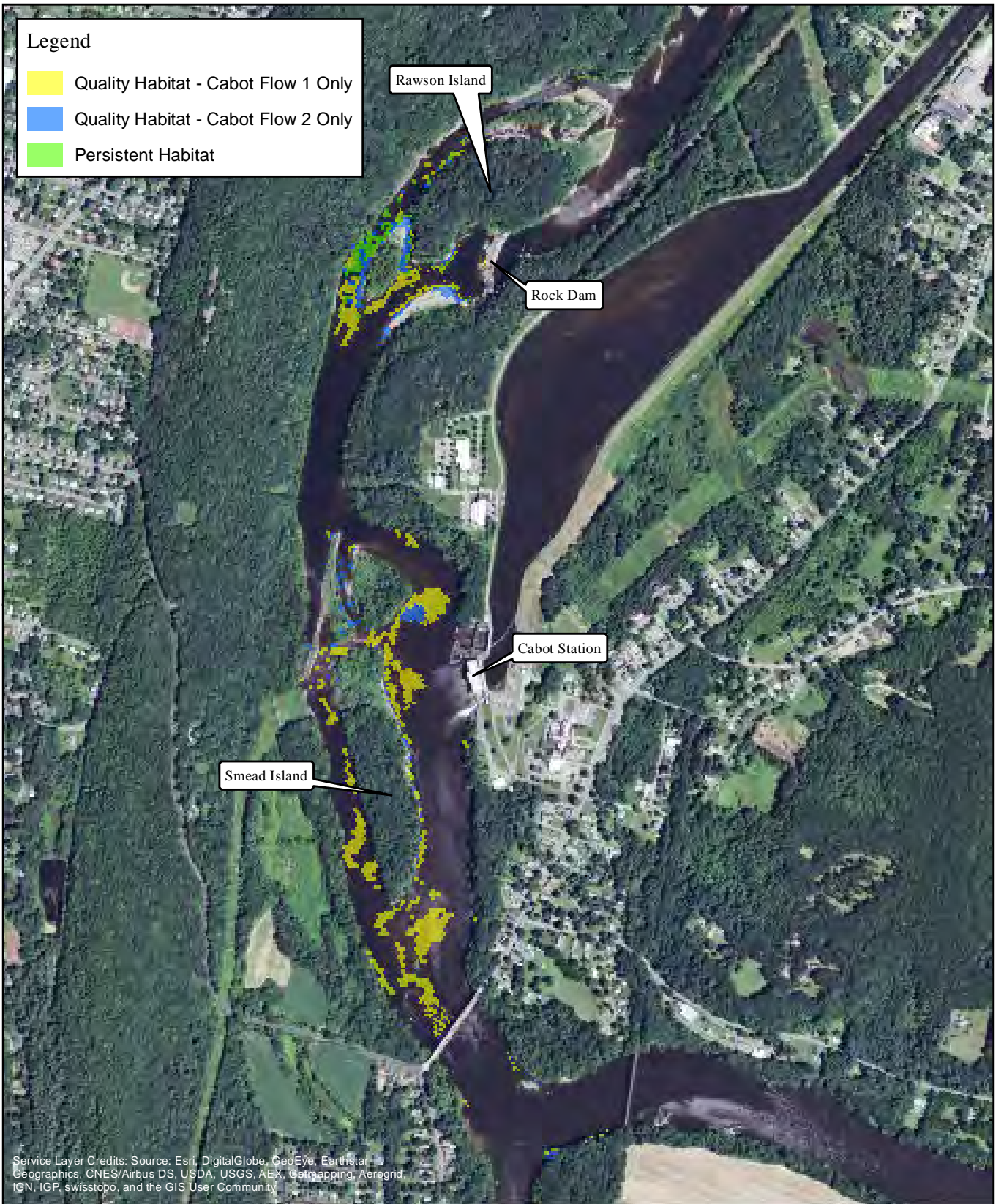


Persistent Habitat  
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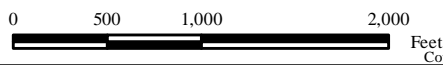
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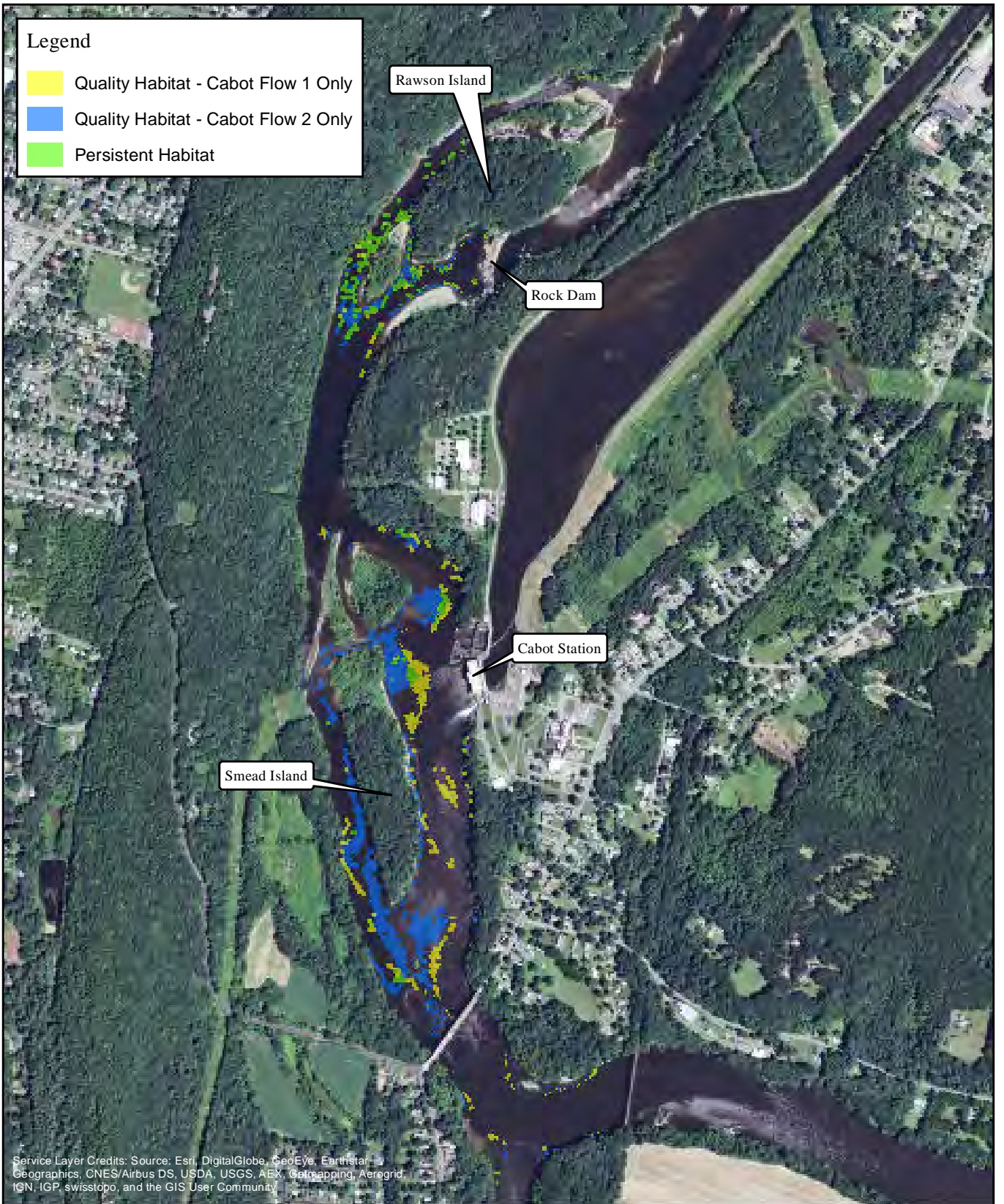


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 Species/Life Stage:  
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**Legend**

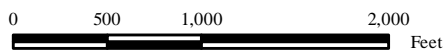
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Feet

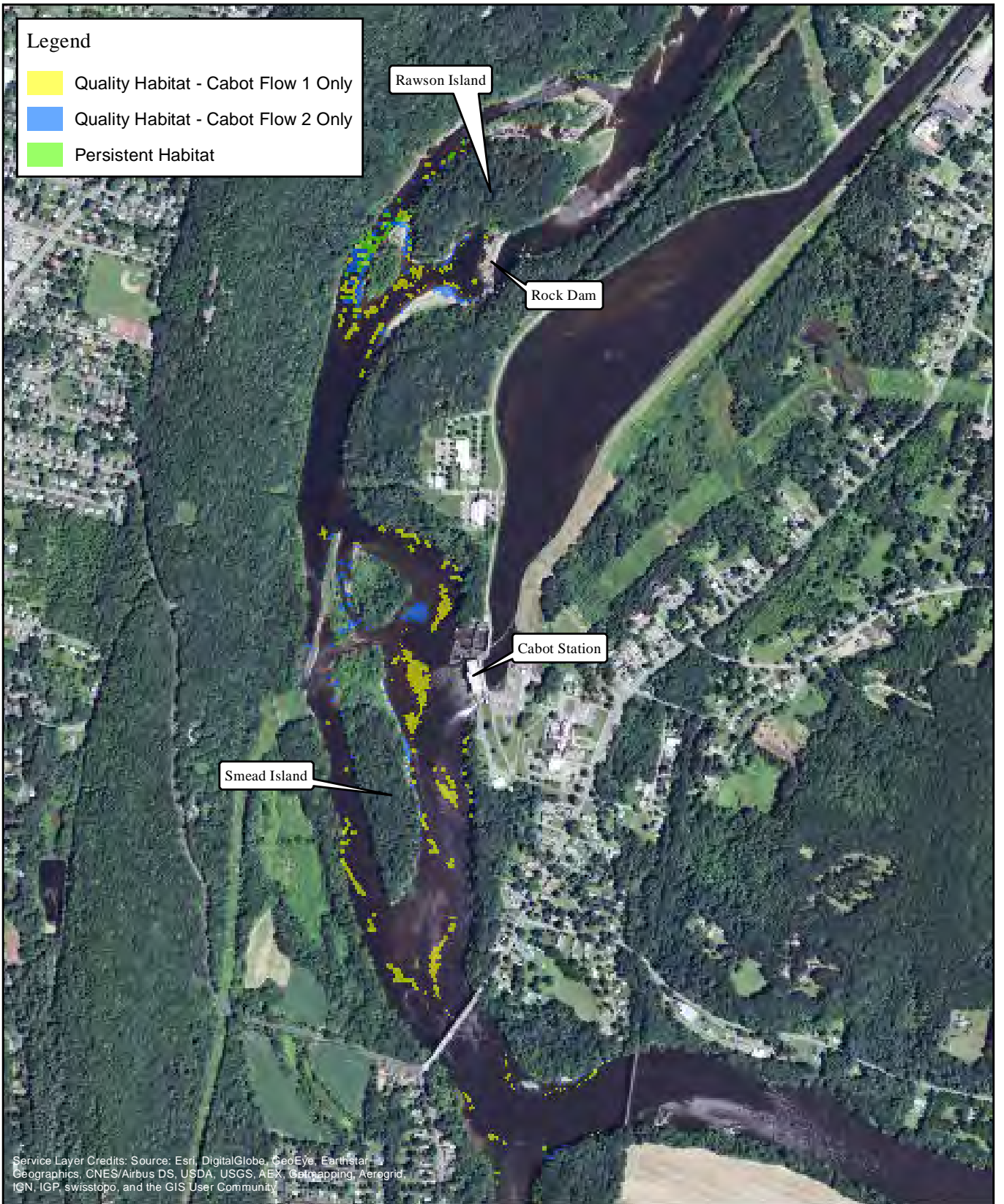
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Persistent Habitat  
 Species/Life Stage:  
 Fallfish Fry

Bypass Flow: 200 cfs  
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Legend

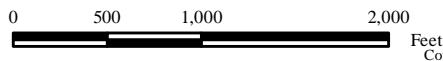
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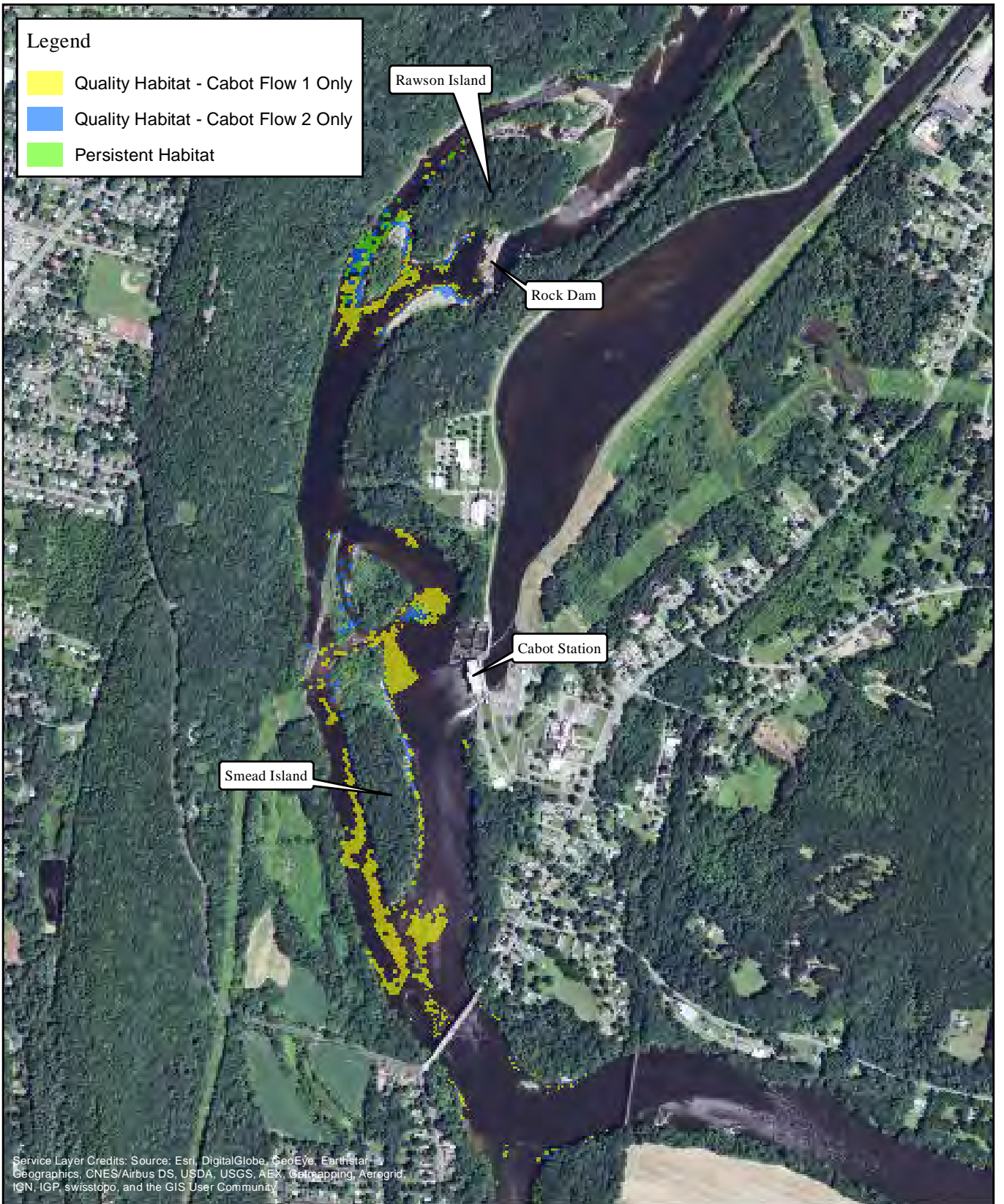
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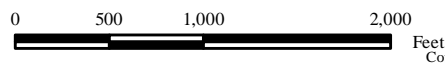
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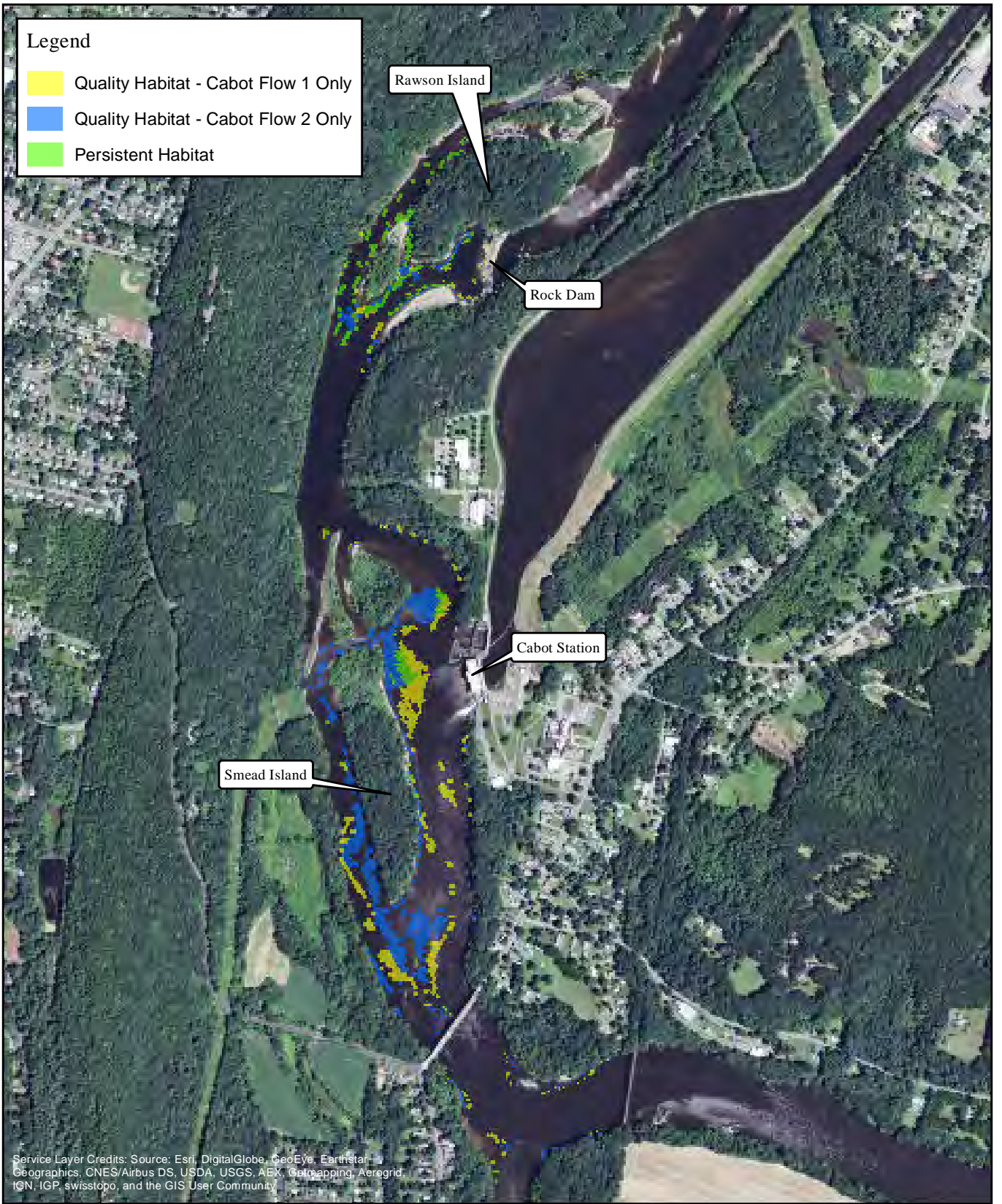


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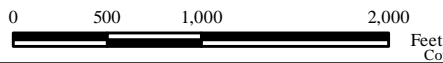
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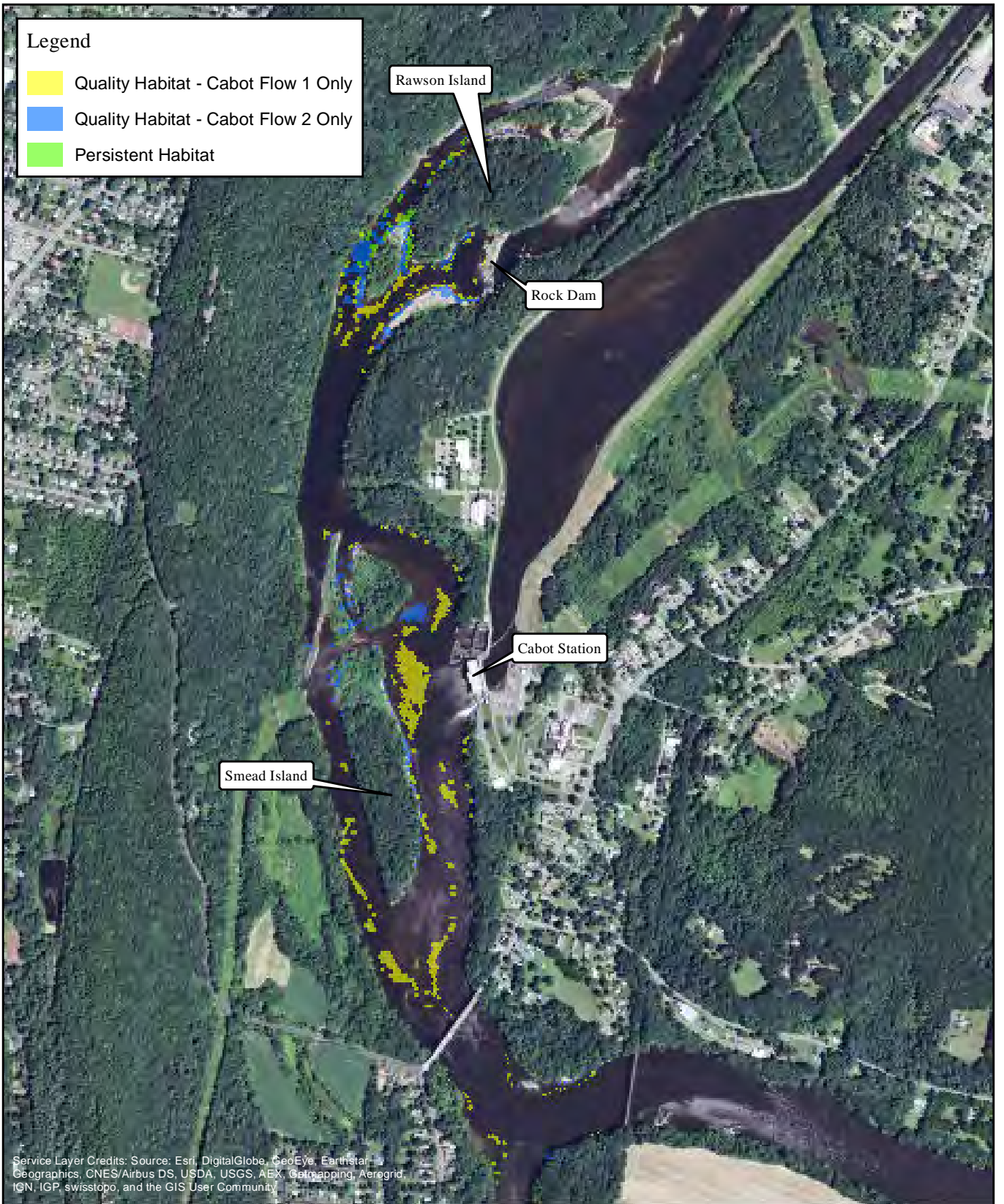
Persistent Habitat  
Species/Life Stage:  
Fallfish Fry

Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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Legend

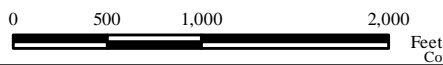
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

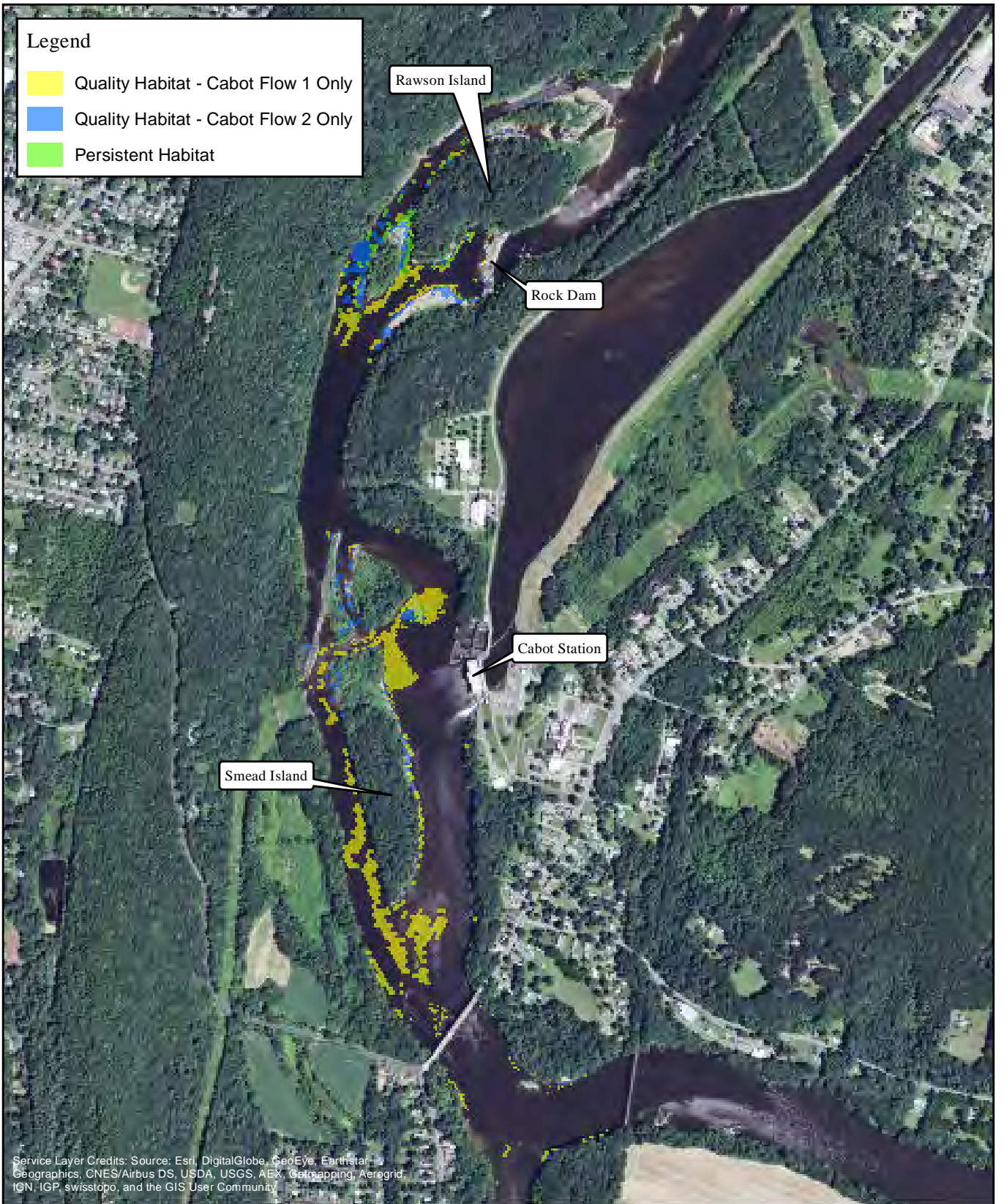


Persistent Habitat  
Species/Life Stage:  
Fallfish Fry  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

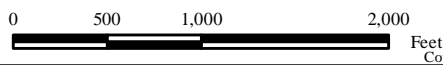
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

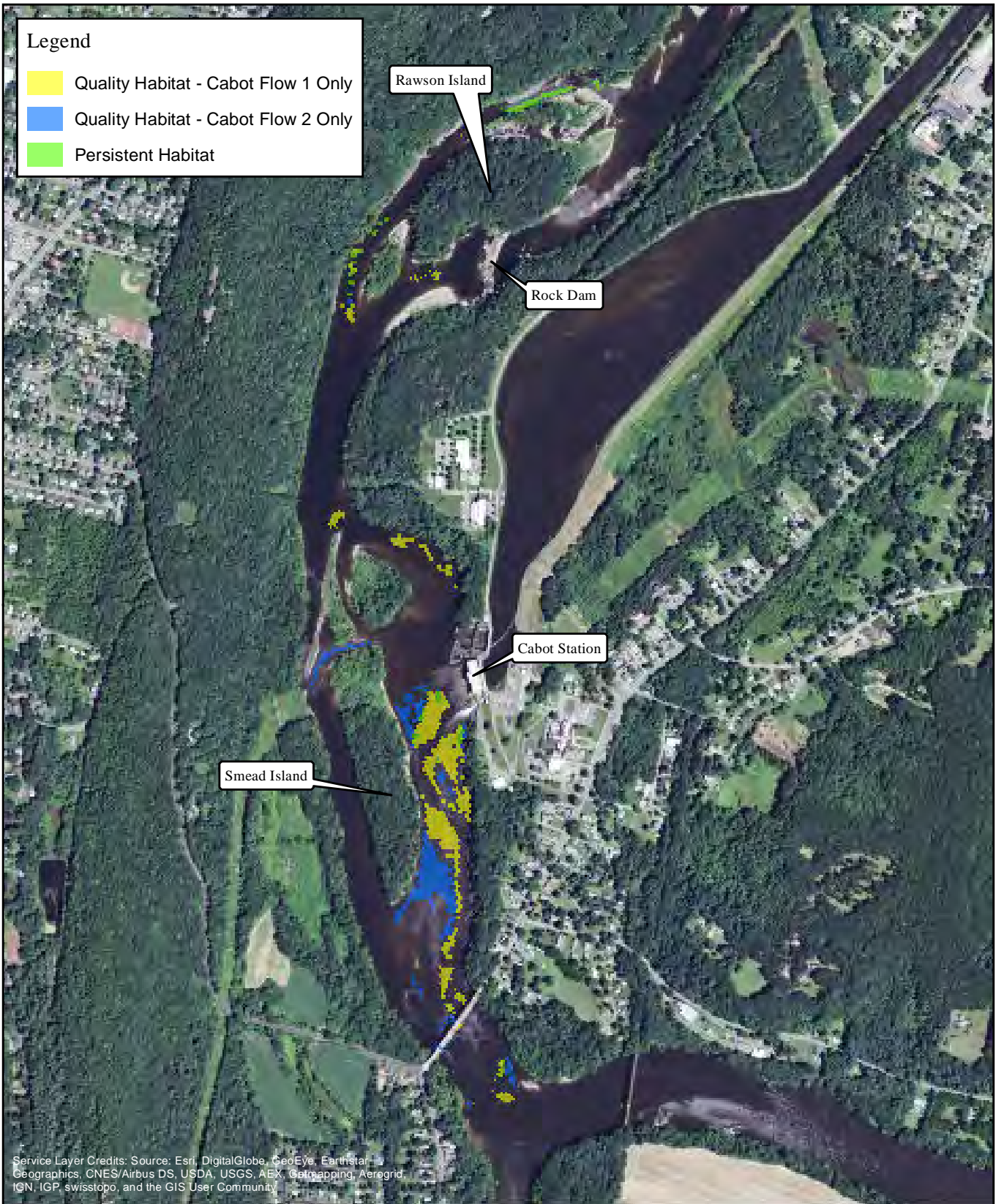


Persistent Habitat  
 Species/Life Stage:  
 Fallfish Fry  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

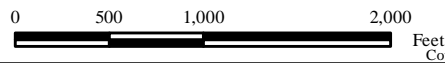
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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RELICENSING STUDY 3.3.1

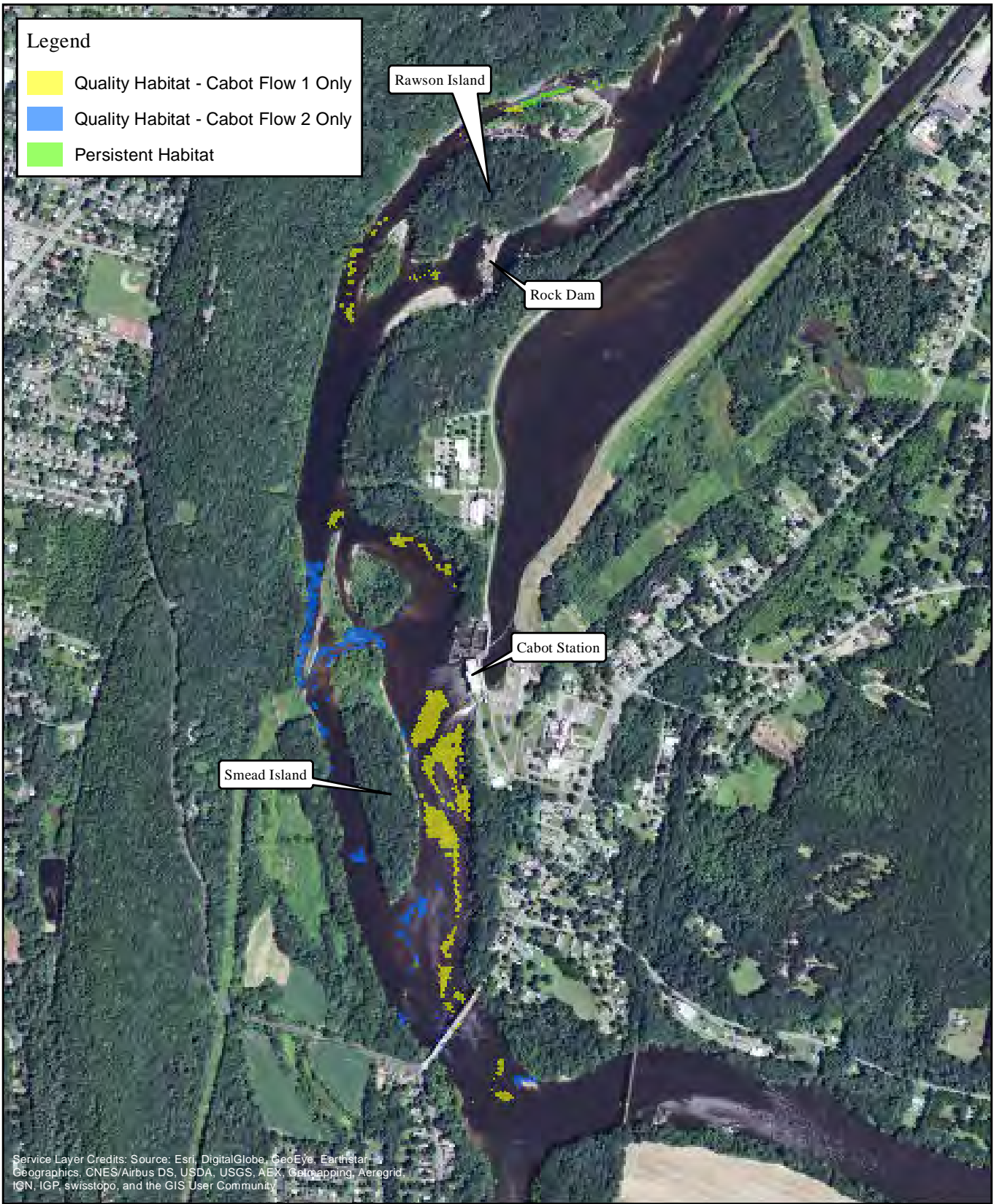


Persistent Habitat  
Species/Life Stage:  
Macroinvertebrates  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

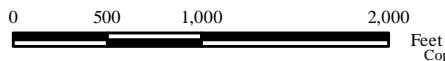
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

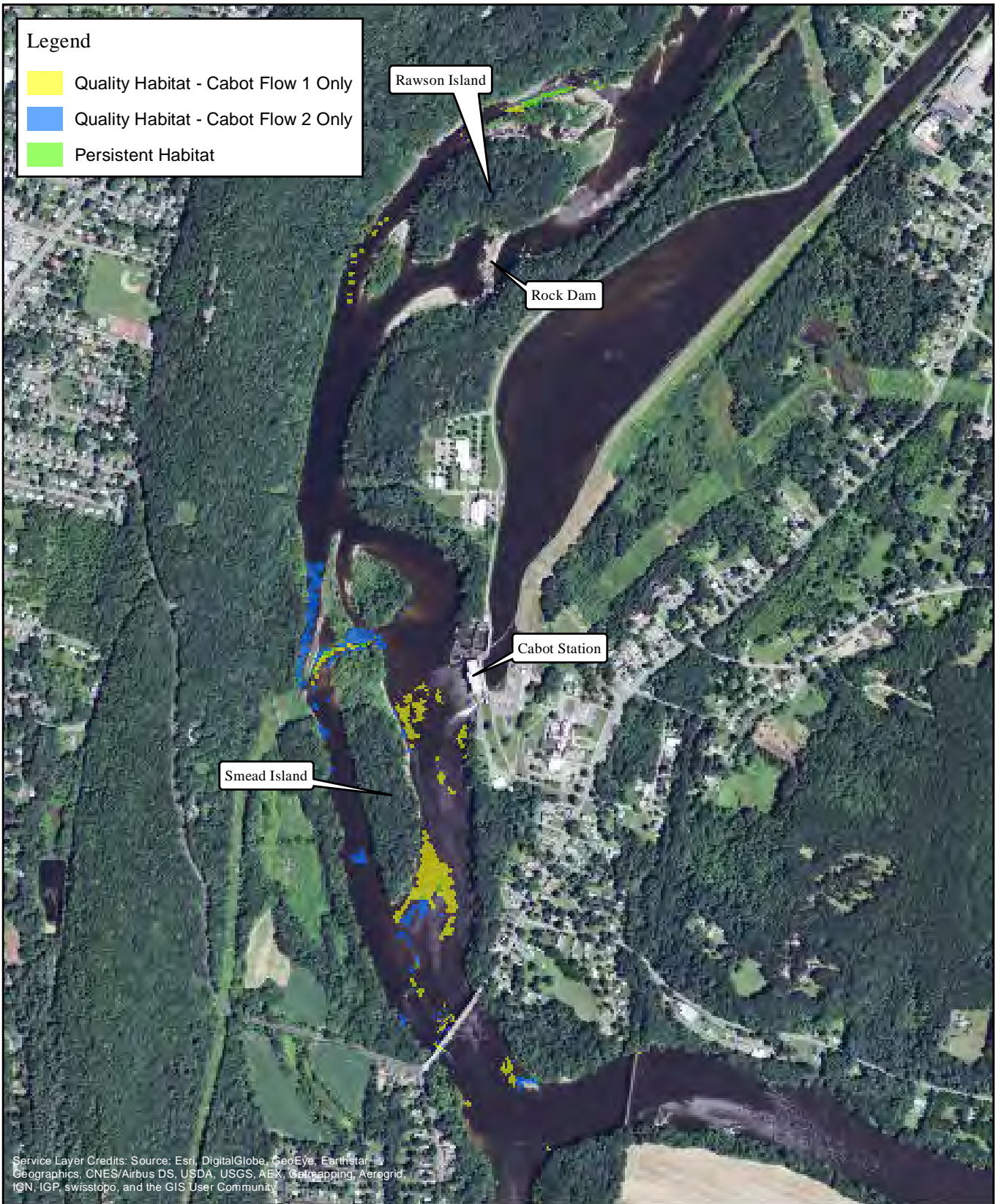


Persistent Habitat  
 Species/Life Stage:  
 Macroinvertebrates  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

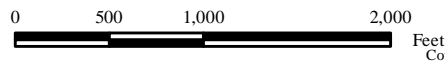
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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RELICENSING STUDY 3.3.1

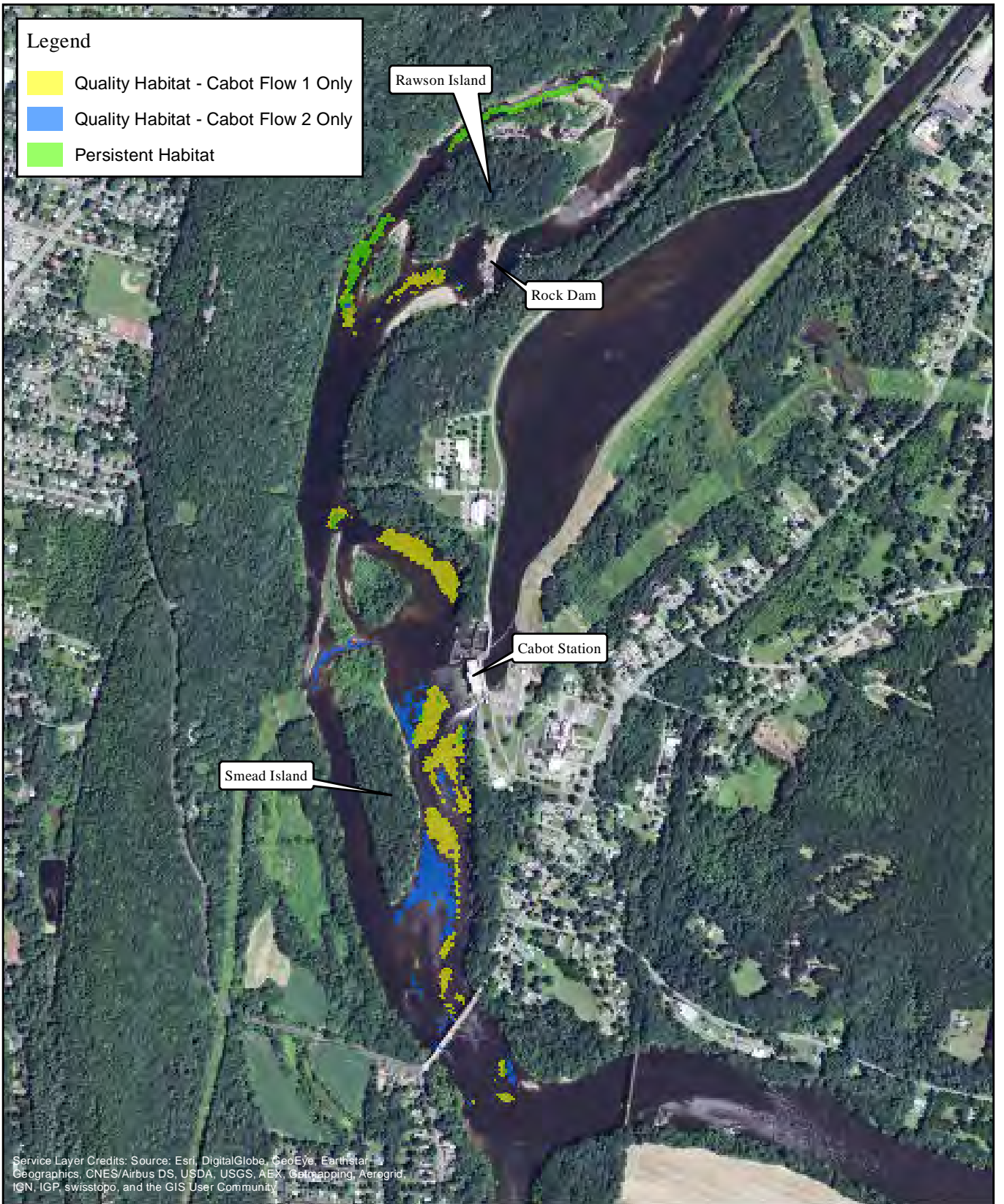


Persistent Habitat  
Species/Life Stage:  
Macroinvertebrates  
Bypass Flow: 200 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

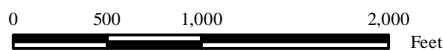
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Feet

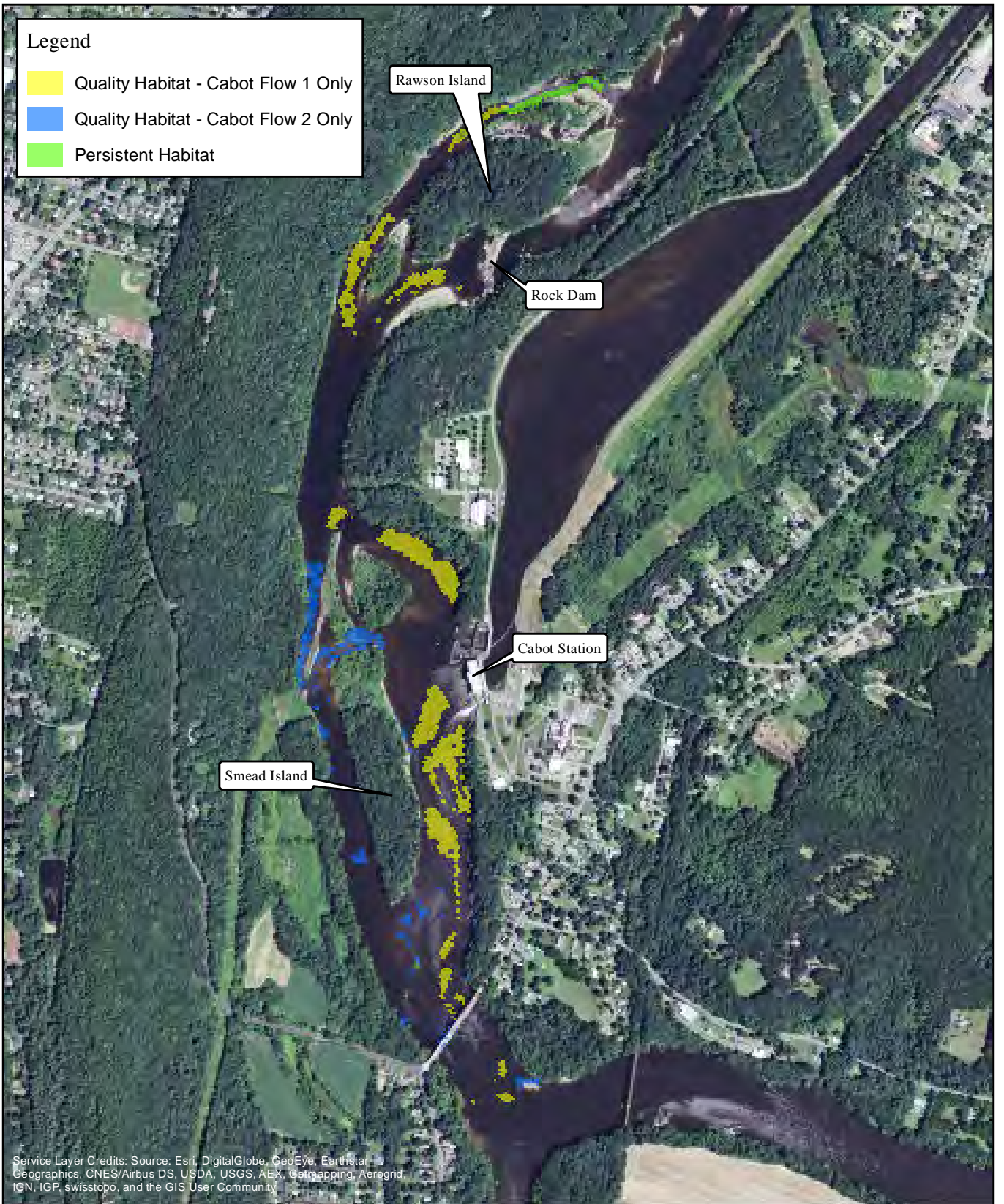
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**Persistent Habitat**  
**Species/Life Stage:**  
 Macroinvertebrates  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs



Legend

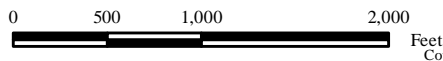
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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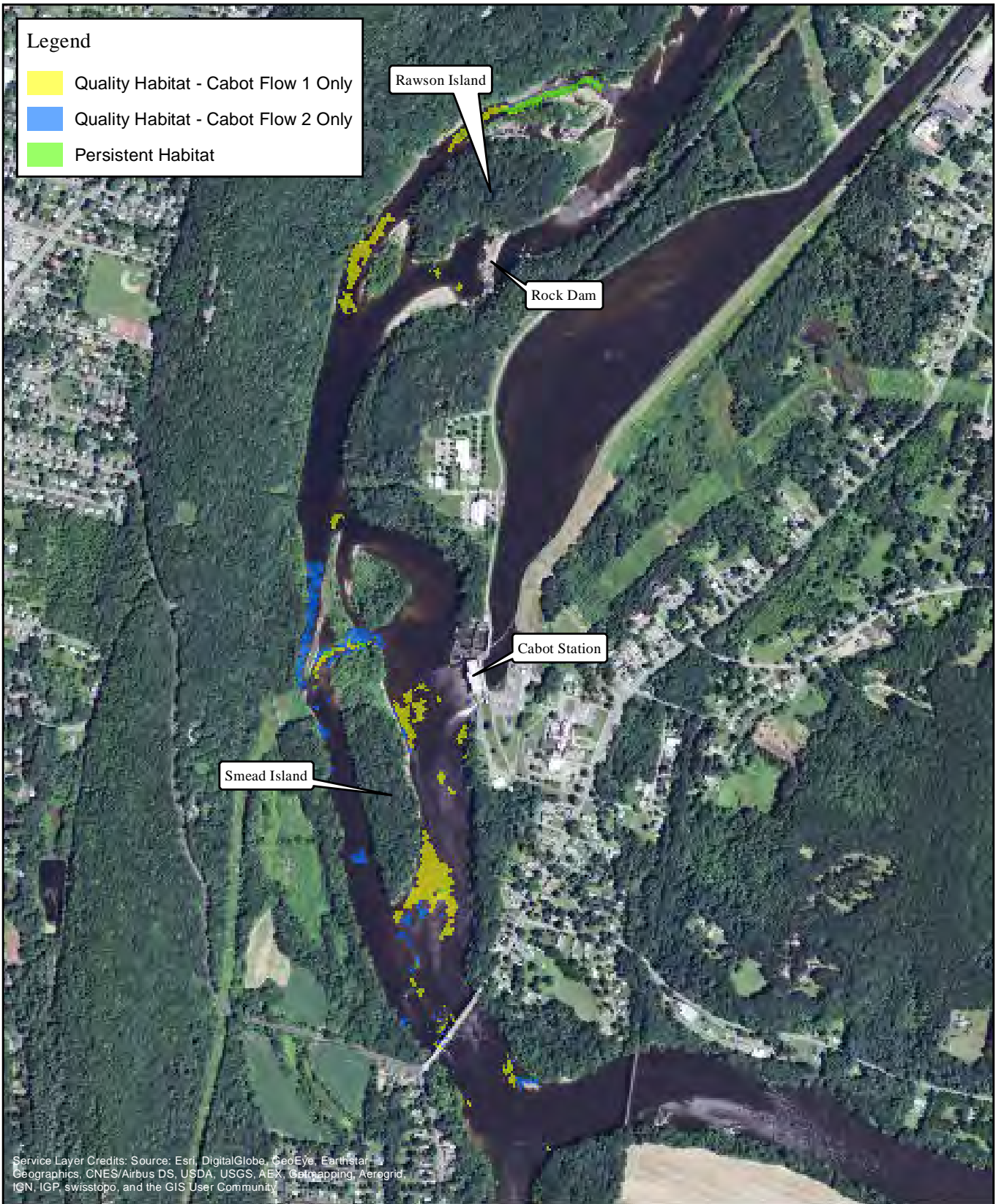


Persistent Habitat  
Species/Life Stage:  
Macroinvertebrates  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 14000 cfs

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Legend

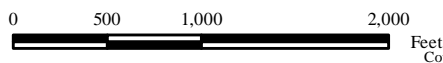
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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RELICENSING STUDY 3.3.1

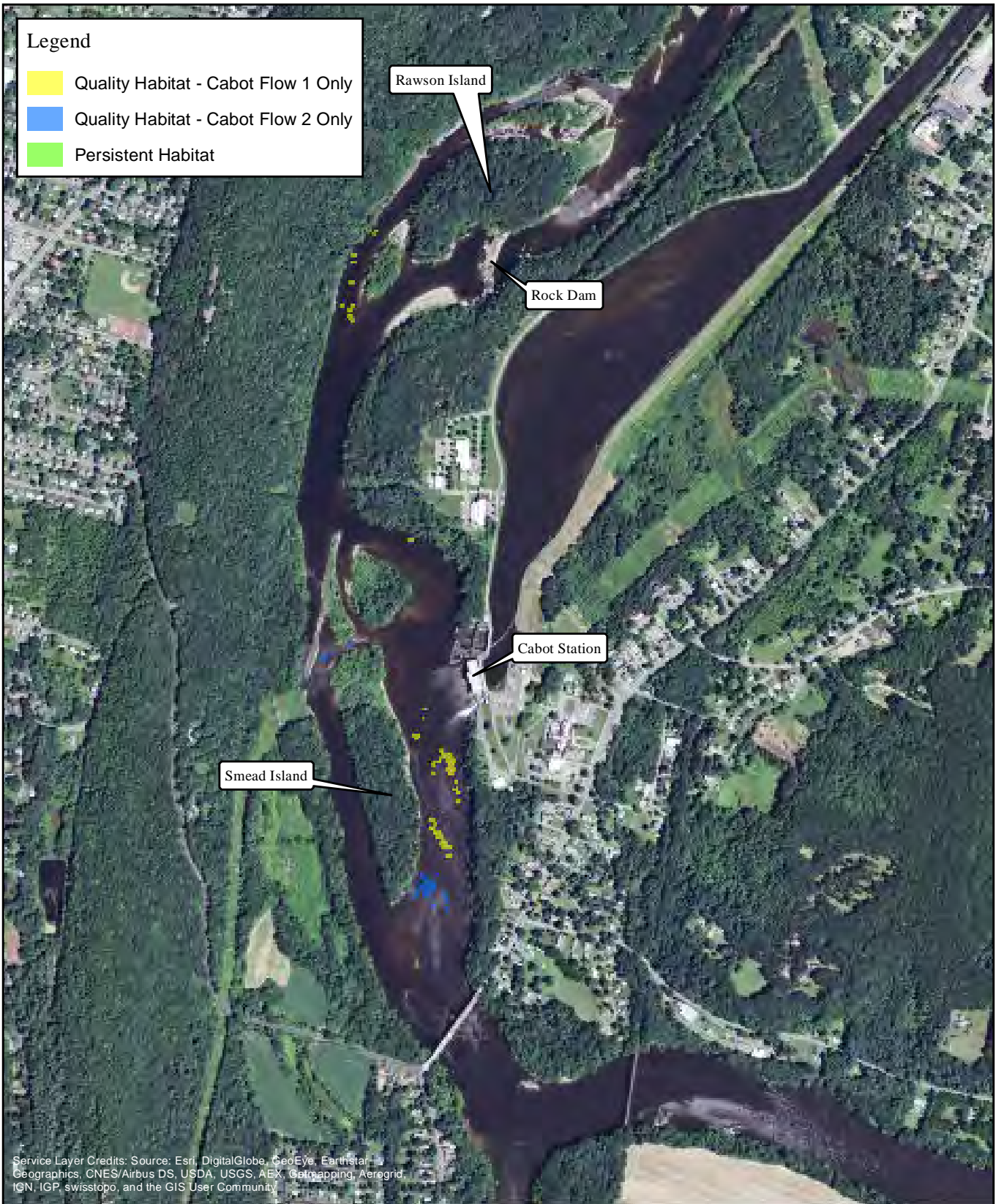


Persistent Habitat  
Species/Life Stage:  
Macroinvertebrates  
Bypass Flow: 500 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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Legend

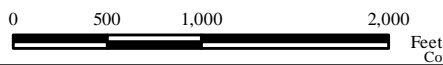
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar  
Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid,  
IGN, IGP, swisstopo, and the GIS User Community



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RELICENSING STUDY 3.3.1

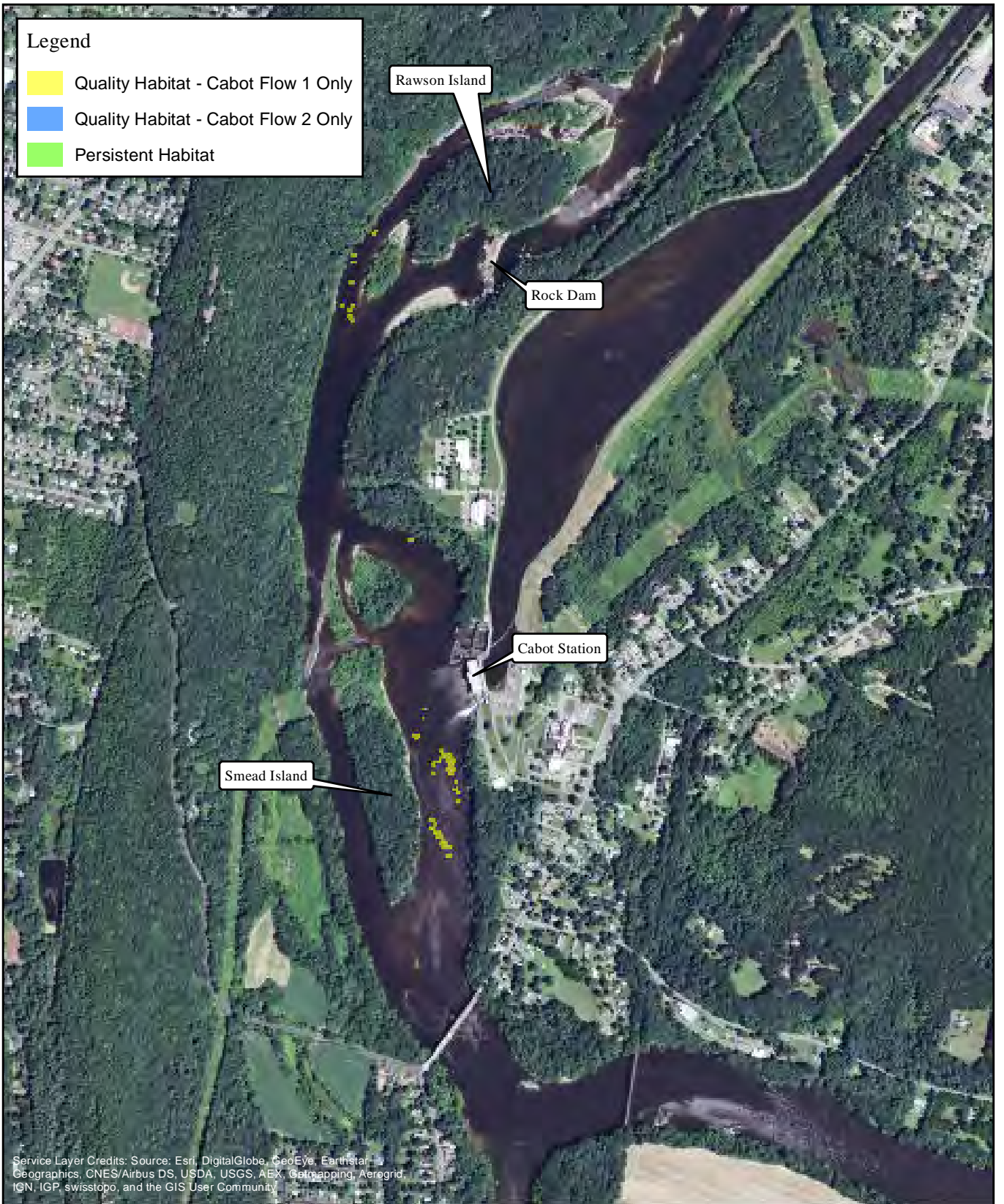


Persistent Habitat  
Species/Life Stage:  
Sea Lamprey Spawning  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

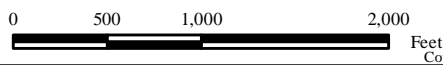
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

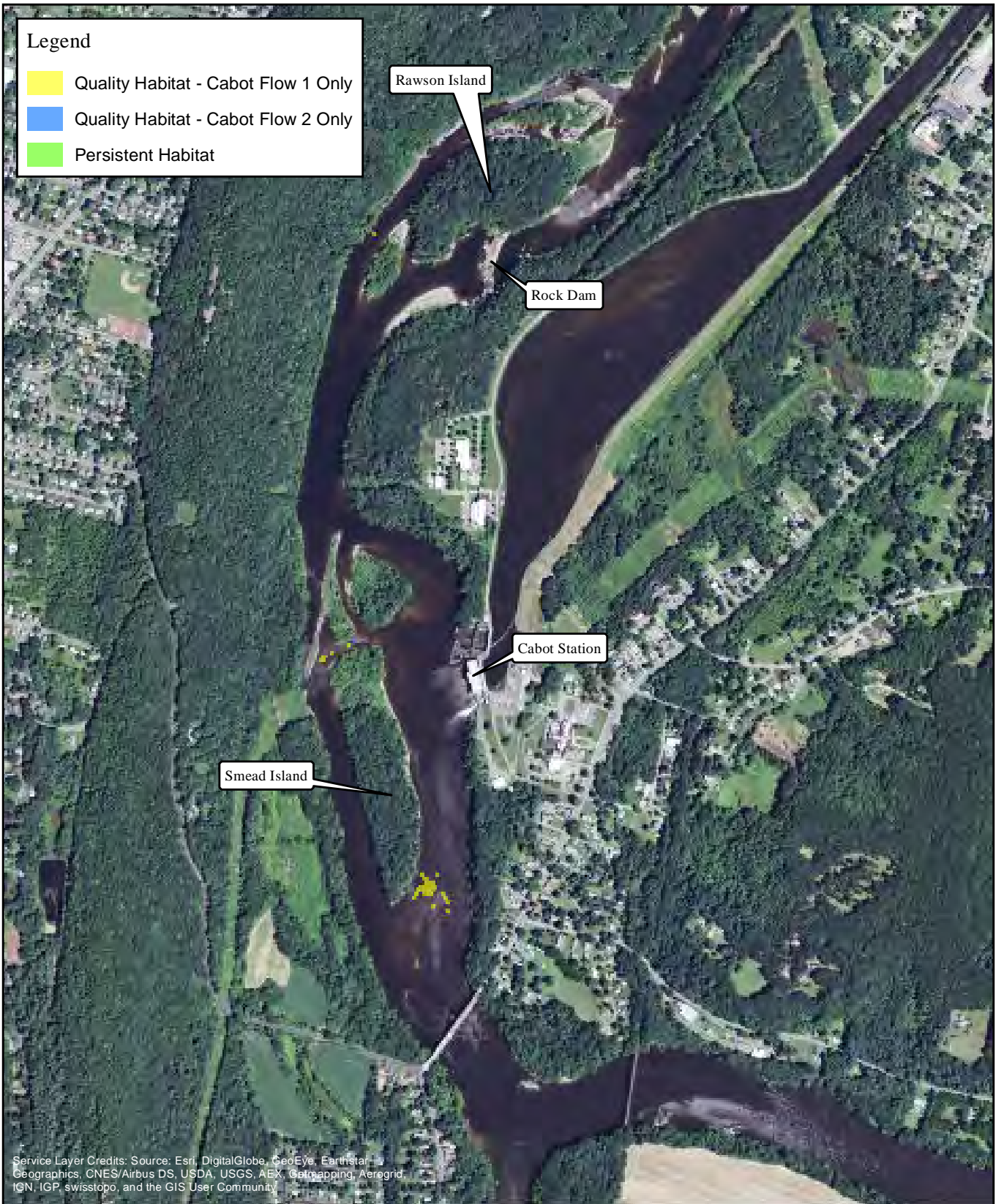


Persistent Habitat  
 Species/Life Stage:  
 Sea Lamprey Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

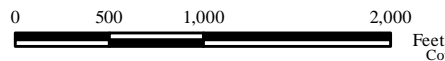
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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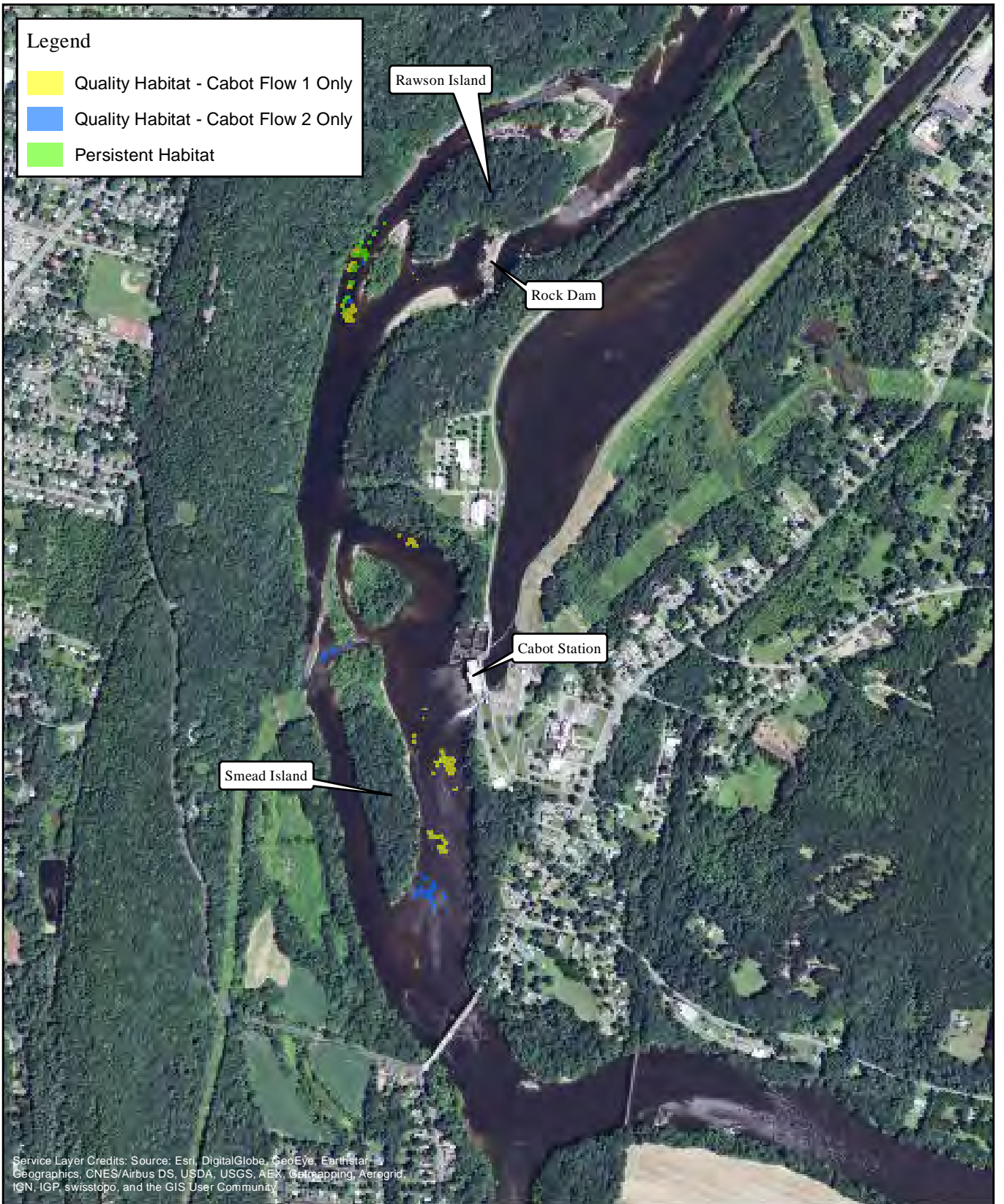


Persistent Habitat  
Species/Life Stage:  
Sea Lamprey Spawning  
Bypass Flow: 200 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

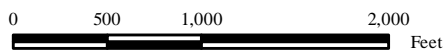
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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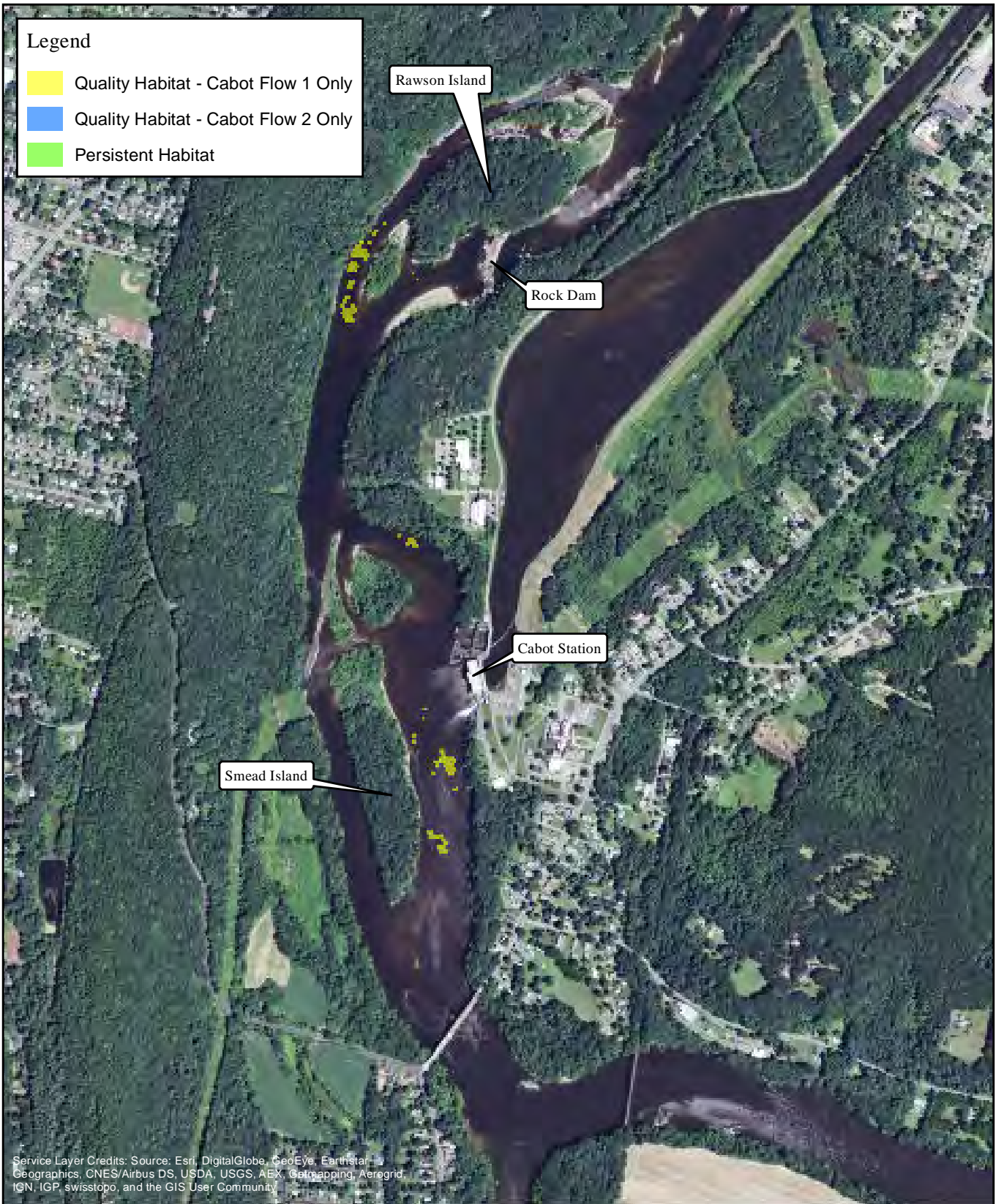


**Persistent Habitat**  
**Species/Life Stage:**  
 Sea Lamprey Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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**Legend**

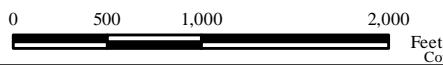
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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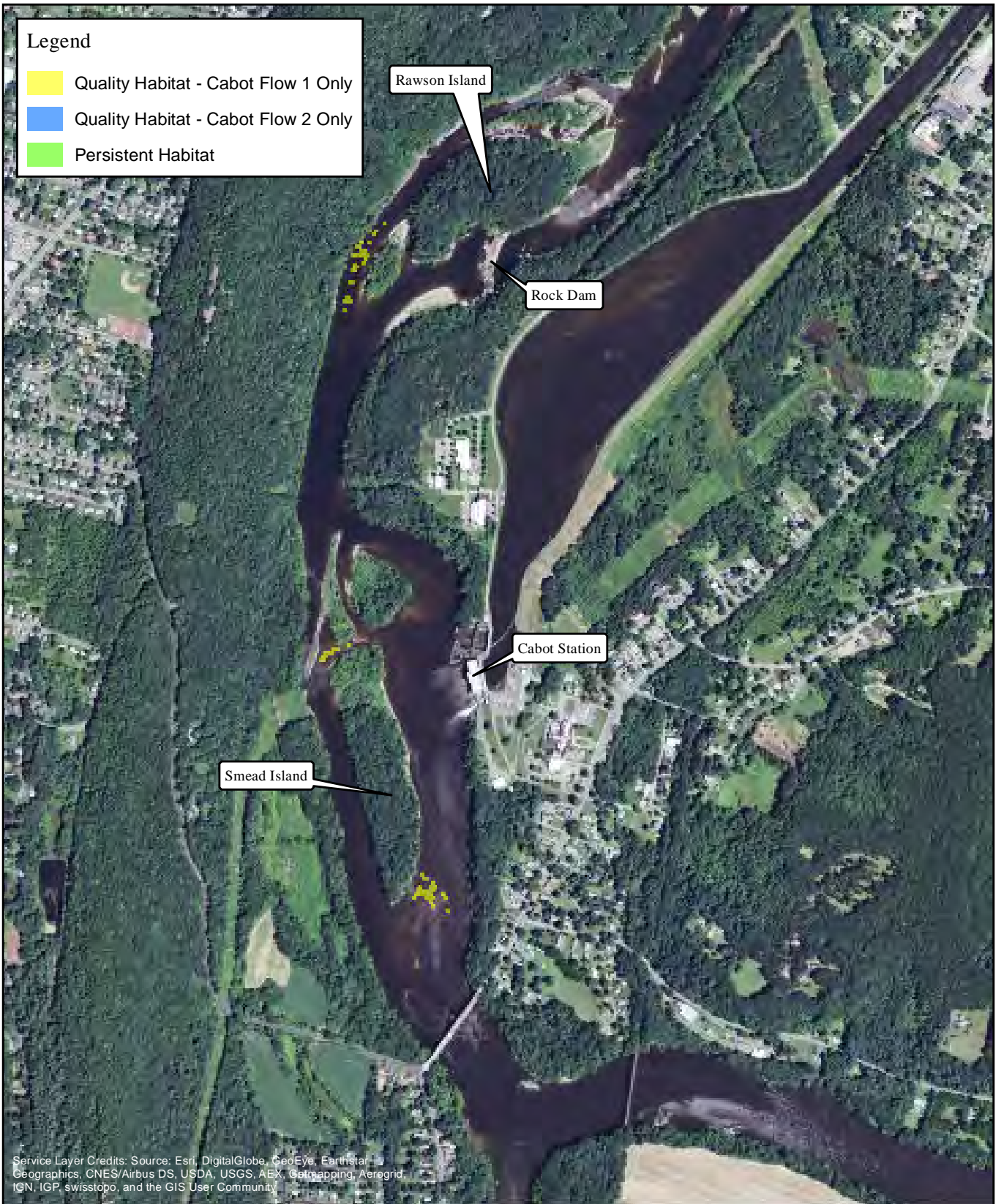


Persistent Habitat  
 Species/Life Stage:  
 Sea Lamprey Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

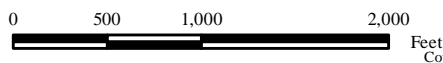
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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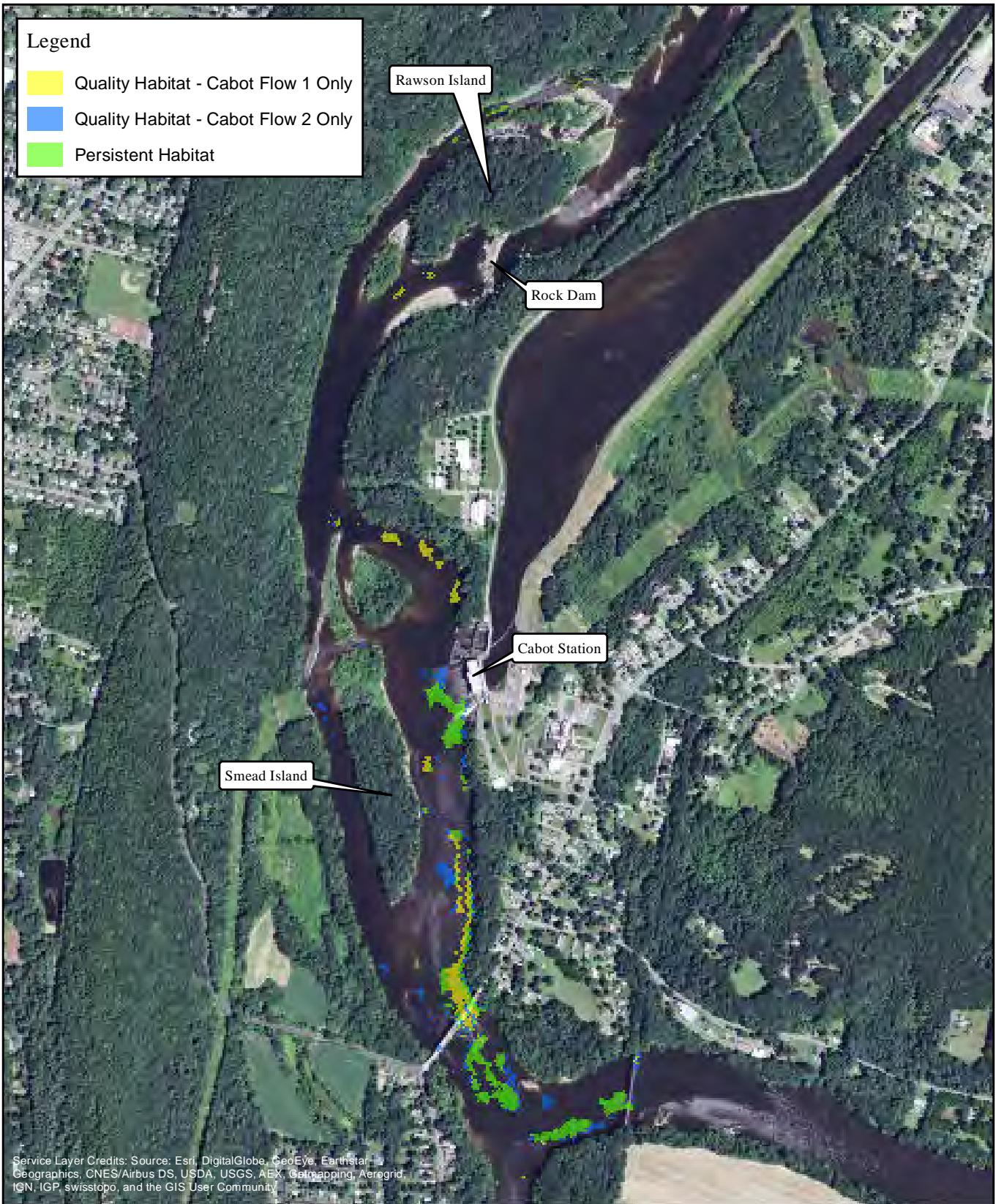
Persistent Habitat  
 Species/Life Stage:  
 Sea Lamprey Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

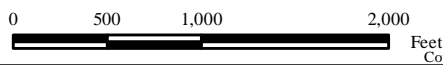
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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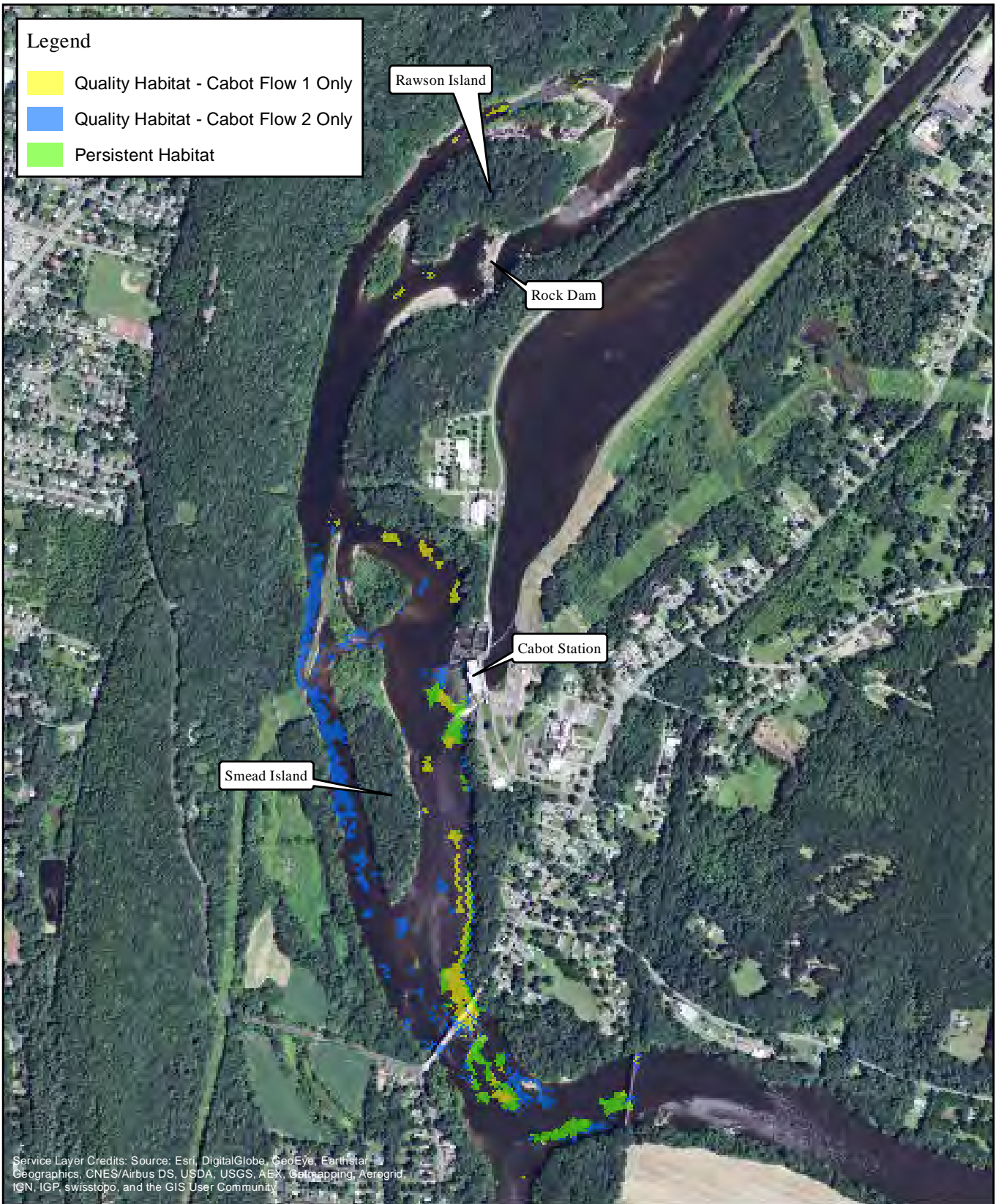


**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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Legend

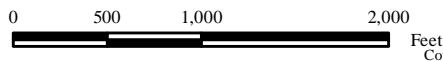
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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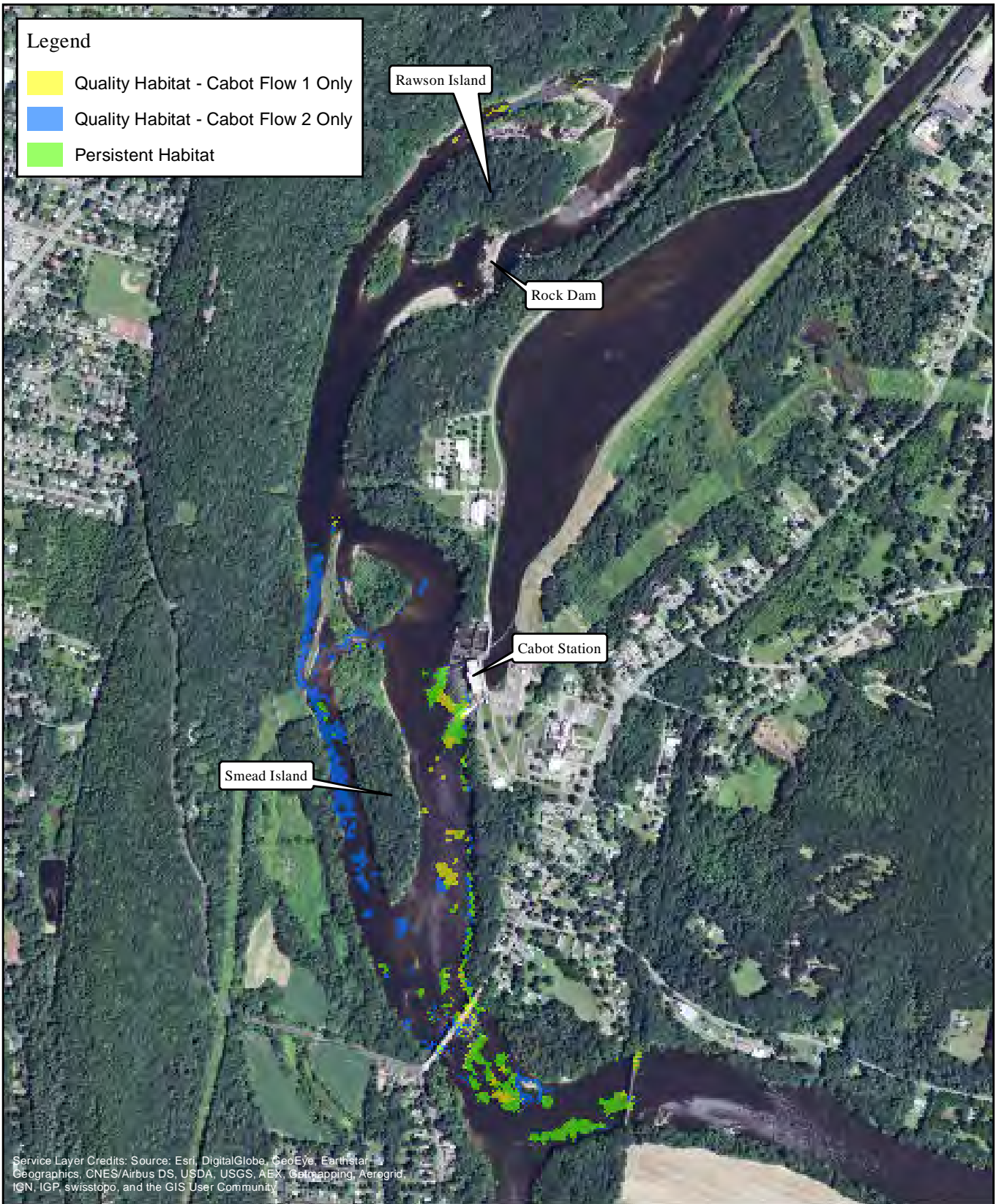


Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Spawning  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

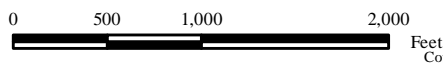
- Quality Habitat - Cabot Flow 1 Only
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- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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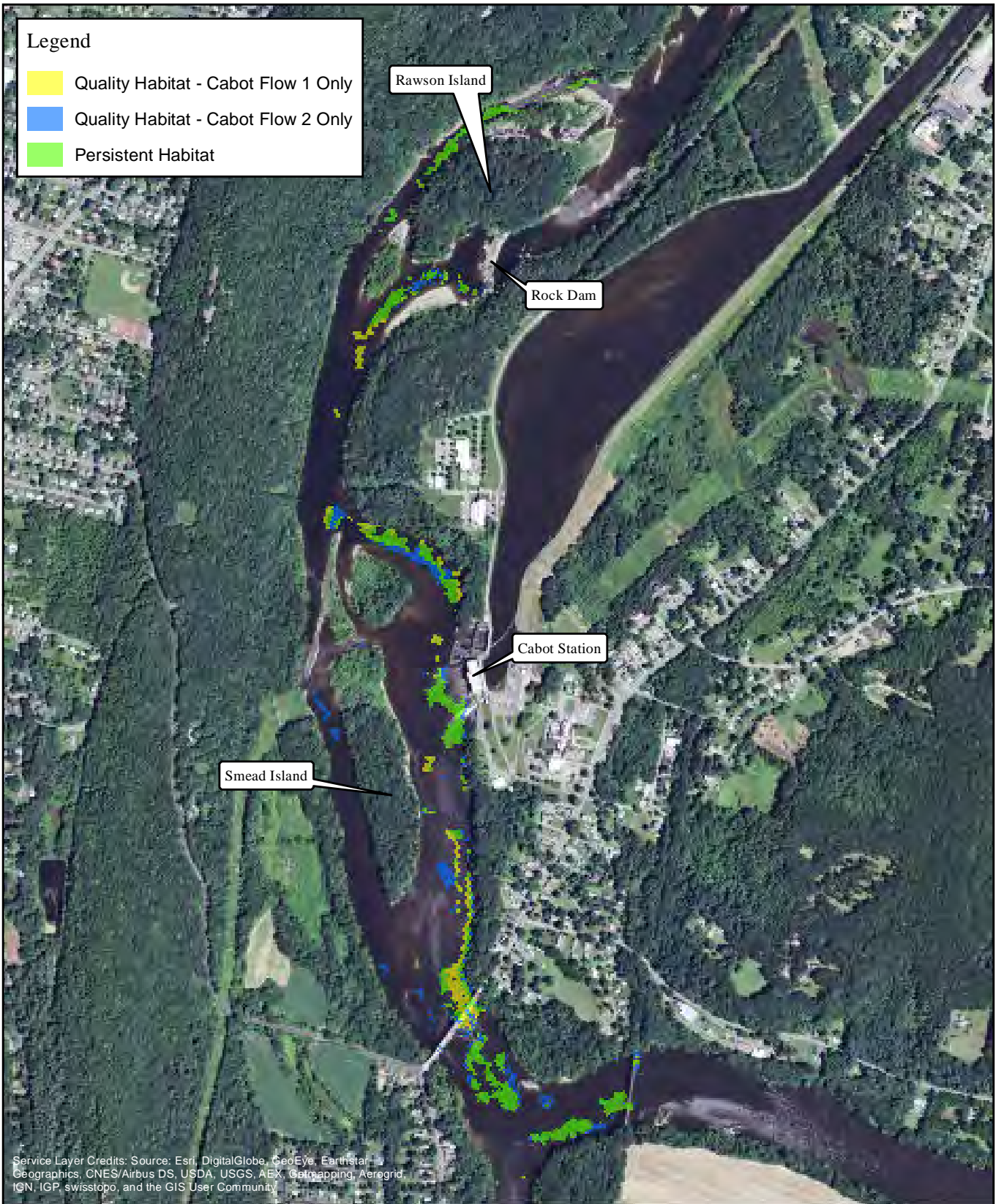


Persistent Habitat  
 Species/Life Stage:  
 Shortnose Sturgeon Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

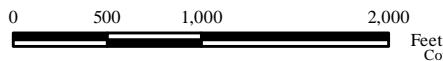
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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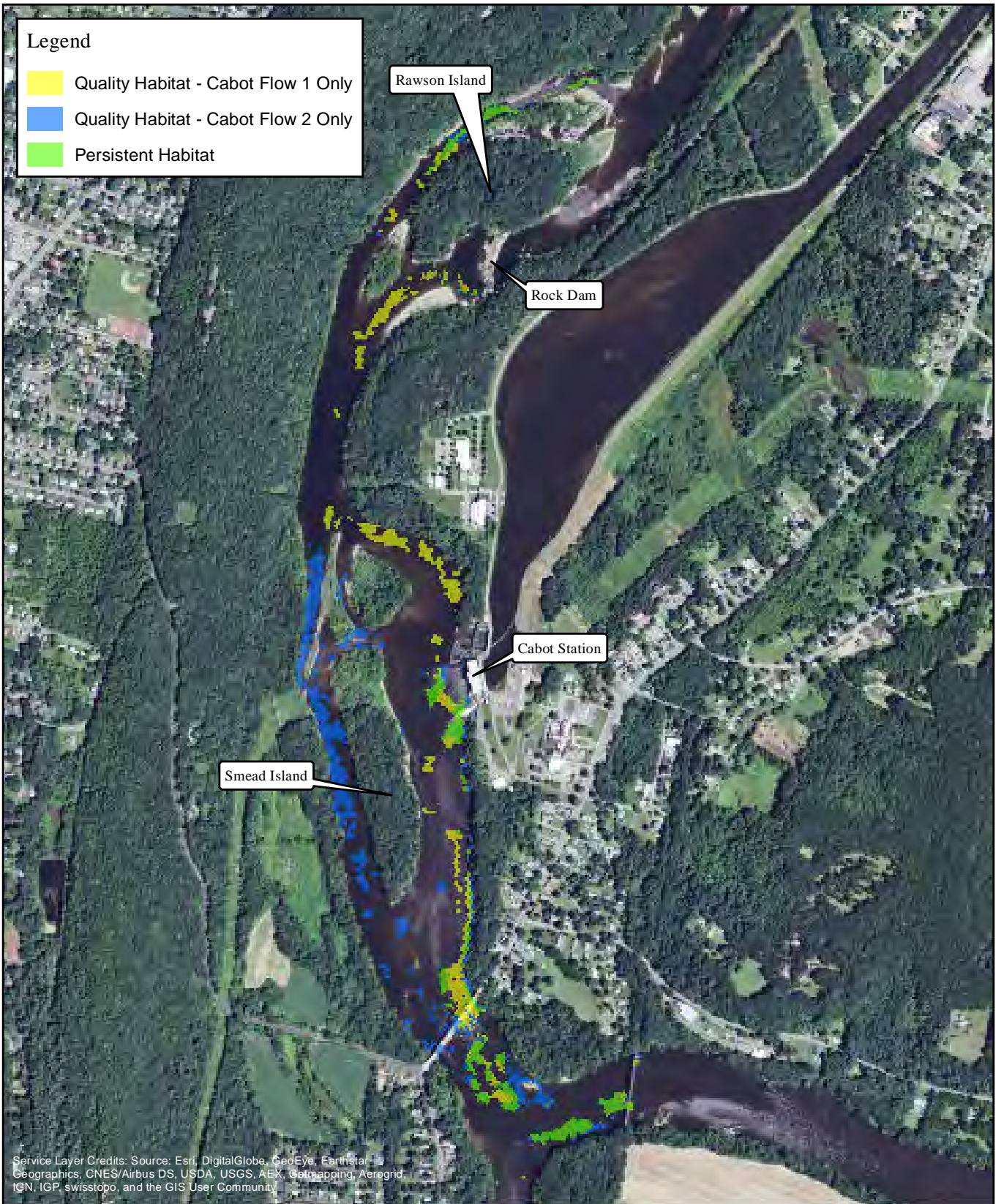


Persistent Habitat  
 Species/Life Stage:  
 Shortnose Sturgeon Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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**Legend**

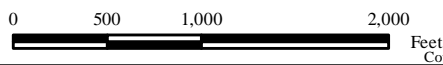
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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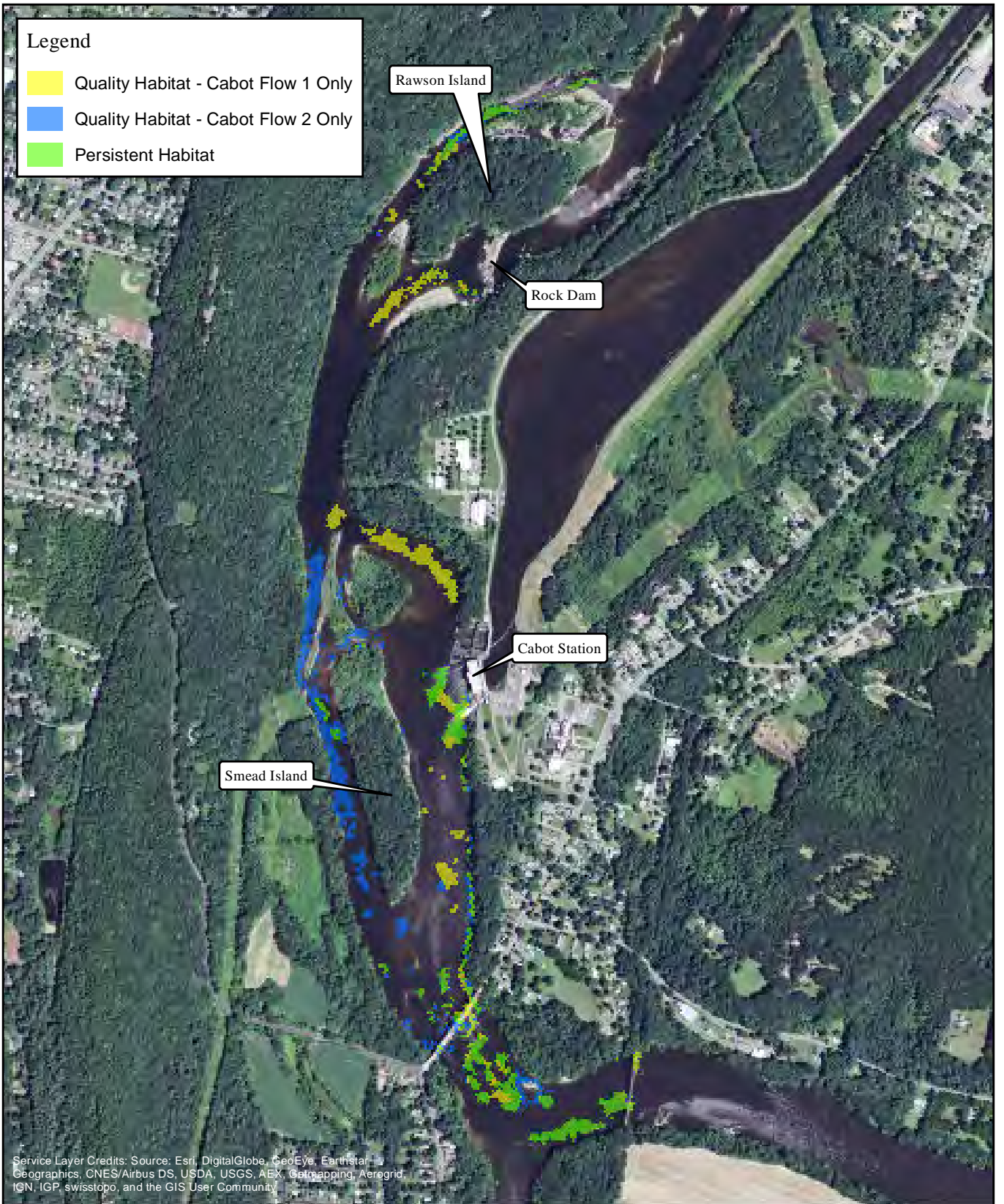


Persistent Habitat  
 Species/Life Stage:  
 Shortnose Sturgeon Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

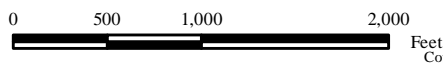
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar  
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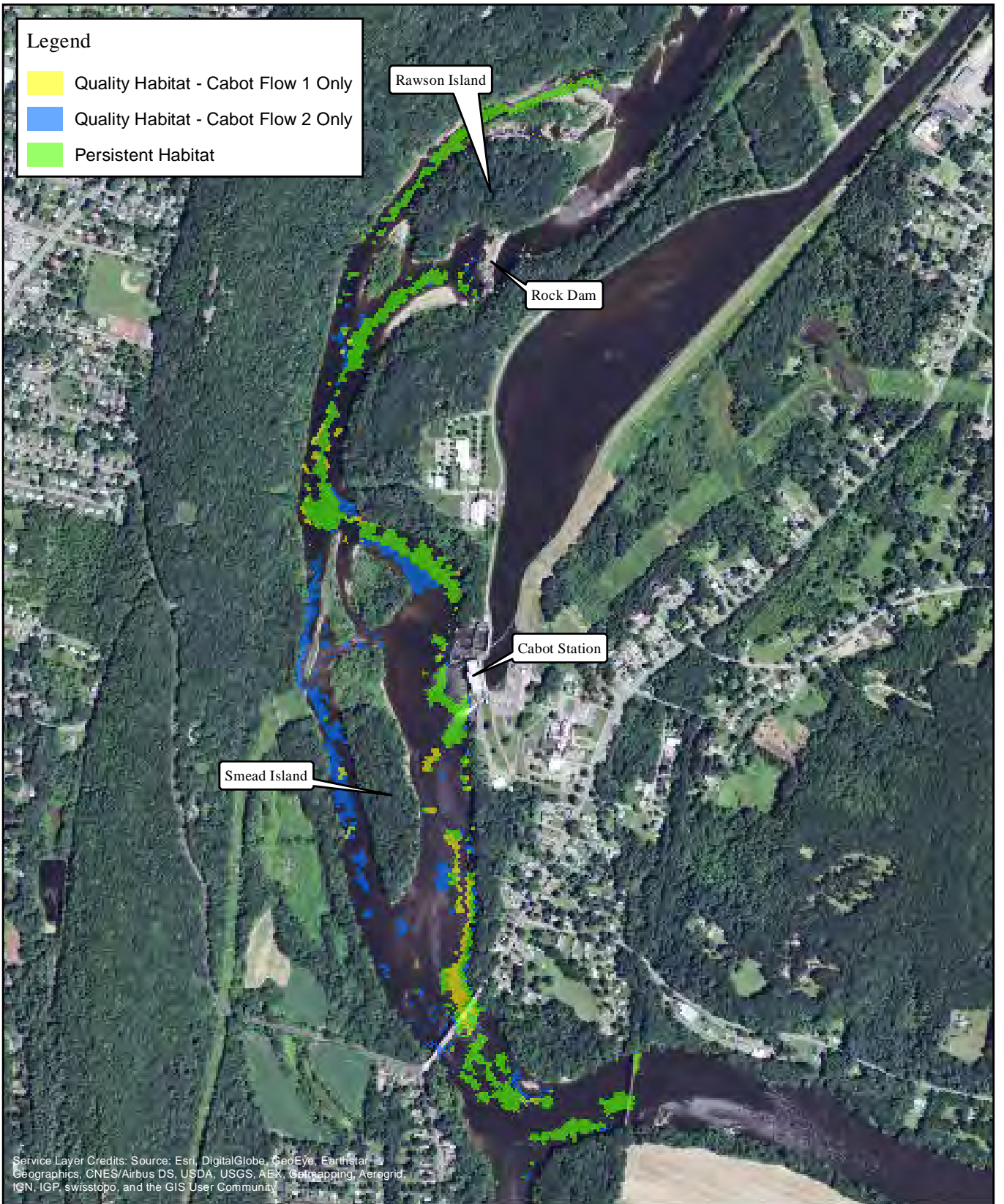


**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

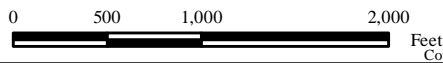
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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FIRSTLIGHT HYDRO GENERATING COMPANY  
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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

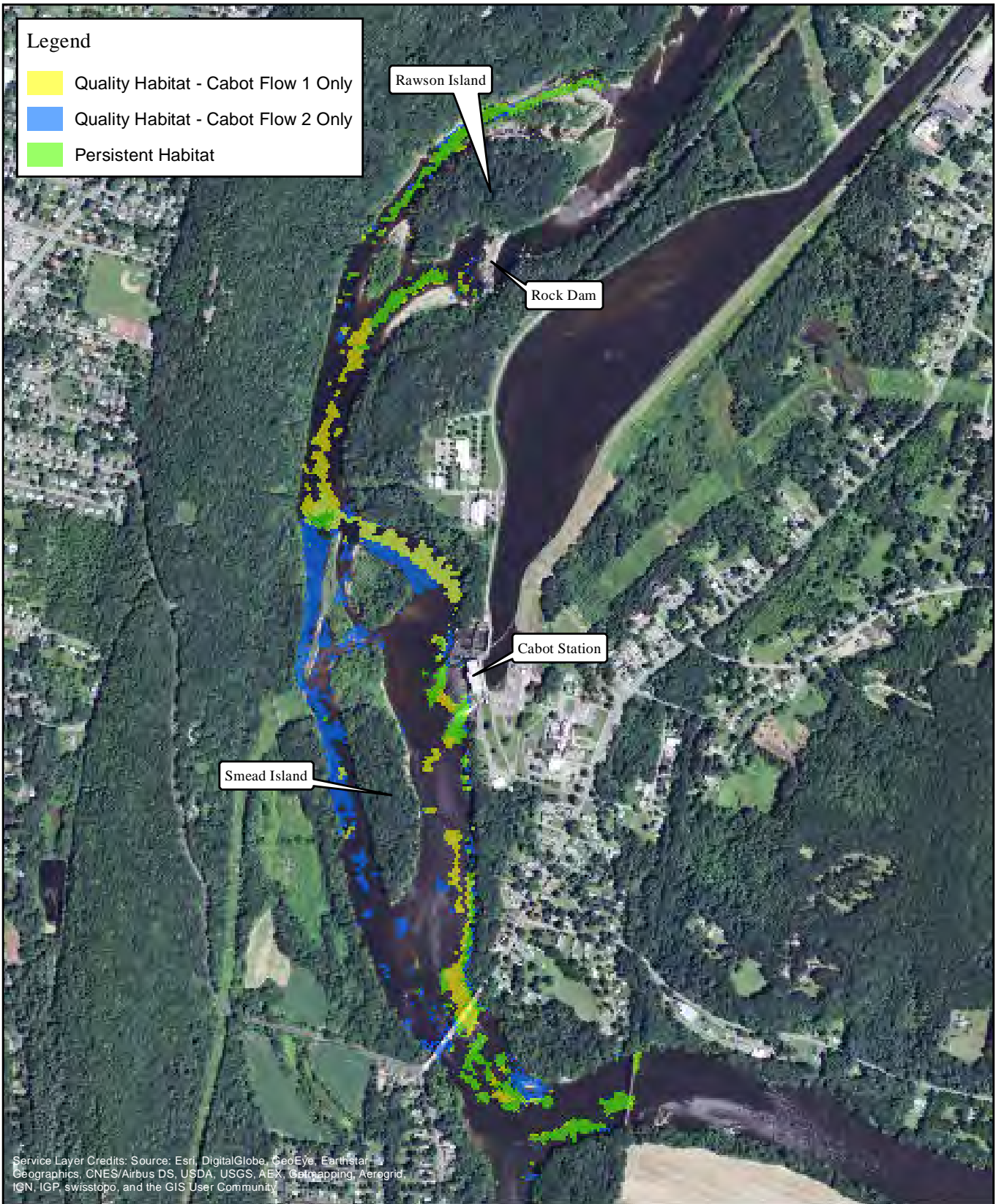


Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Egg-Embryo  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

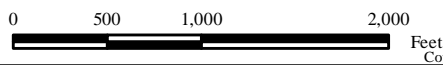
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**



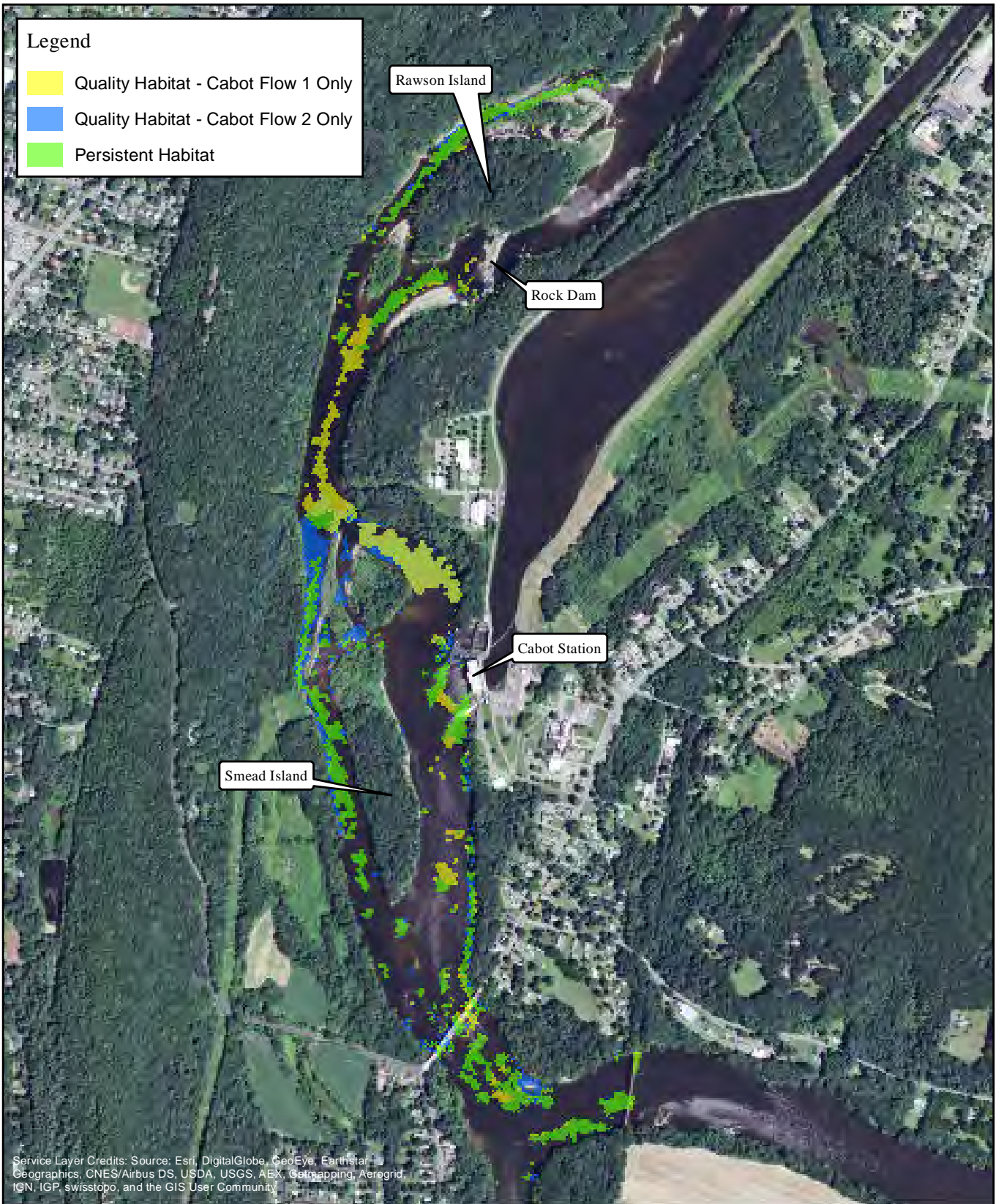
**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Egg-Embryo  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

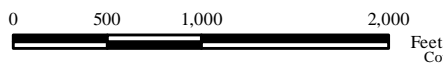
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

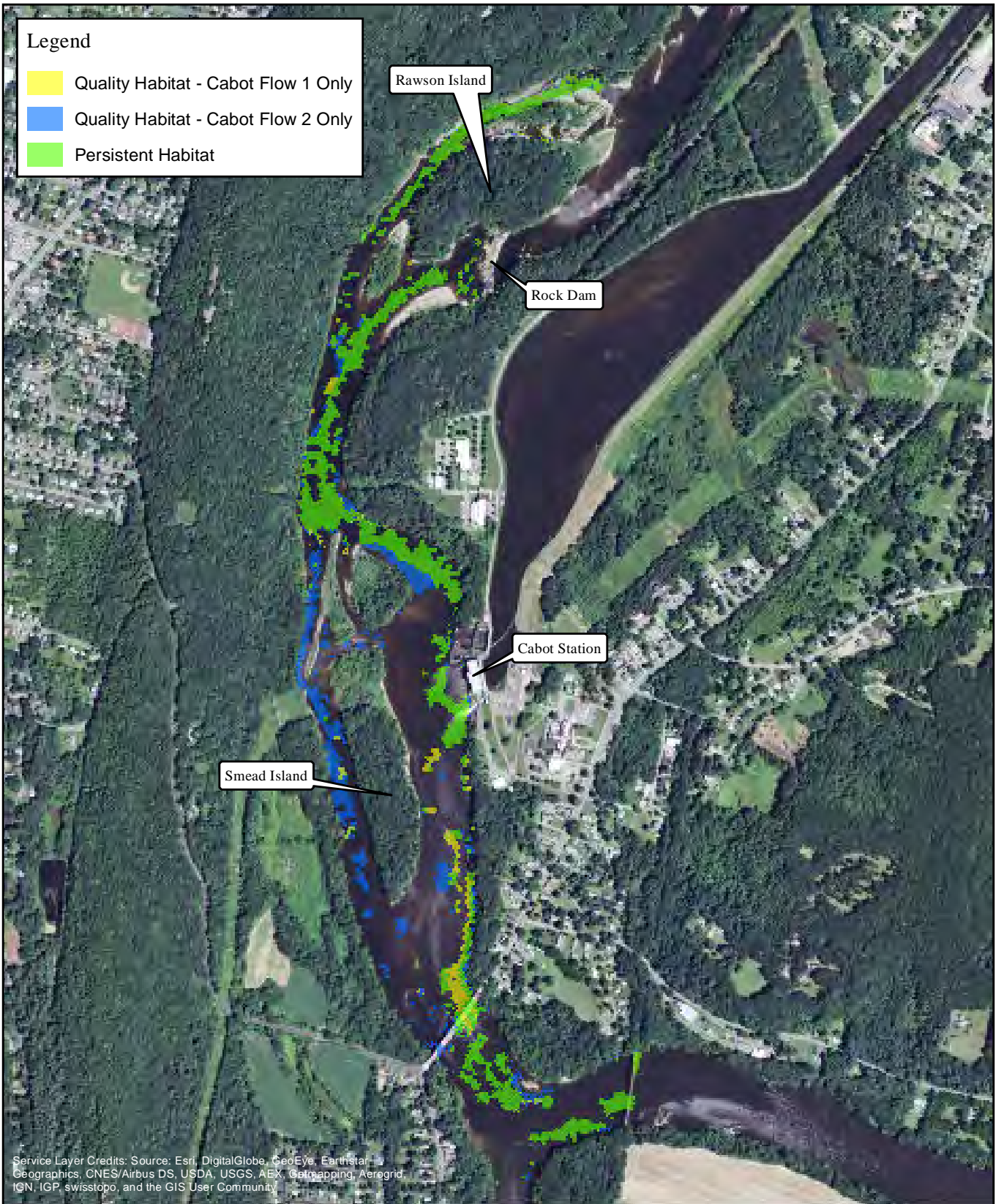


Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Egg-Embryo  
Bypass Flow: 200 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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Legend

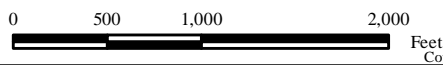
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

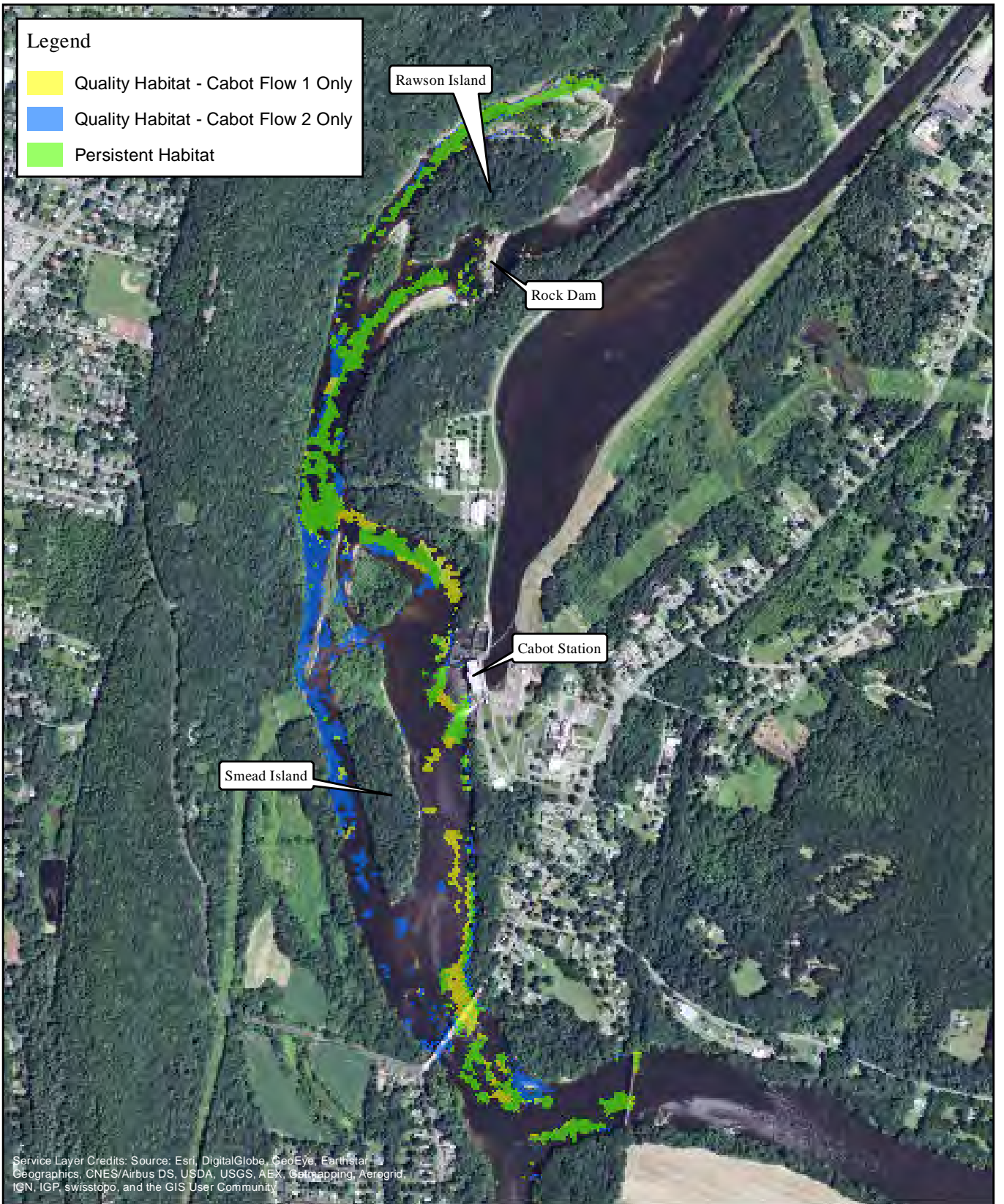


Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Egg-Embryo  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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Legend

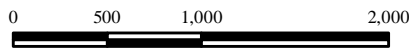
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1



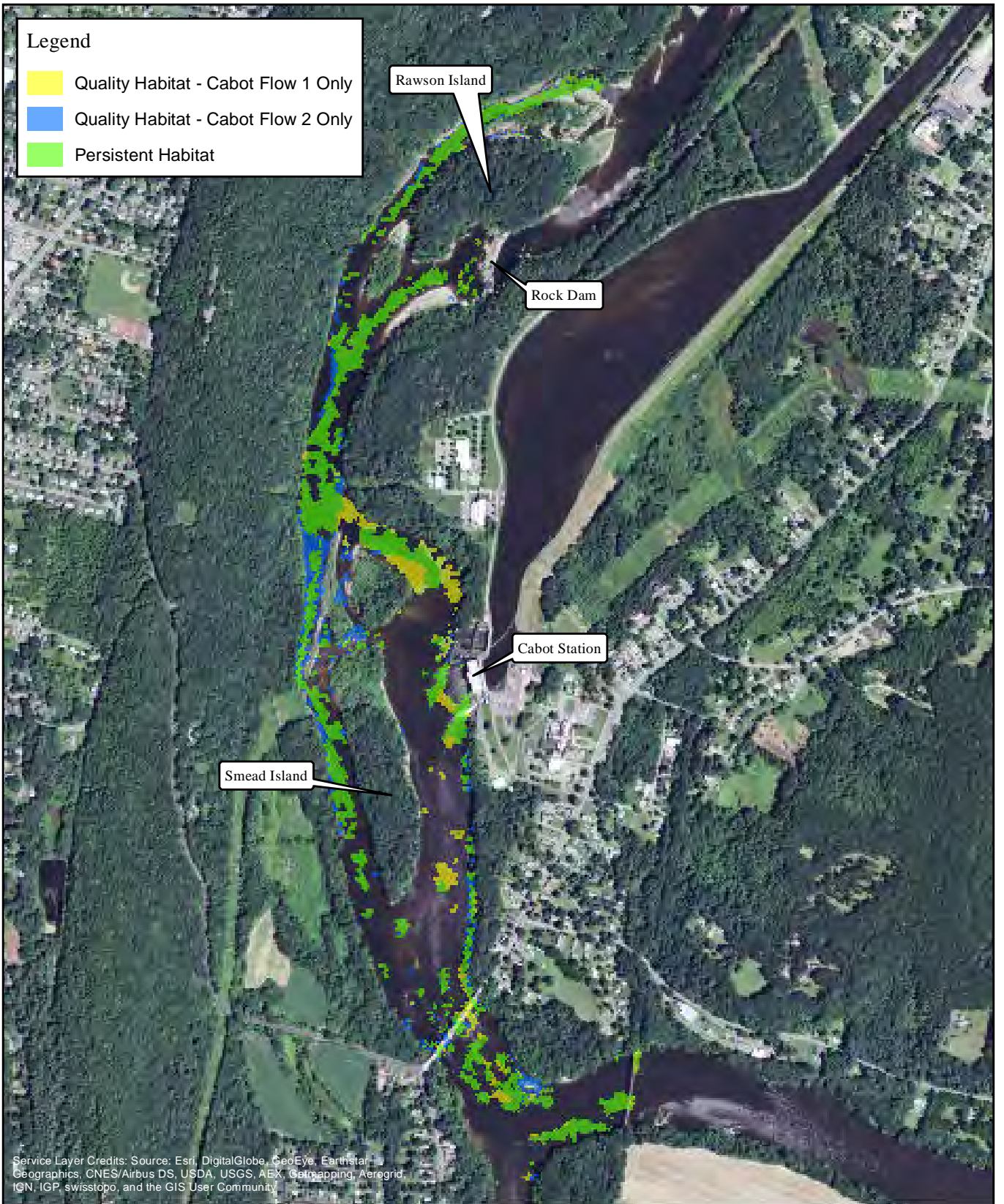
Feet

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Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Egg-Embryo  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 14000 cfs

**Legend**

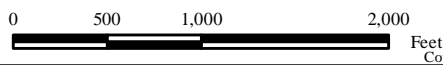
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

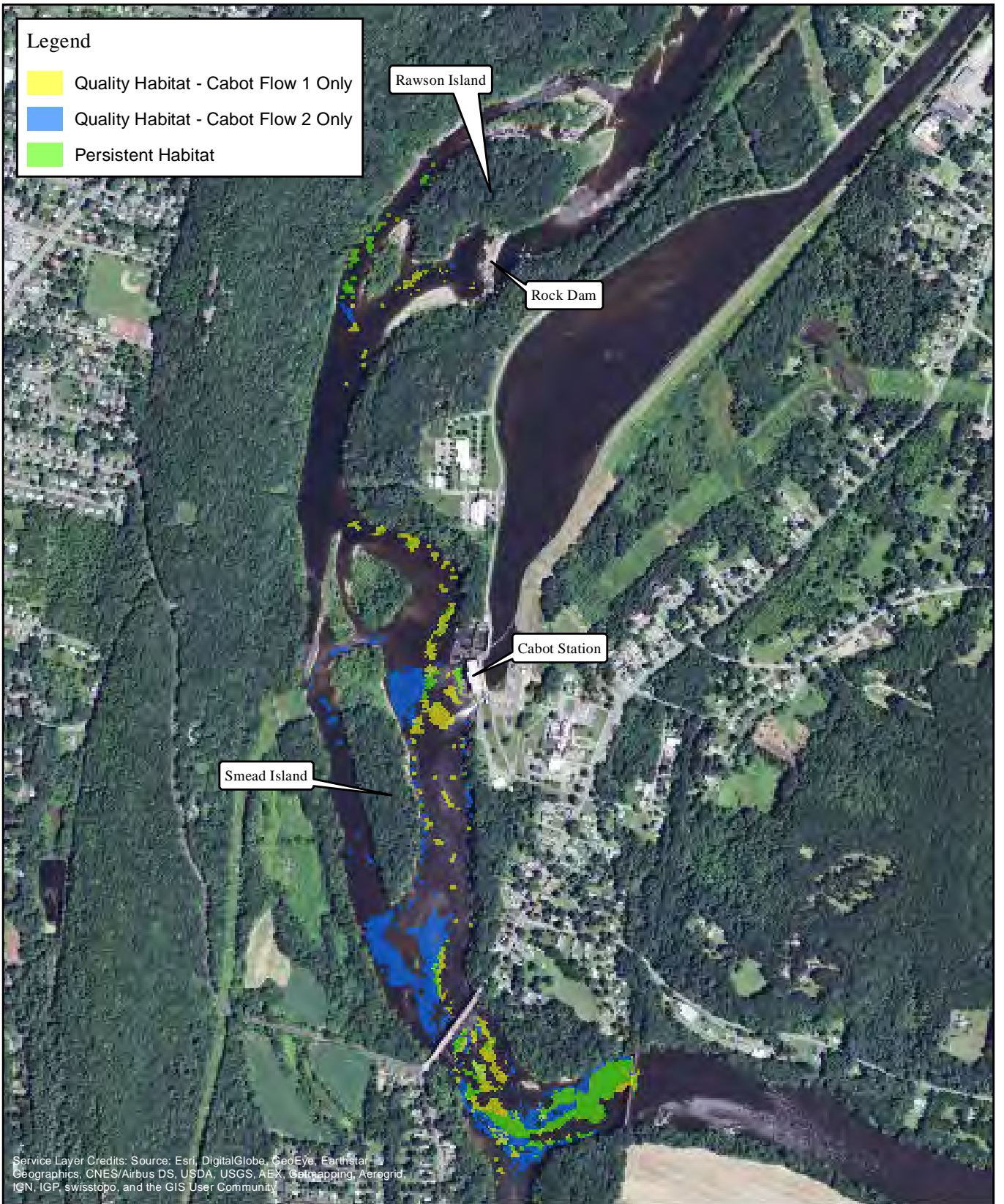


**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Egg-Embryo  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

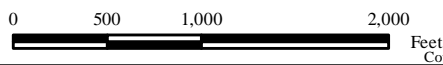
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Northfield Mountain Pumped Storage Project No. 2485  
Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

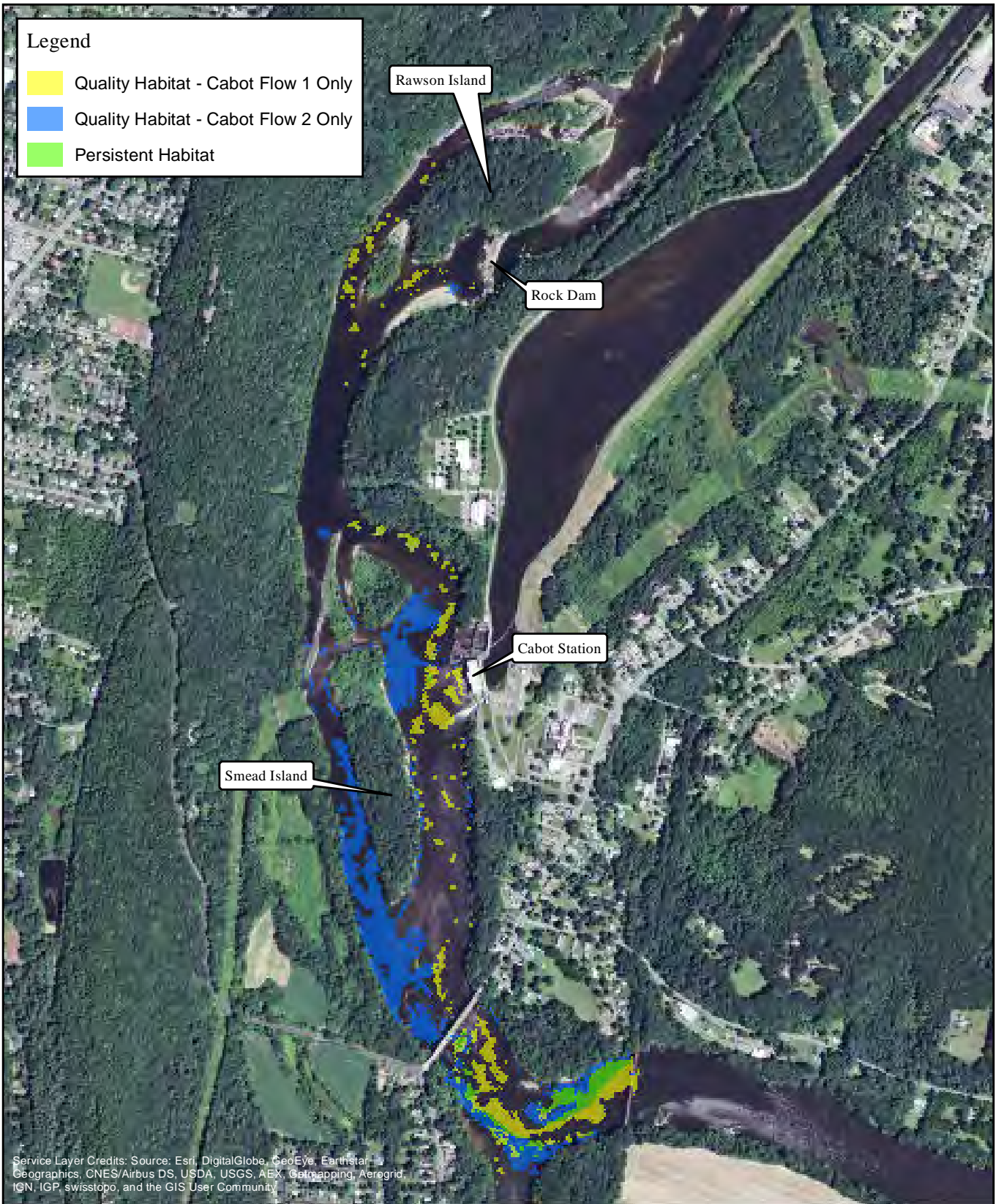


Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Fry  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

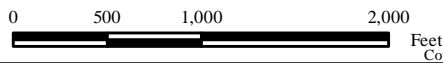
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

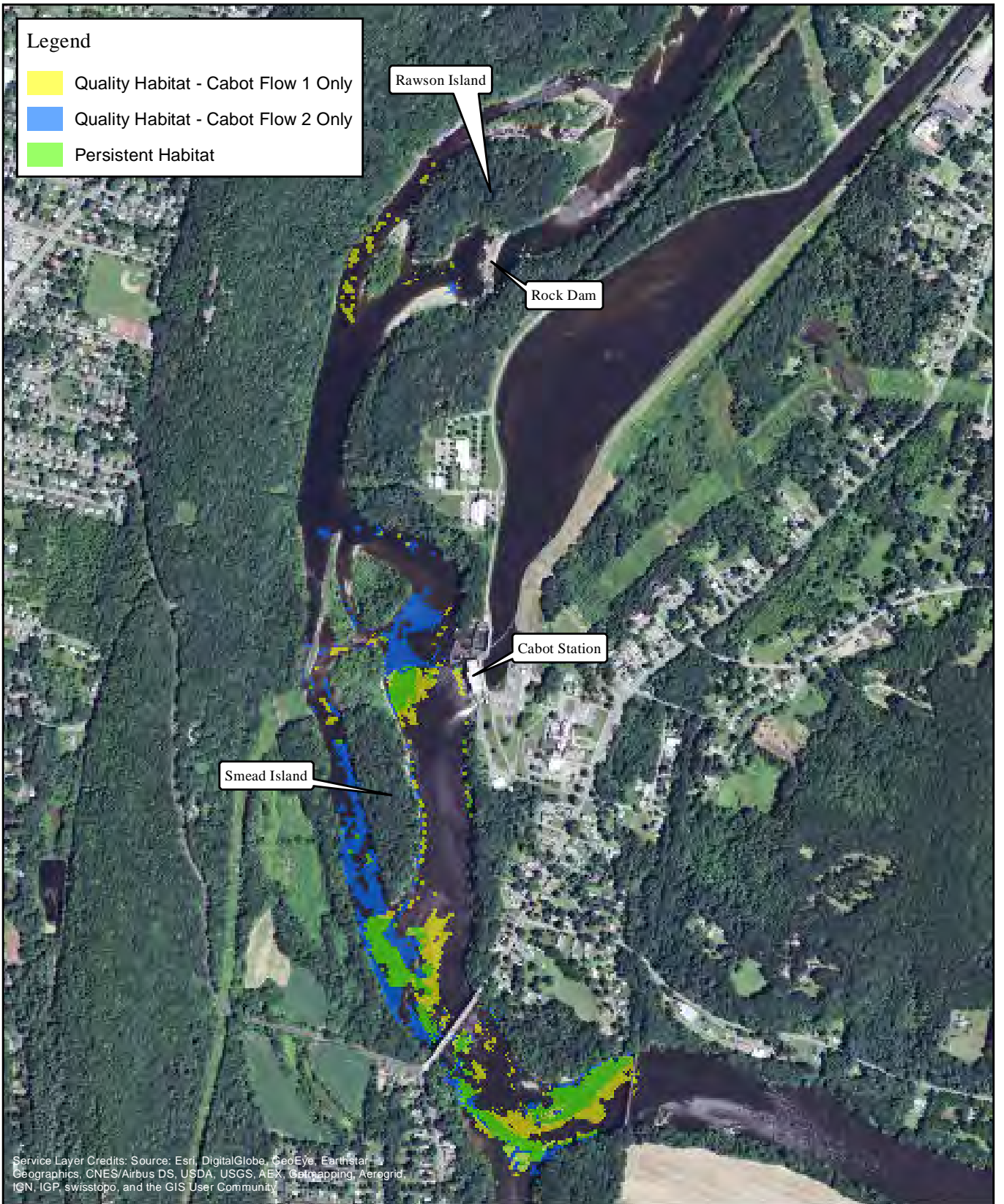


**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Fry  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

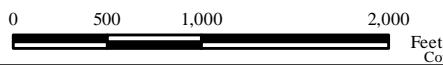
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

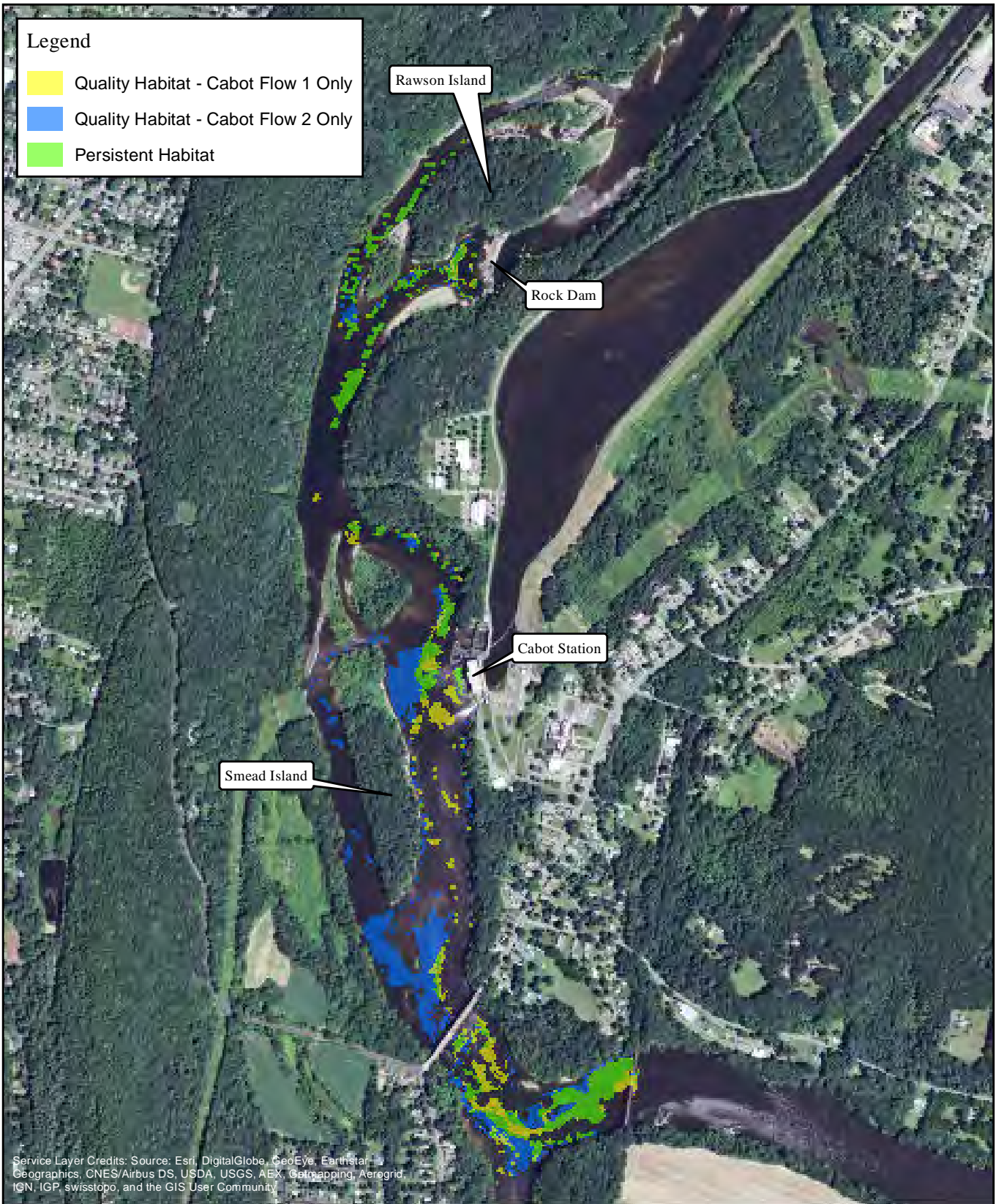


**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Fry  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

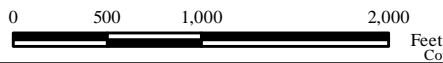
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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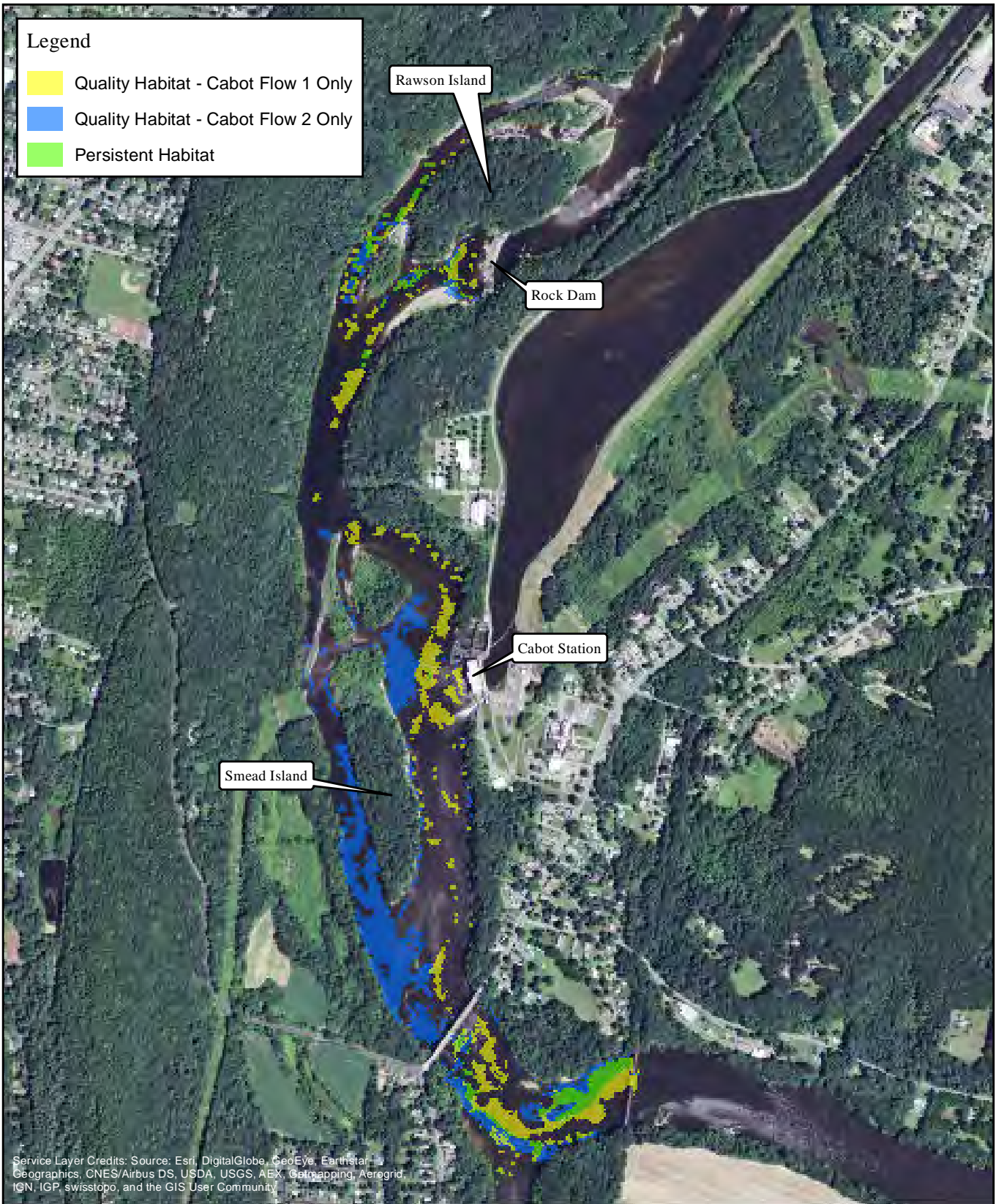
Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Fry  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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Legend

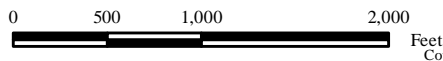
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

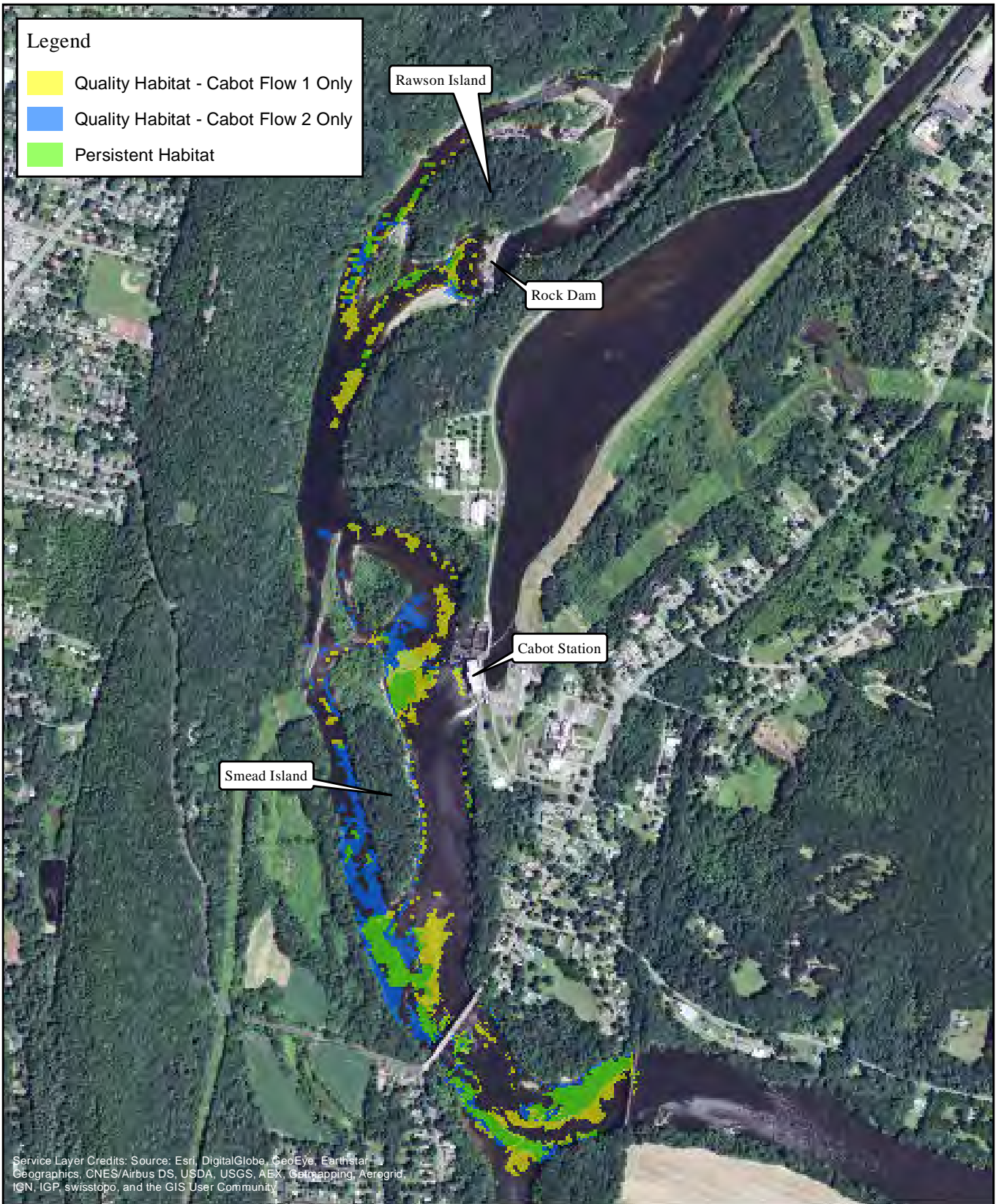


Persistent Habitat  
Species/Life Stage:  
Shortnose Sturgeon Fry  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

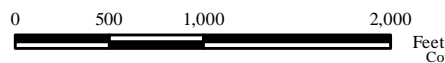
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

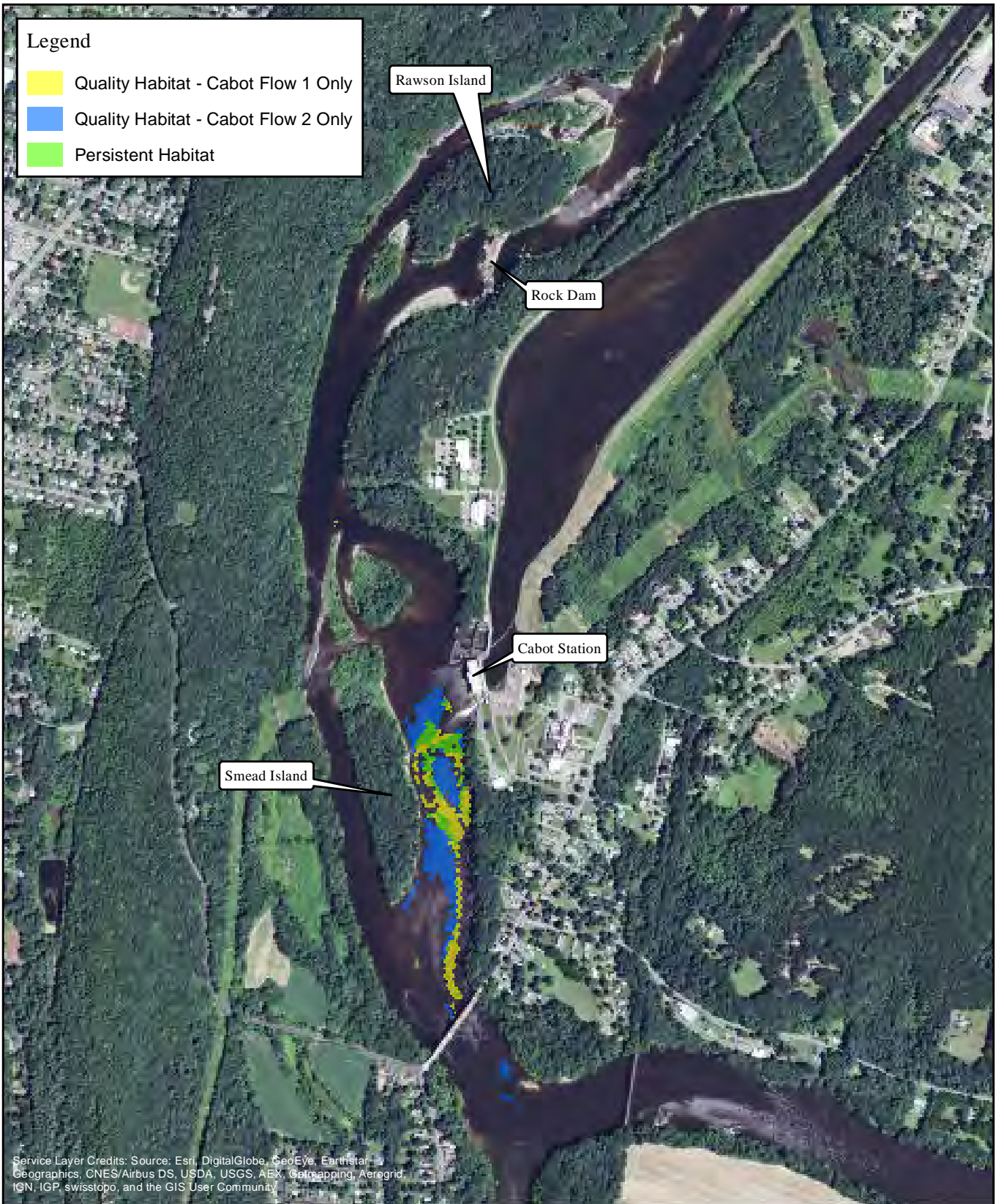


**Persistent Habitat**  
**Species/Life Stage:**  
 Shortnose Sturgeon Fry  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

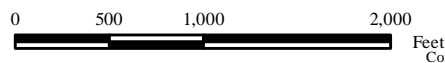
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

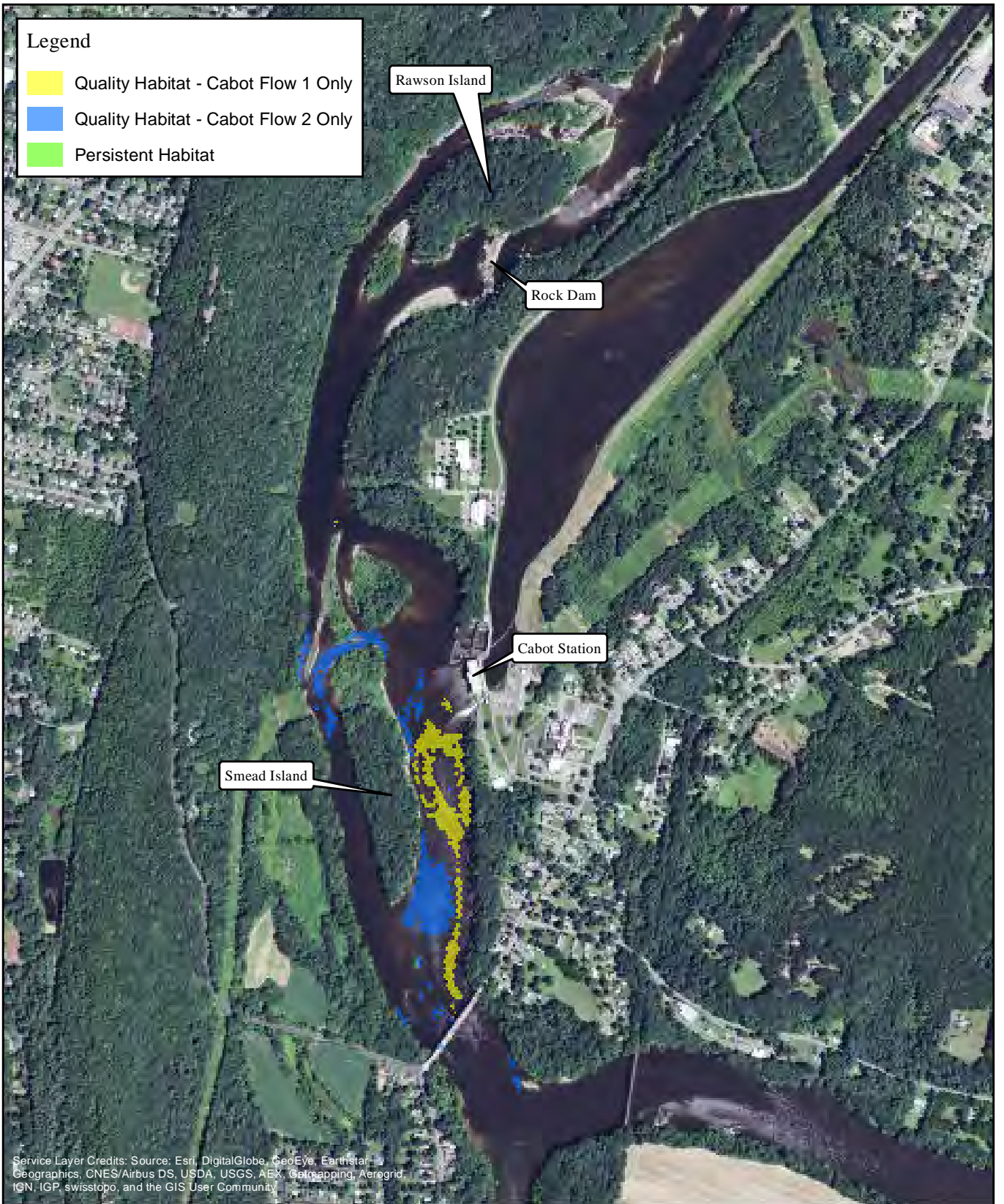


Persistent Habitat  
Species/Life Stage:  
Walleye Spawning  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

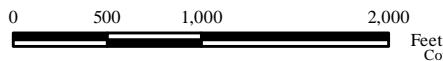
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

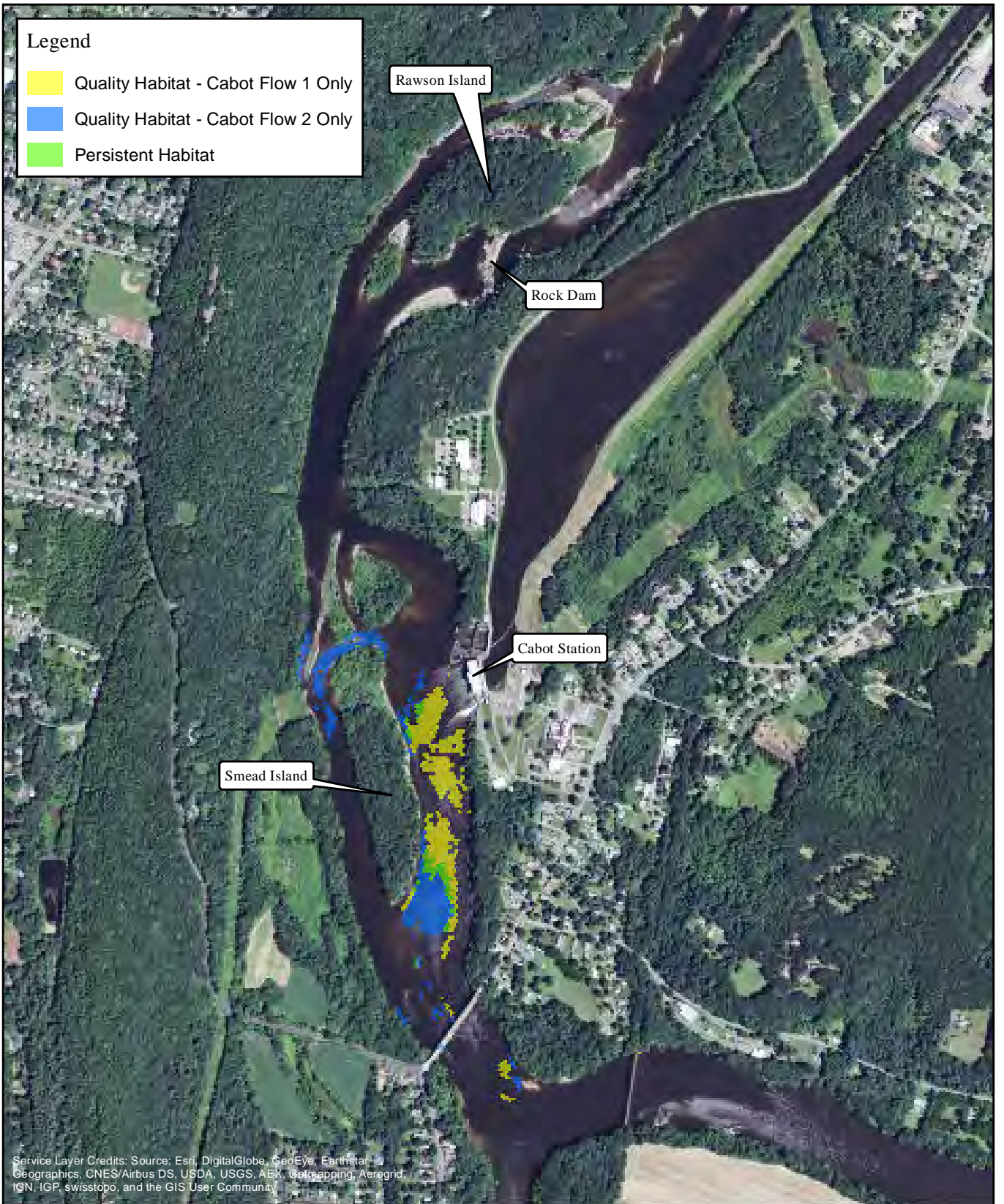


**Persistent Habitat**  
**Species/Life Stage:**  
 Walleye Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

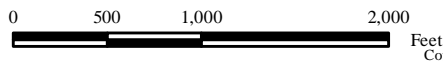
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**

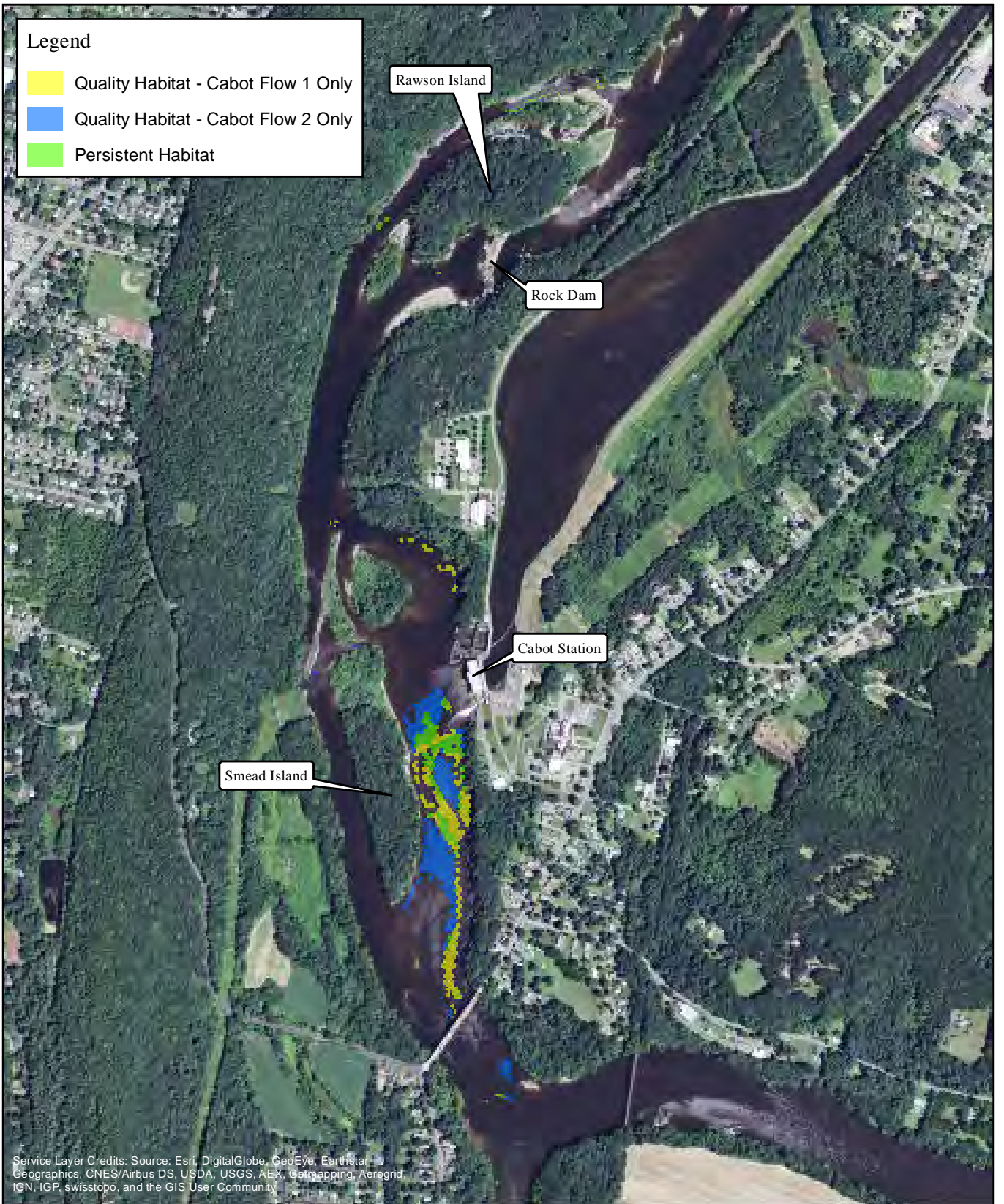


**Persistent Habitat**  
**Species/Life Stage:**  
 Walleye Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

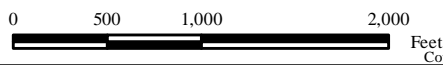
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Northfield Mountain Pumped Storage Project No. 2485  
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RELICENSING STUDY 3.3.1



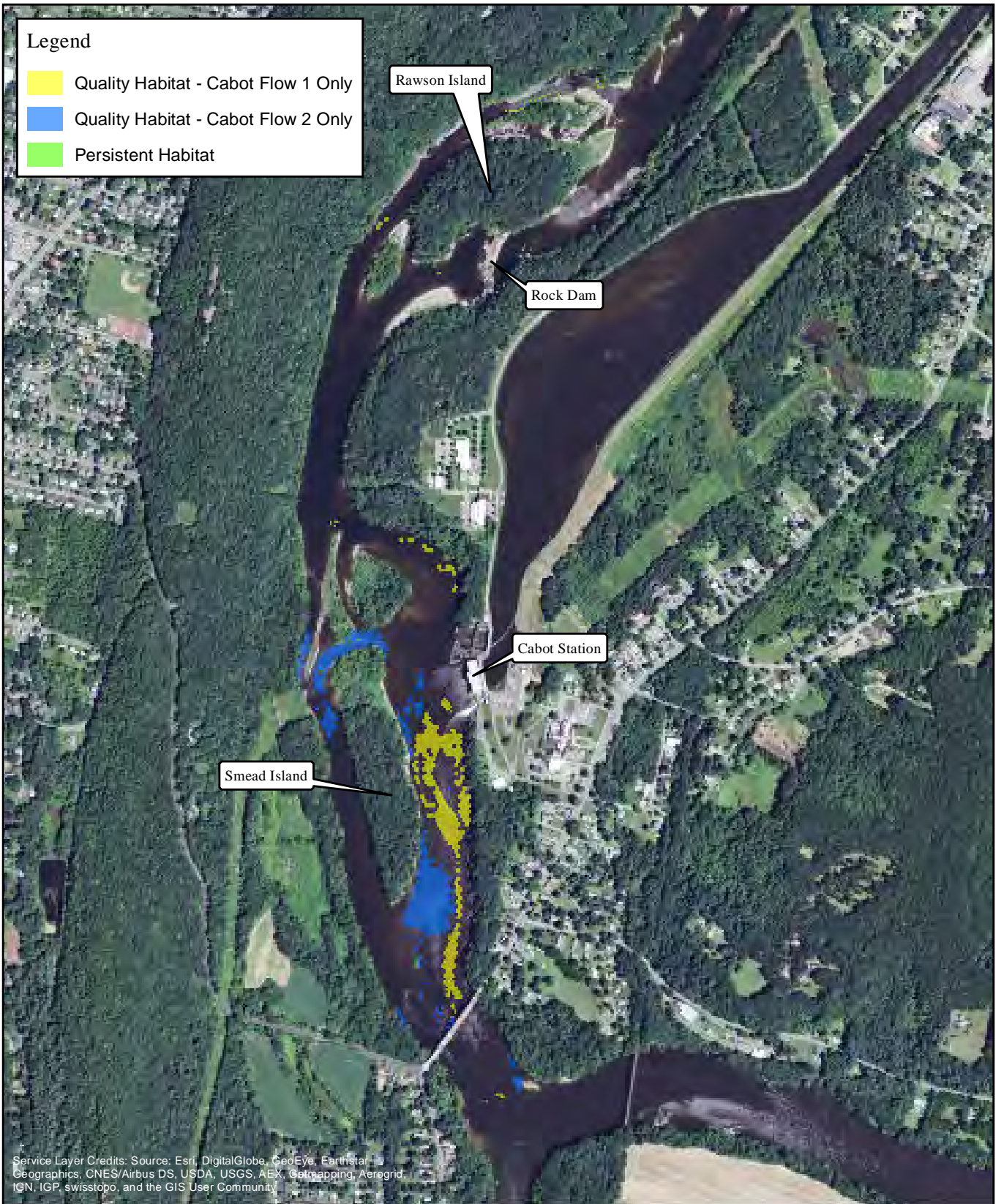
Persistent Habitat  
Species/Life Stage:  
Walleye Spawning

Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

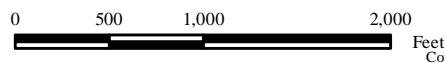
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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 Northfield Mountain Pumped Storage Project No. 2485  
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**RELICENSING STUDY 3.3.1**

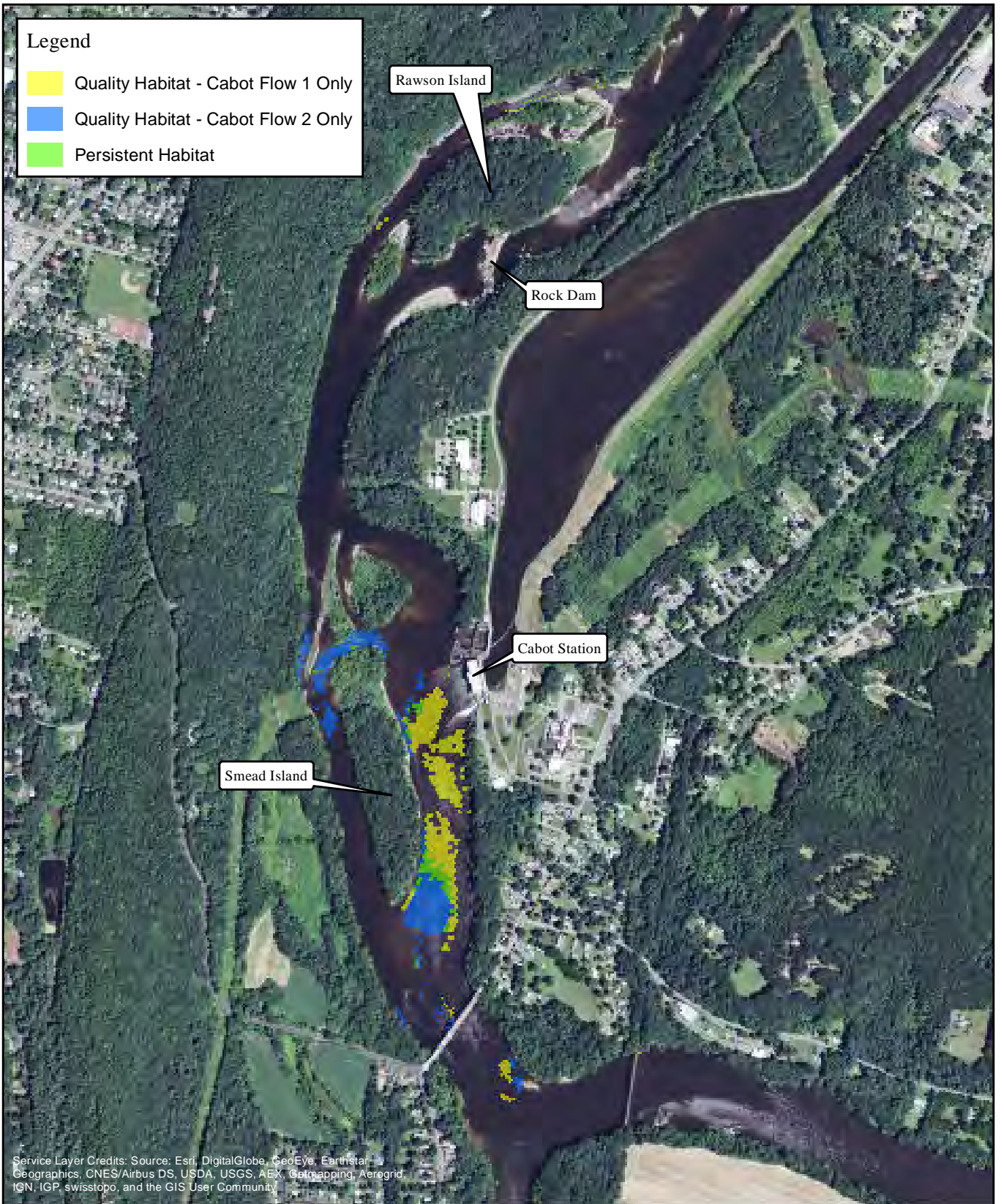


**Persistent Habitat**  
 Species/Life Stage:  
 Walleye Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

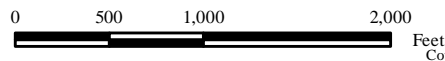
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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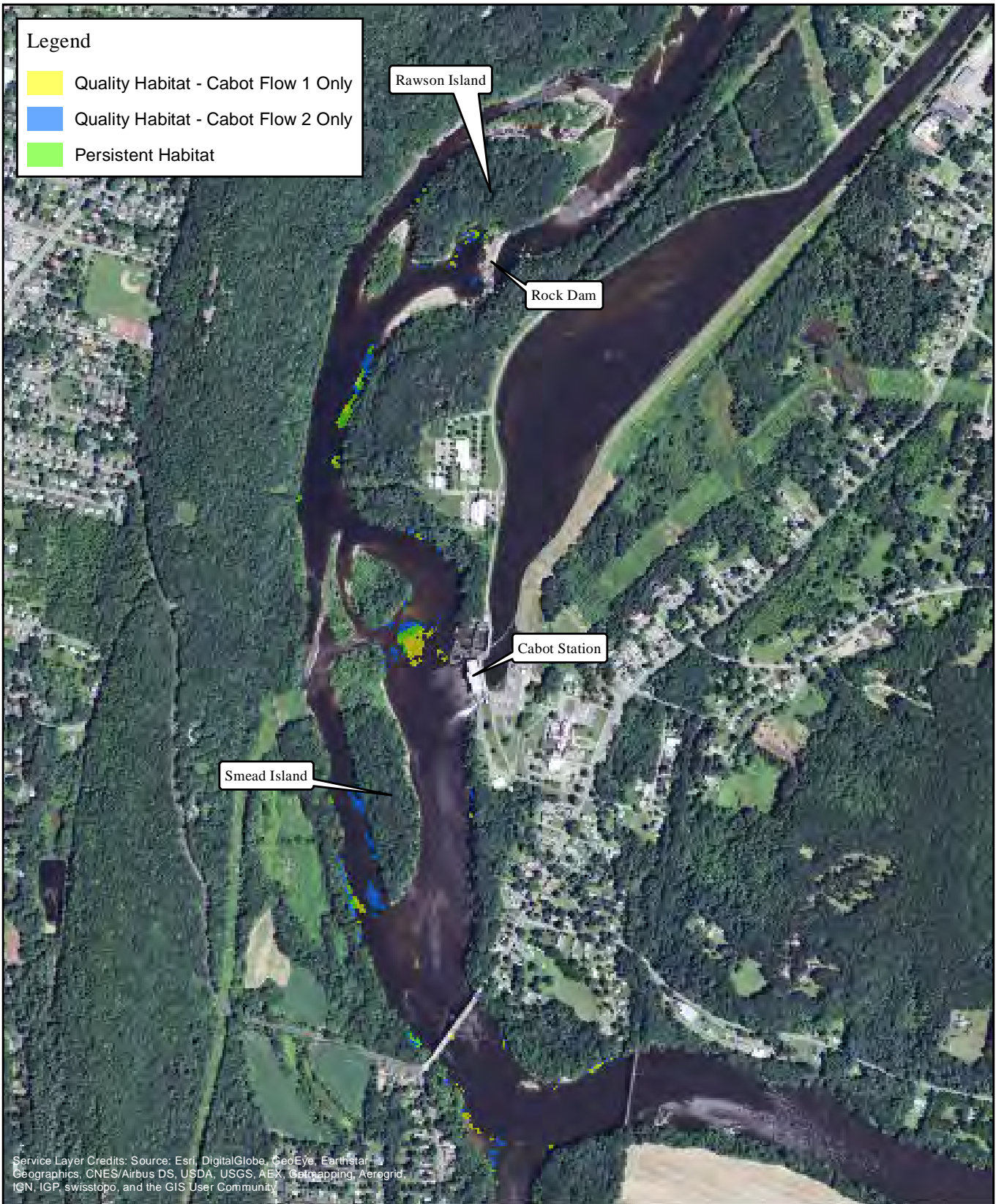
Persistent Habitat  
Species/Life Stage:  
Walleye Spawning  
Bypass Flow: 500 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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Legend

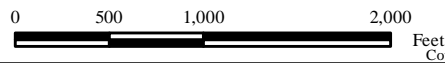
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

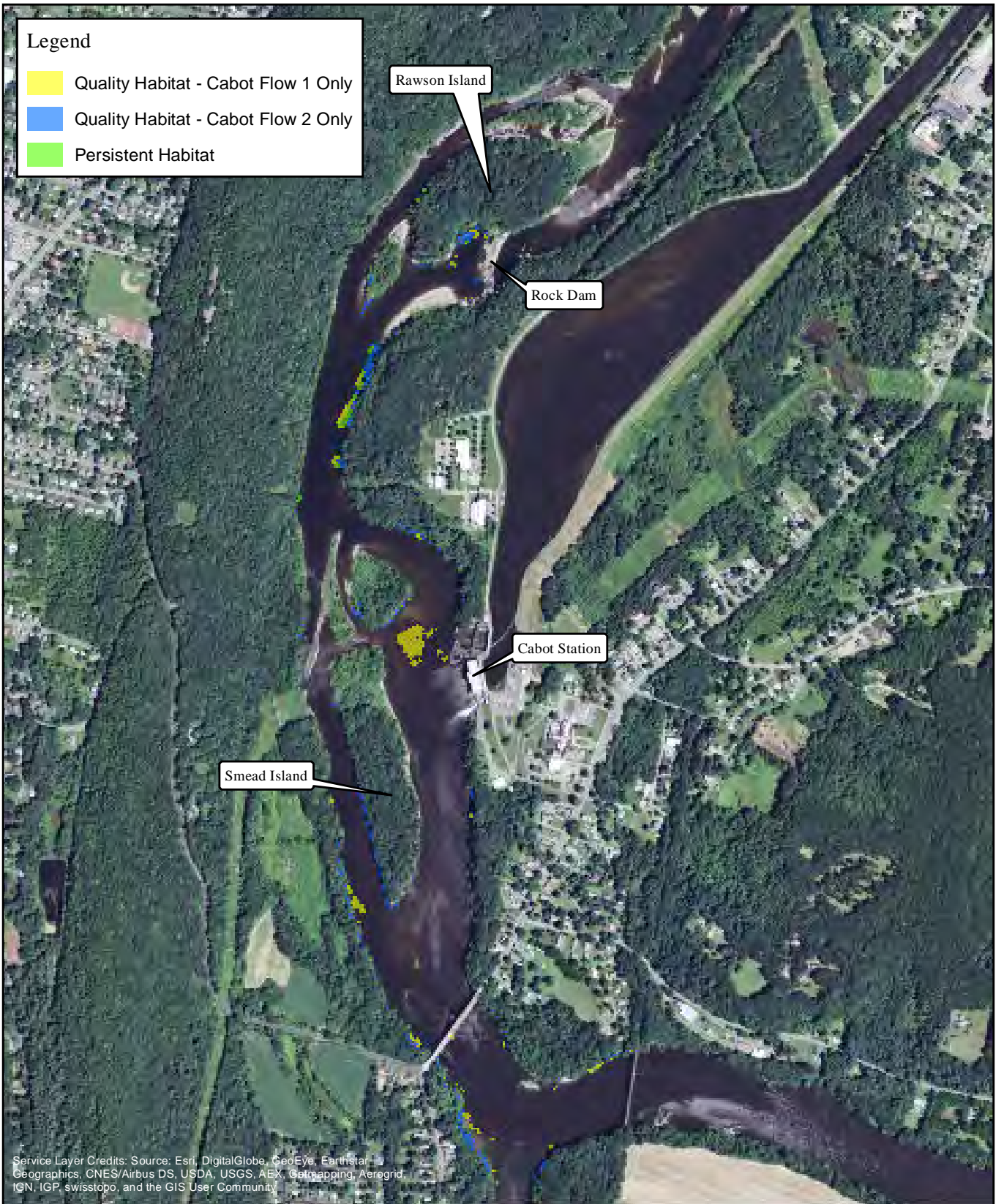


Persistent Habitat  
Species/Life Stage:  
Walleye Fry  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

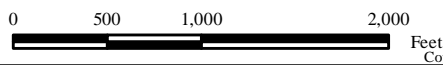
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

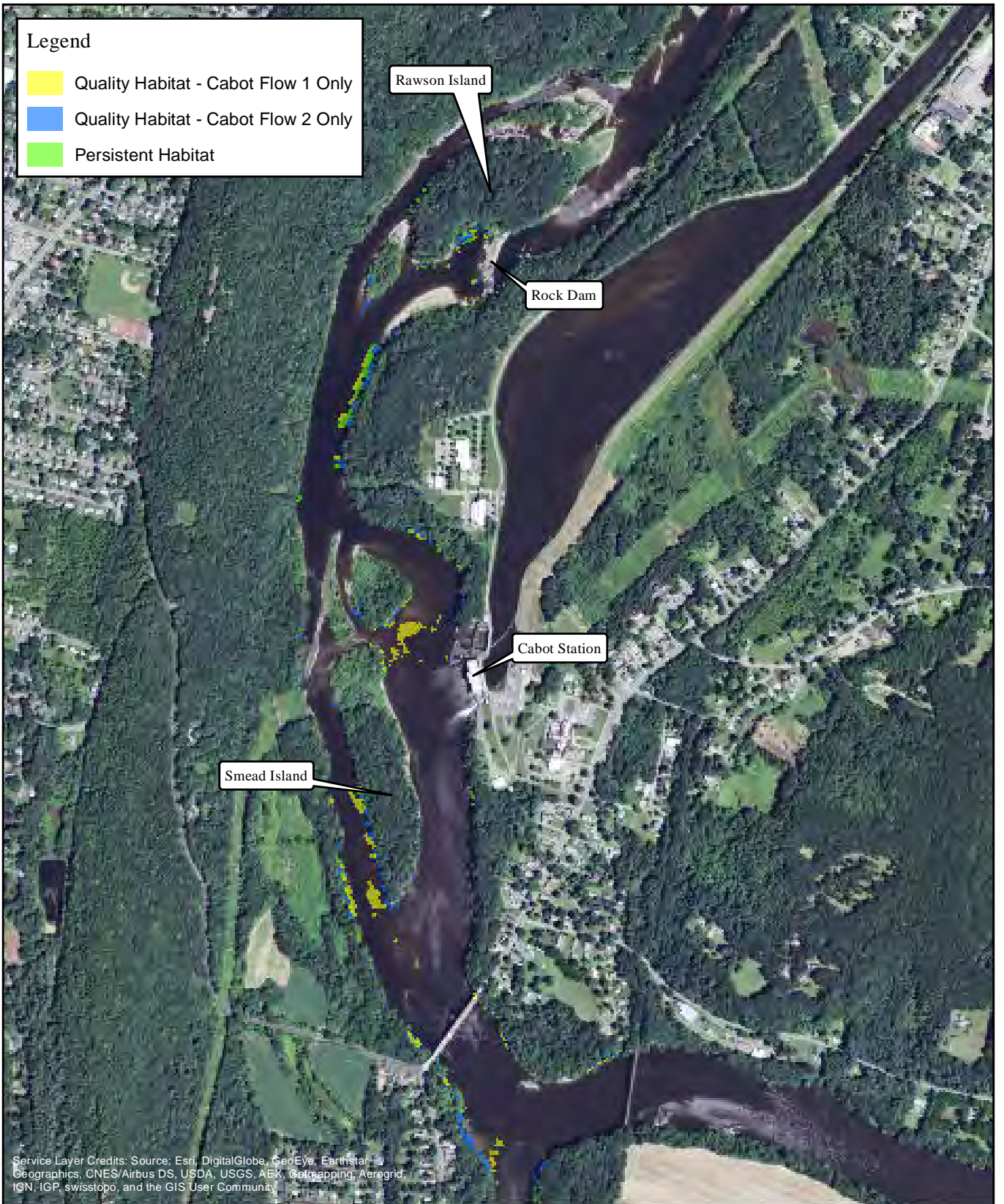


Persistent Habitat  
 Species/Life Stage:  
 Walleye Fry  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

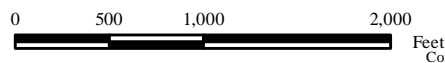
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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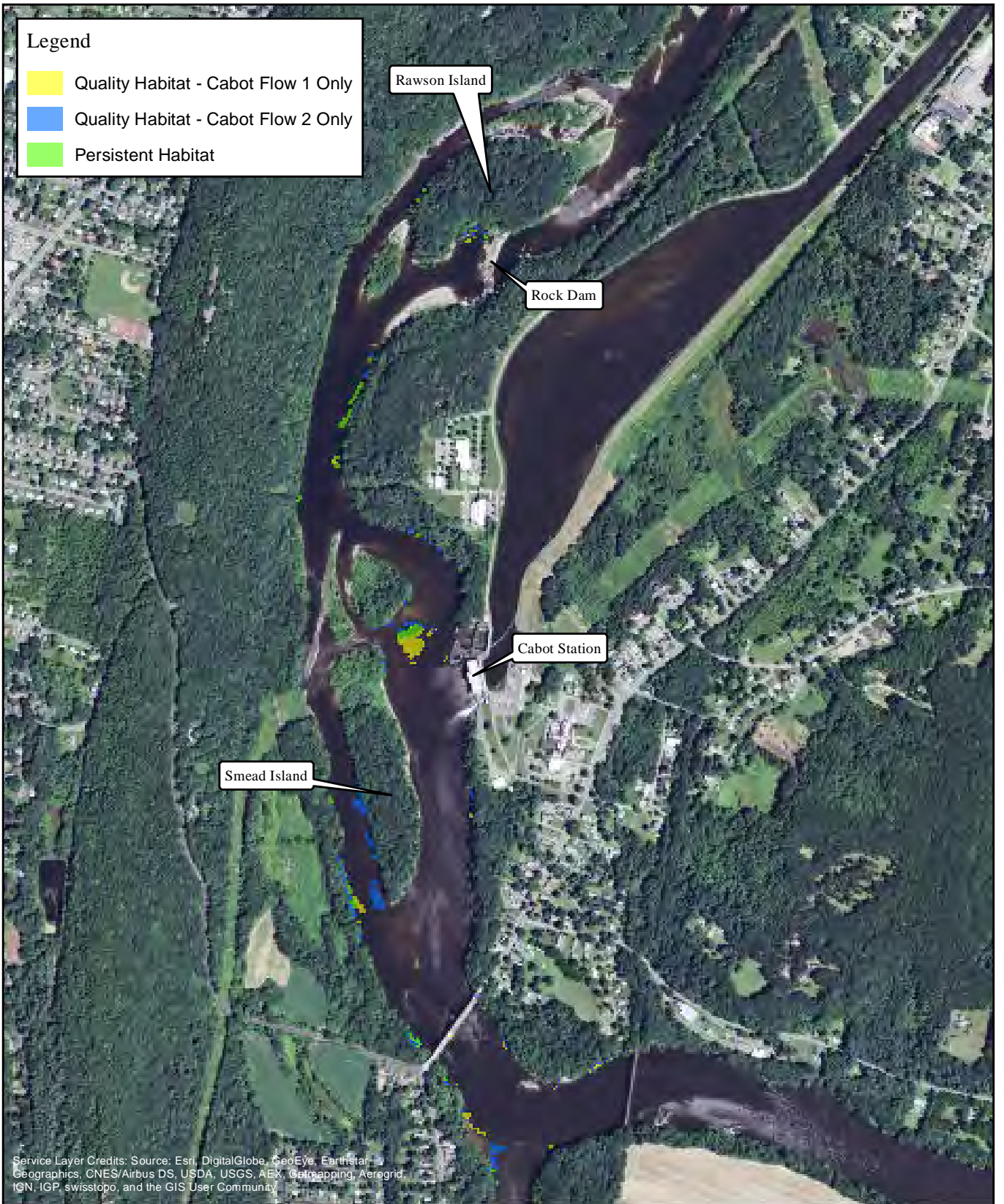


Persistent Habitat  
Species/Life Stage:  
Walleye Fry  
Bypass Flow: 200 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

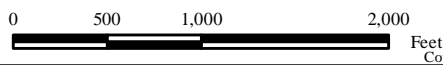
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**



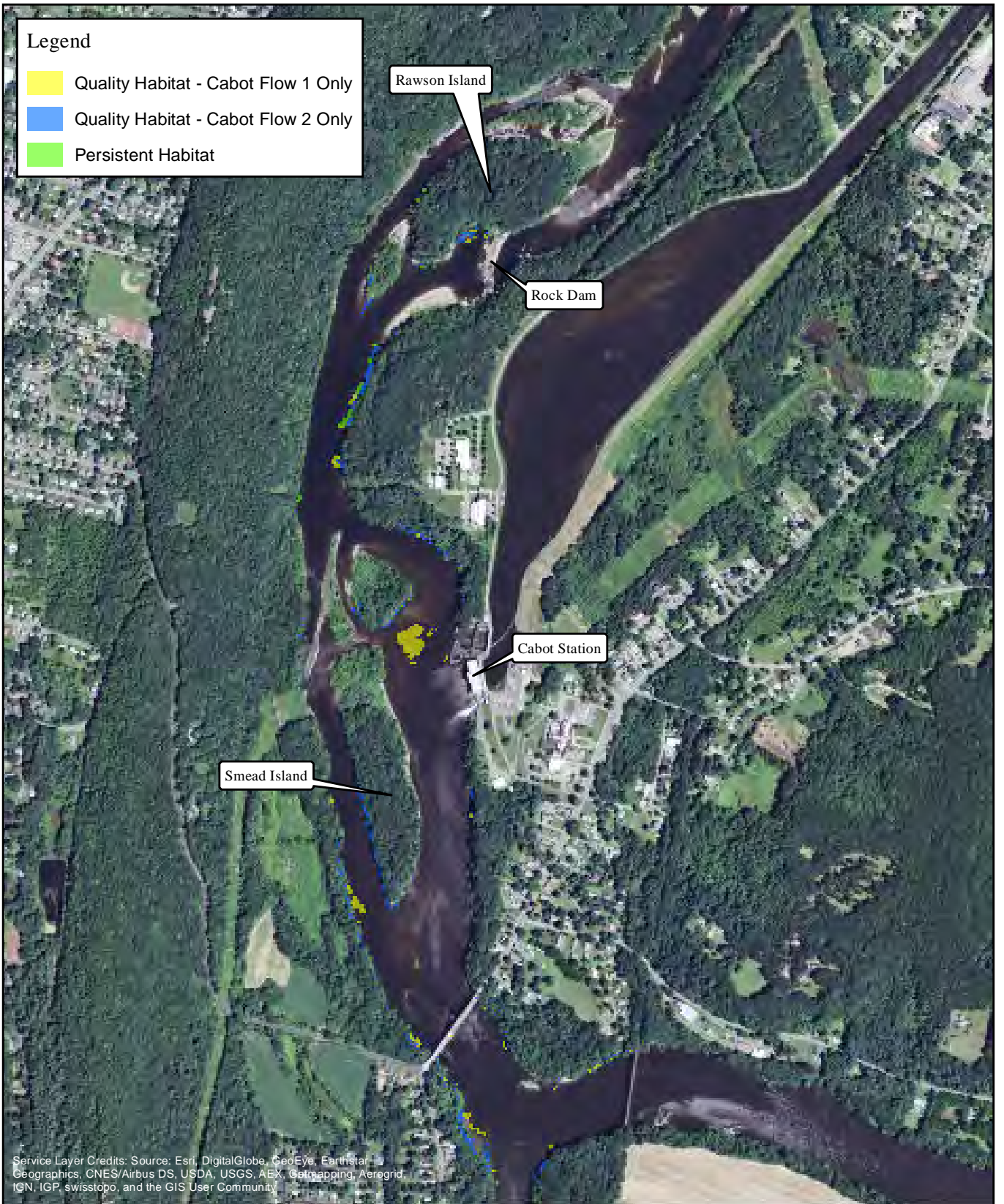
Persistent Habitat  
 Species/Life Stage:  
 Walleye Fry

Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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**Legend**

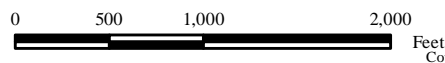
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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**RELICENSING STUDY 3.3.1**

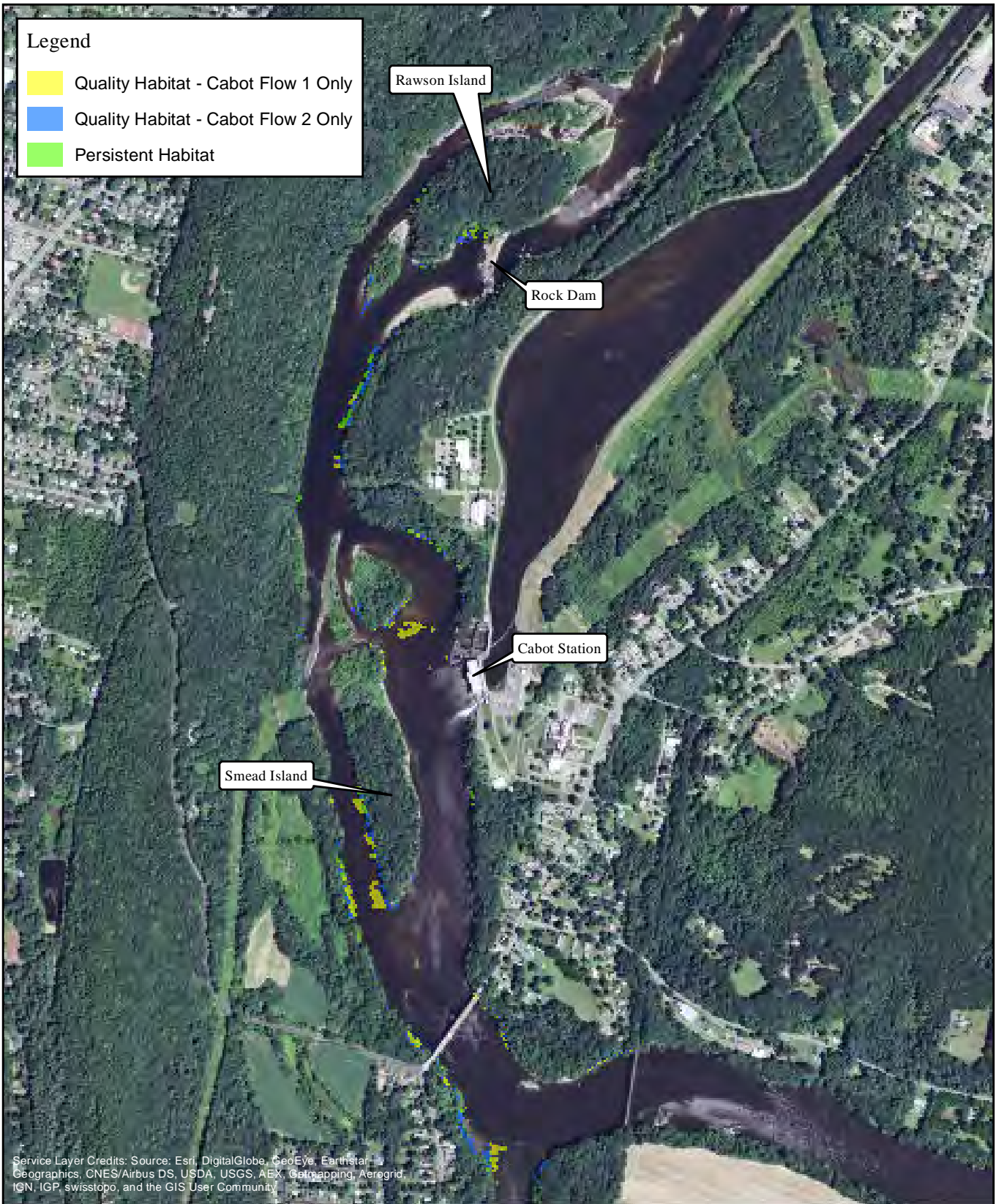


**Persistent Habitat**  
**Species/Life Stage:**  
 Walleye Fry  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

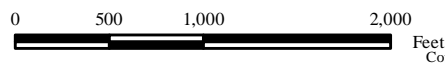
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
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**RELICENSING STUDY 3.3.1**

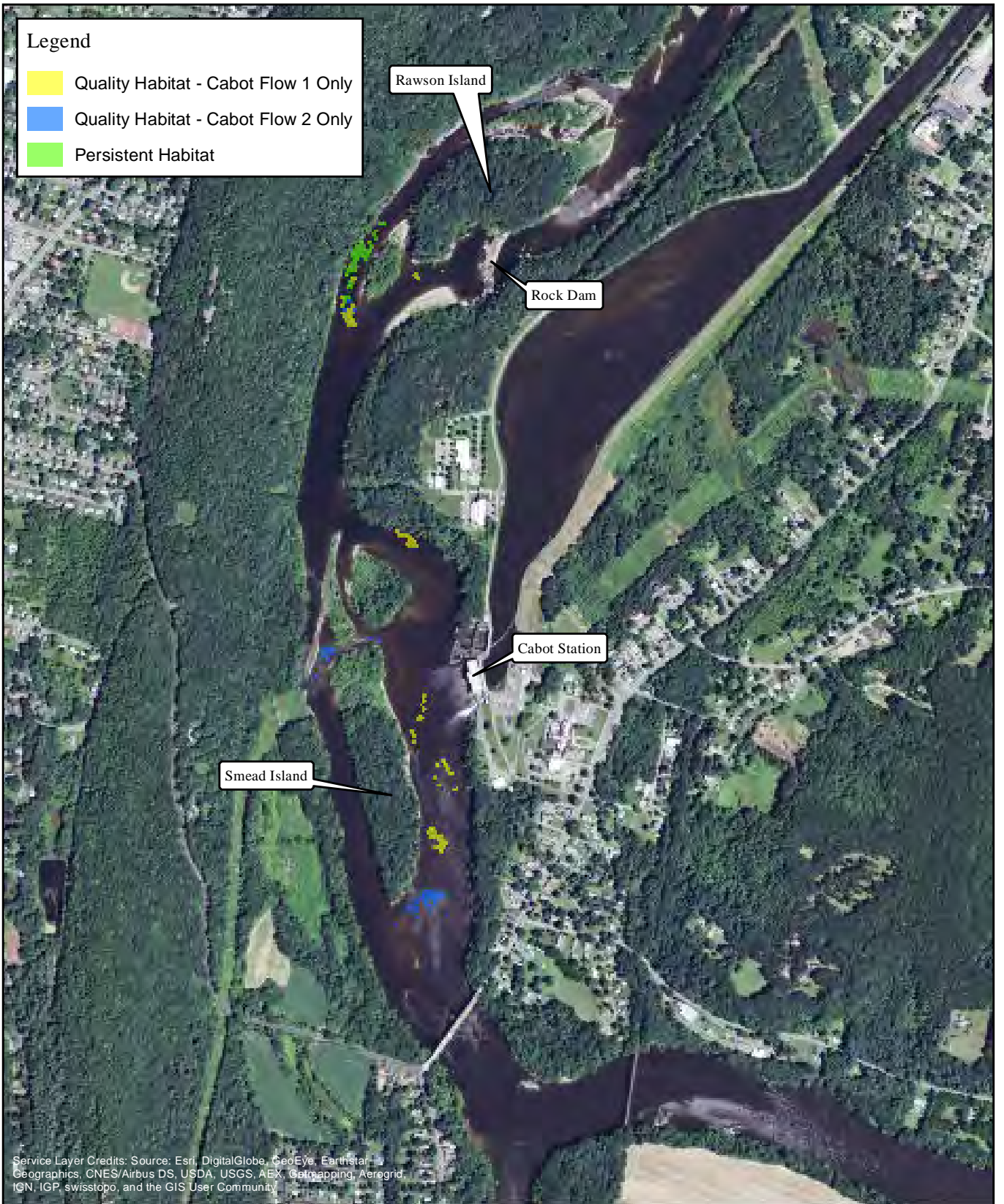


Persistent Habitat  
 Species/Life Stage:  
 Walleye Fry  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

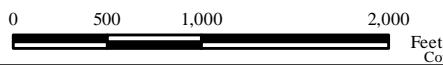
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- Quality Habitat - Cabot Flow 2 Only
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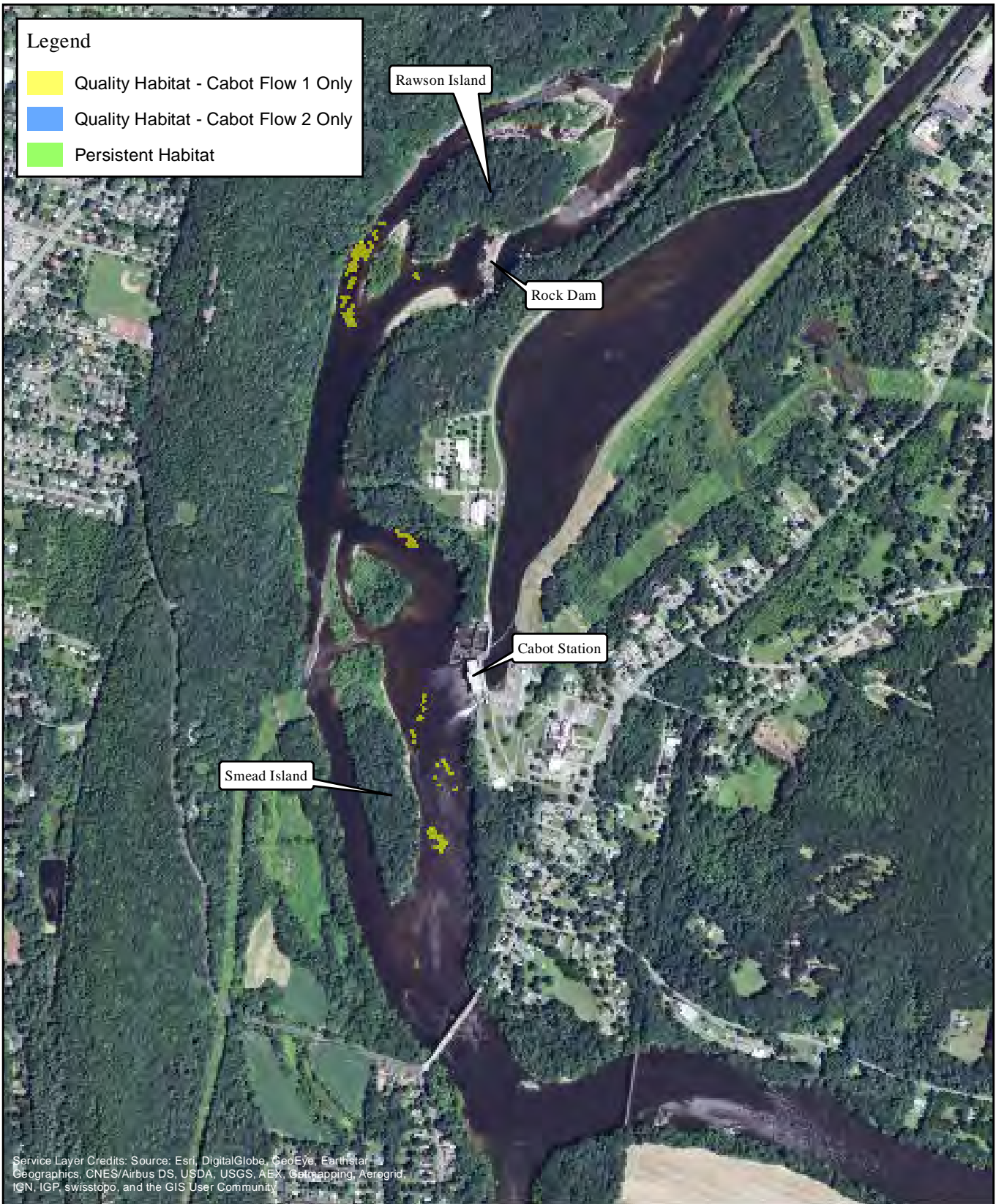


**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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**Legend**

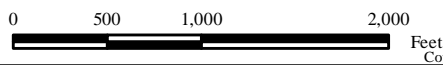
- Quality Habitat - Cabot Flow 1 Only
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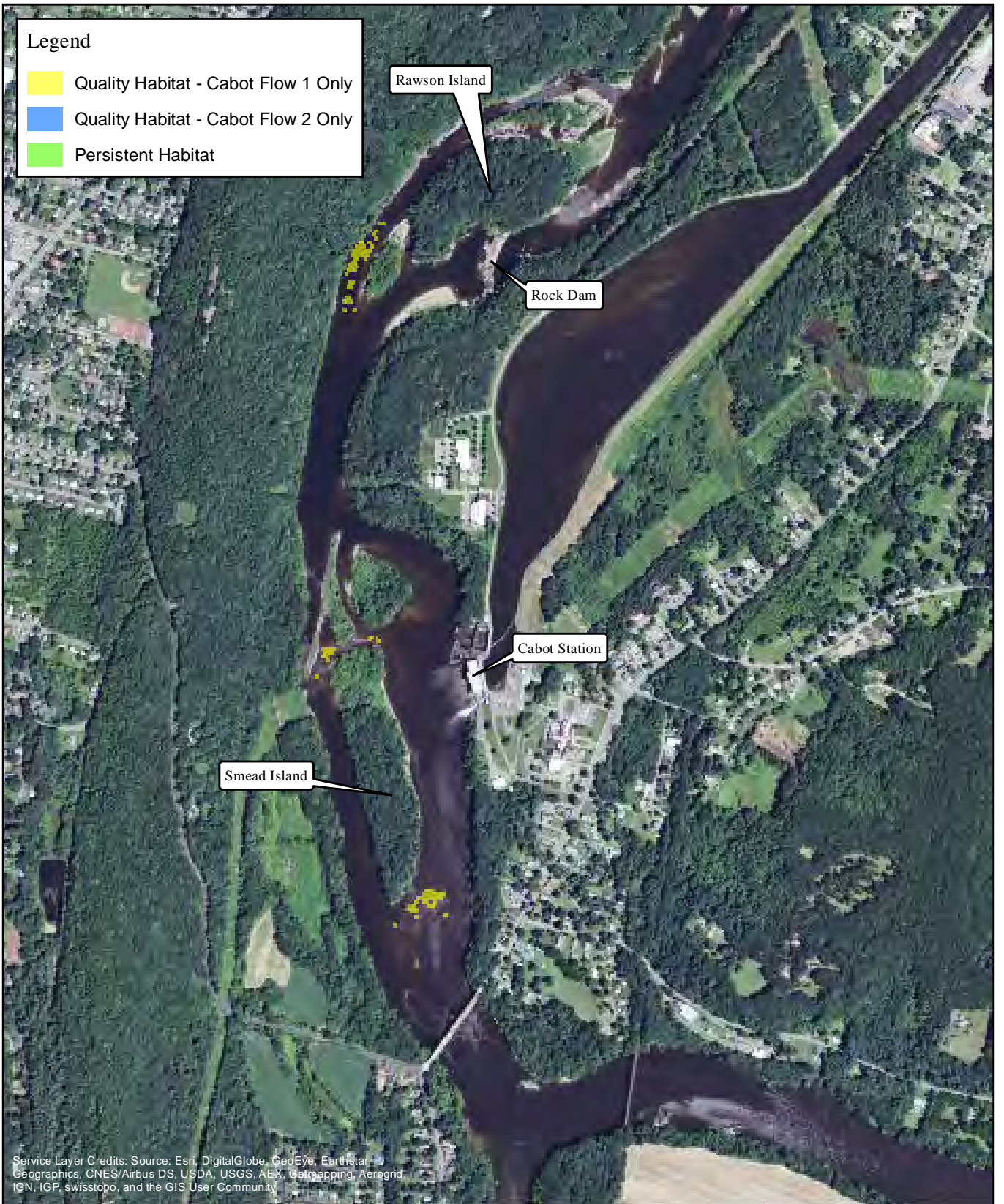
**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

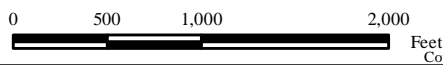
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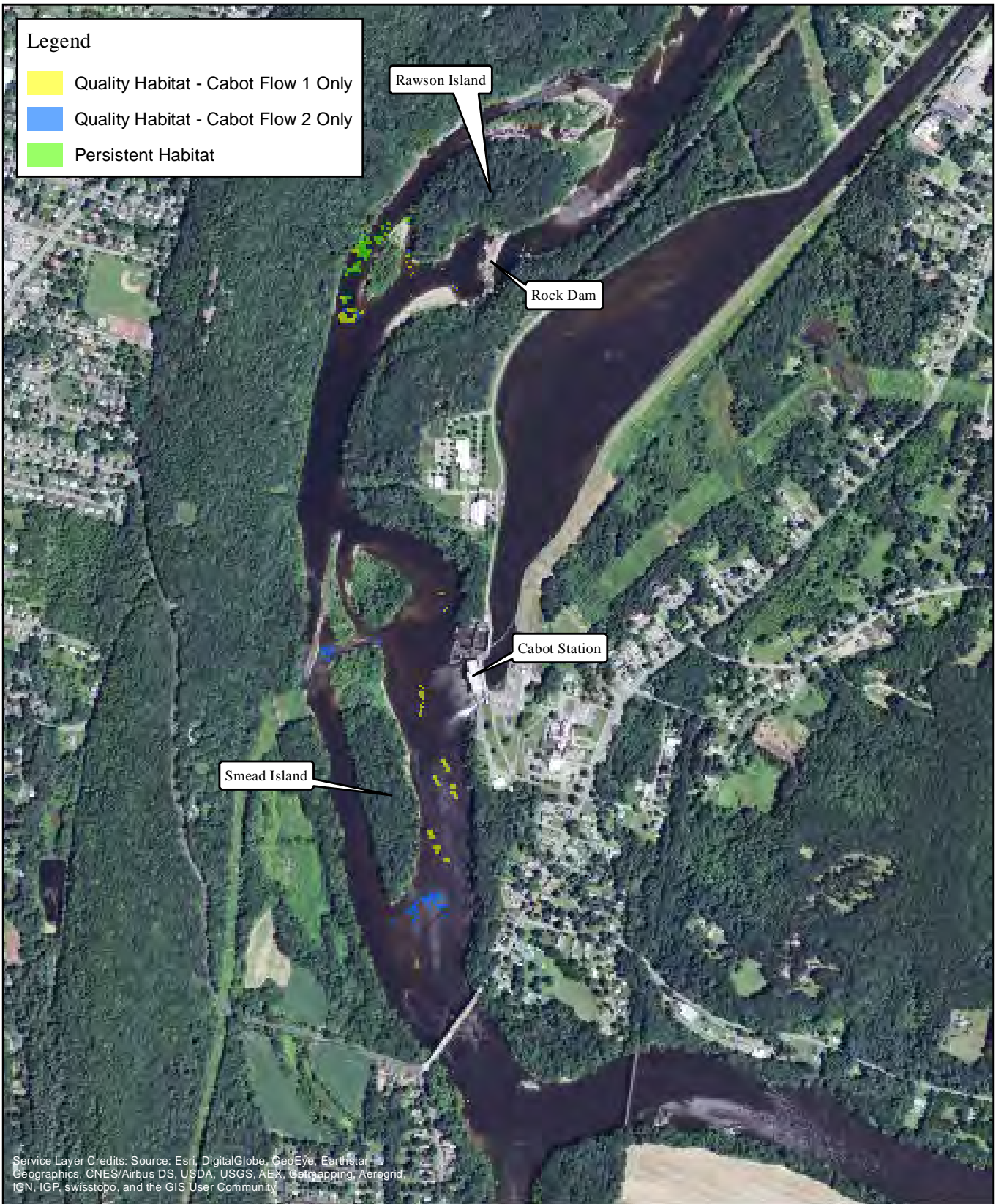


**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Spawning  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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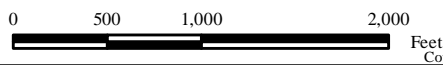
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RELICENSING STUDY 3.3.1

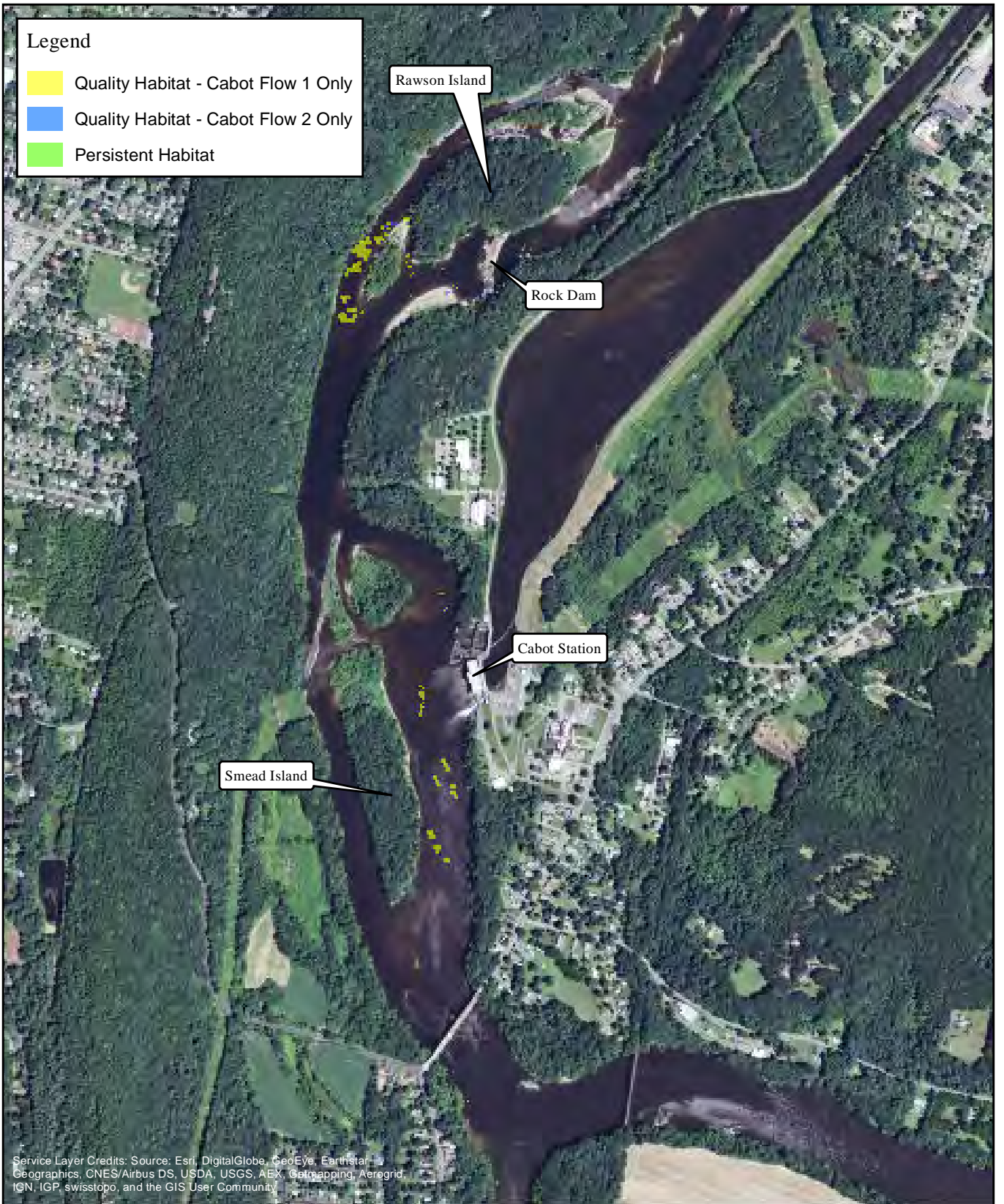


Persistent Habitat  
Species/Life Stage:  
White Sucker Spawning  
Bypass Flow: 500 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

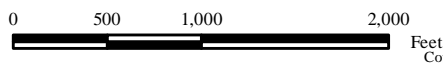
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- Persistent Habitat



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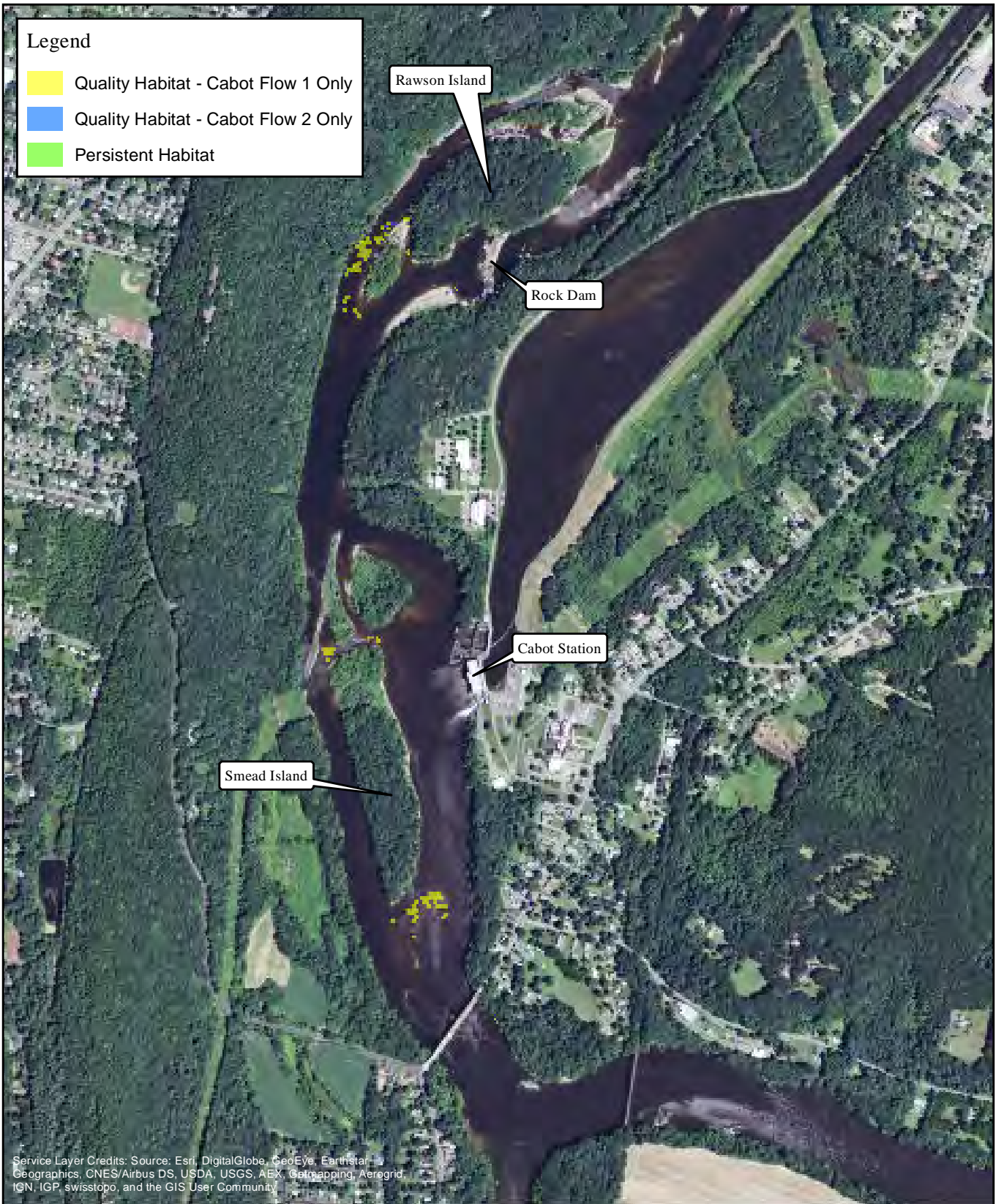


**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Spawning  
 Bypass Flow: 500 cfs  
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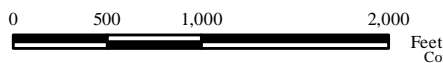
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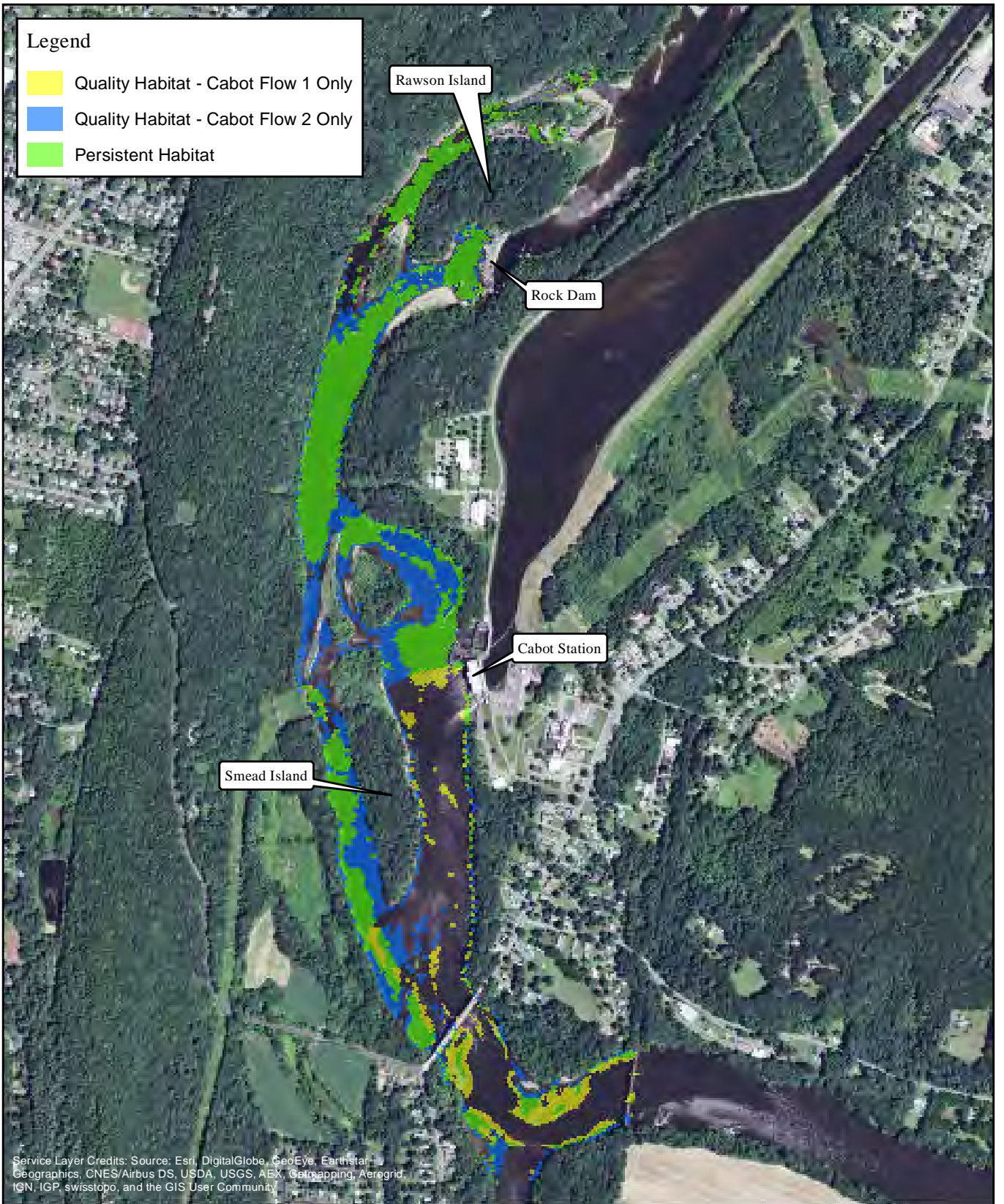


**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Spawning  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

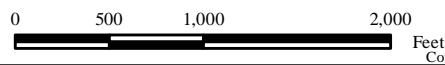
- Quality Habitat - Cabot Flow 1 Only
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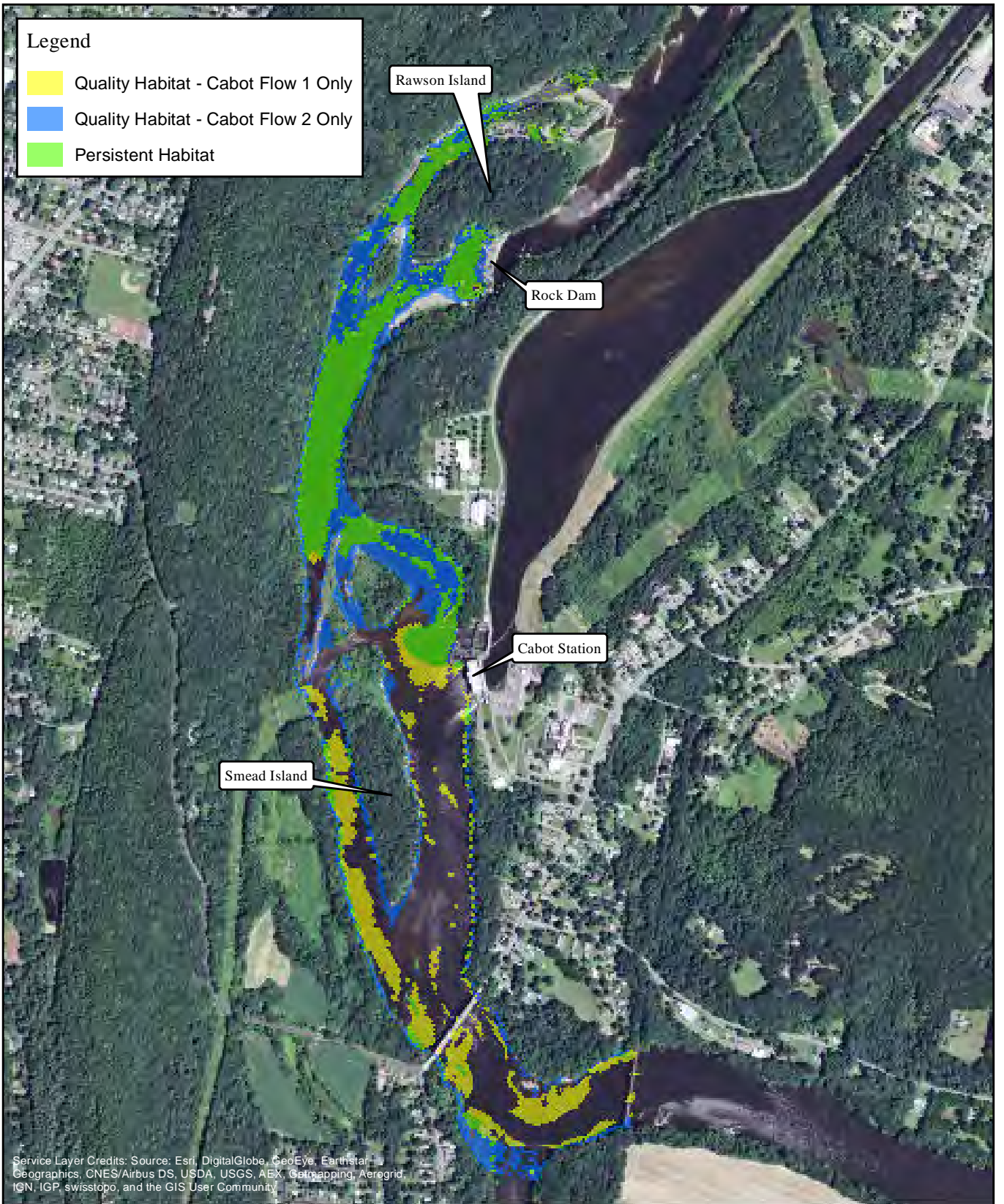


Persistent Habitat  
Species/Life Stage:  
White Sucker Fry  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

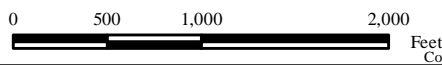
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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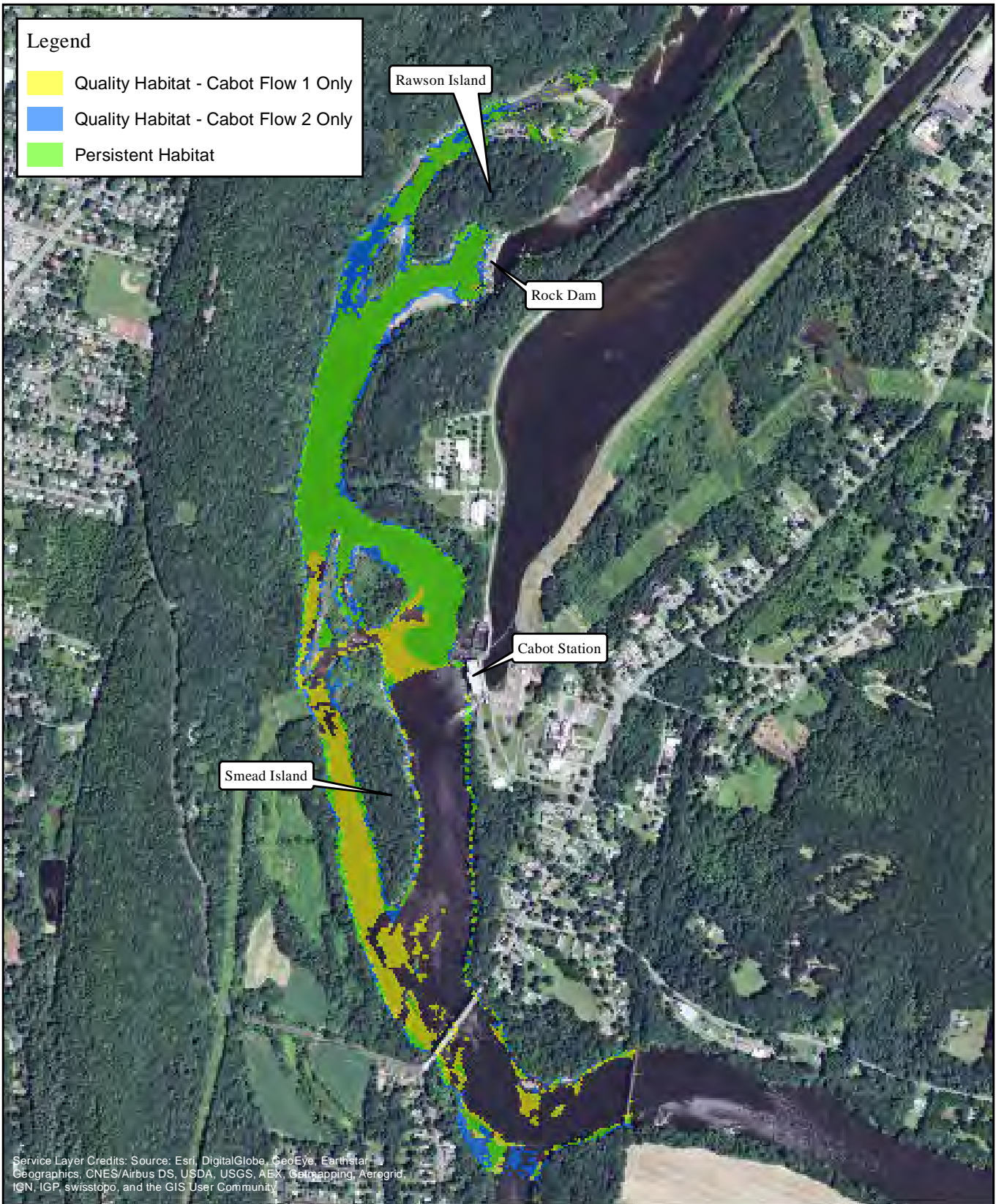


**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Fry  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

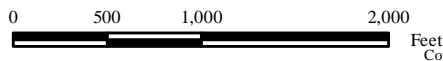
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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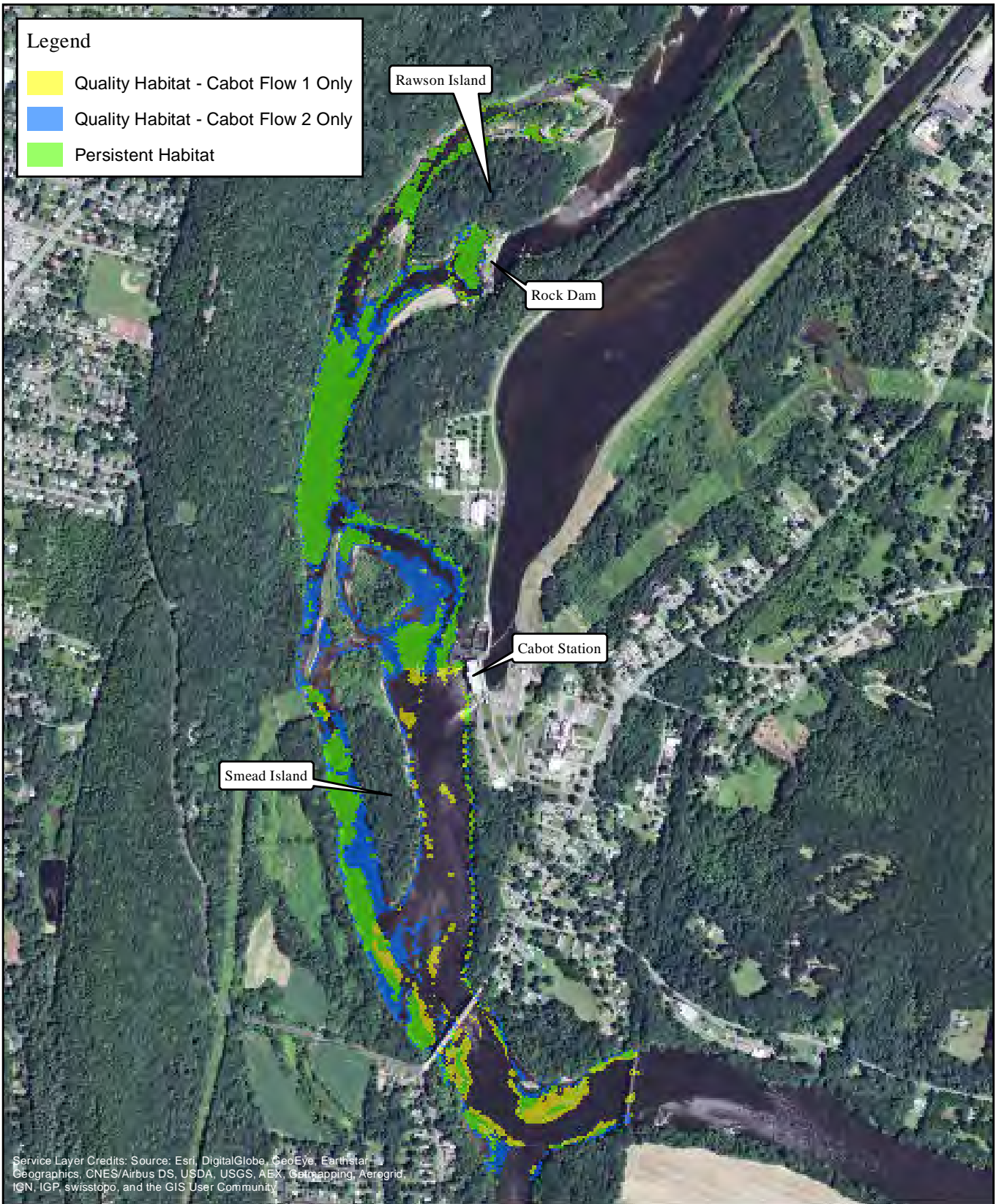


Persistent Habitat  
Species/Life Stage:  
White Sucker Fry  
Bypass Flow: 200 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

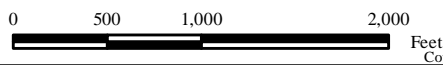
- Quality Habitat - Cabot Flow 1 Only
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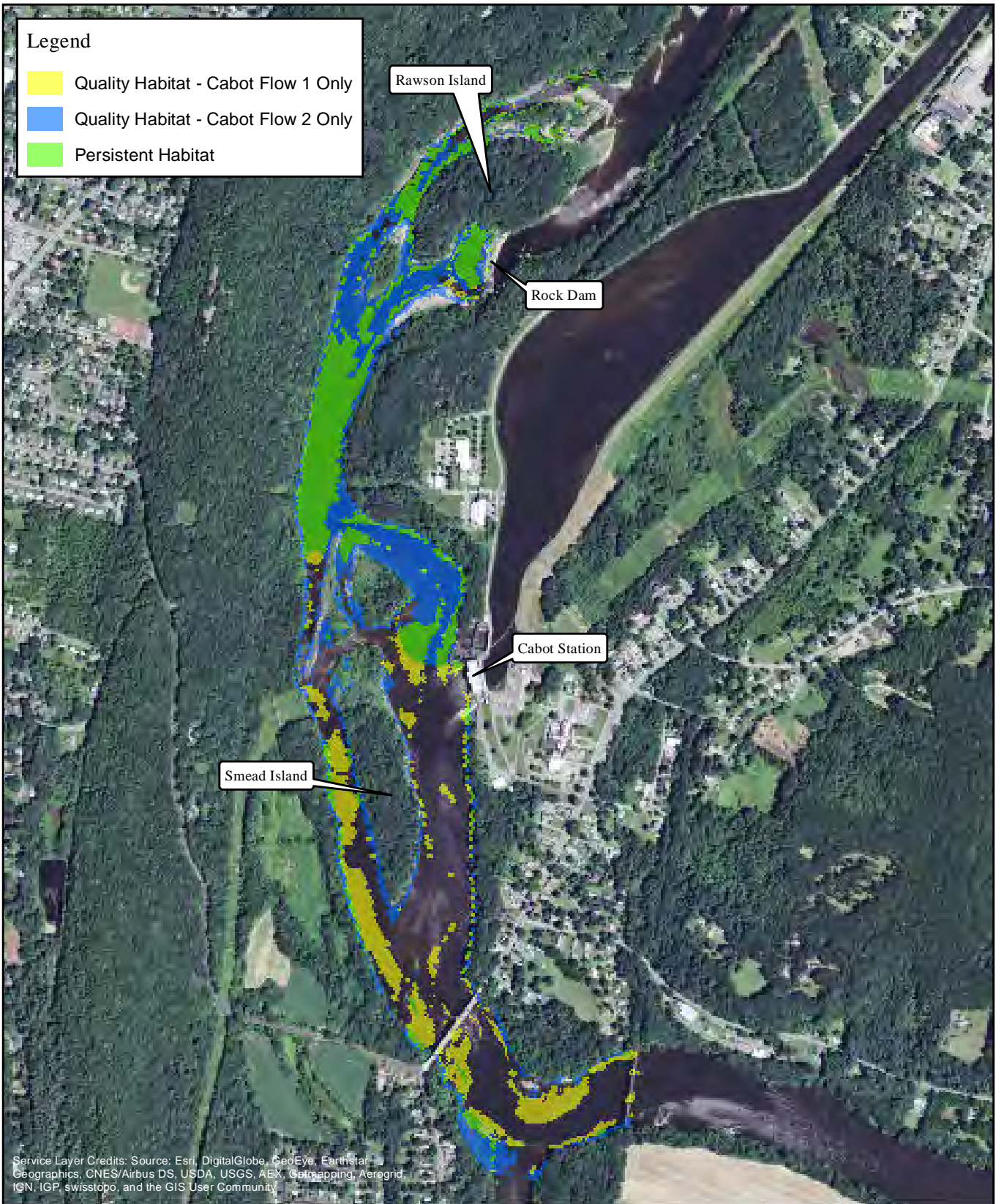
**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Fry  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
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**Legend**

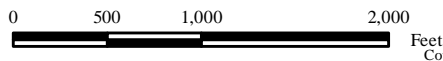
- Quality Habitat - Cabot Flow 1 Only
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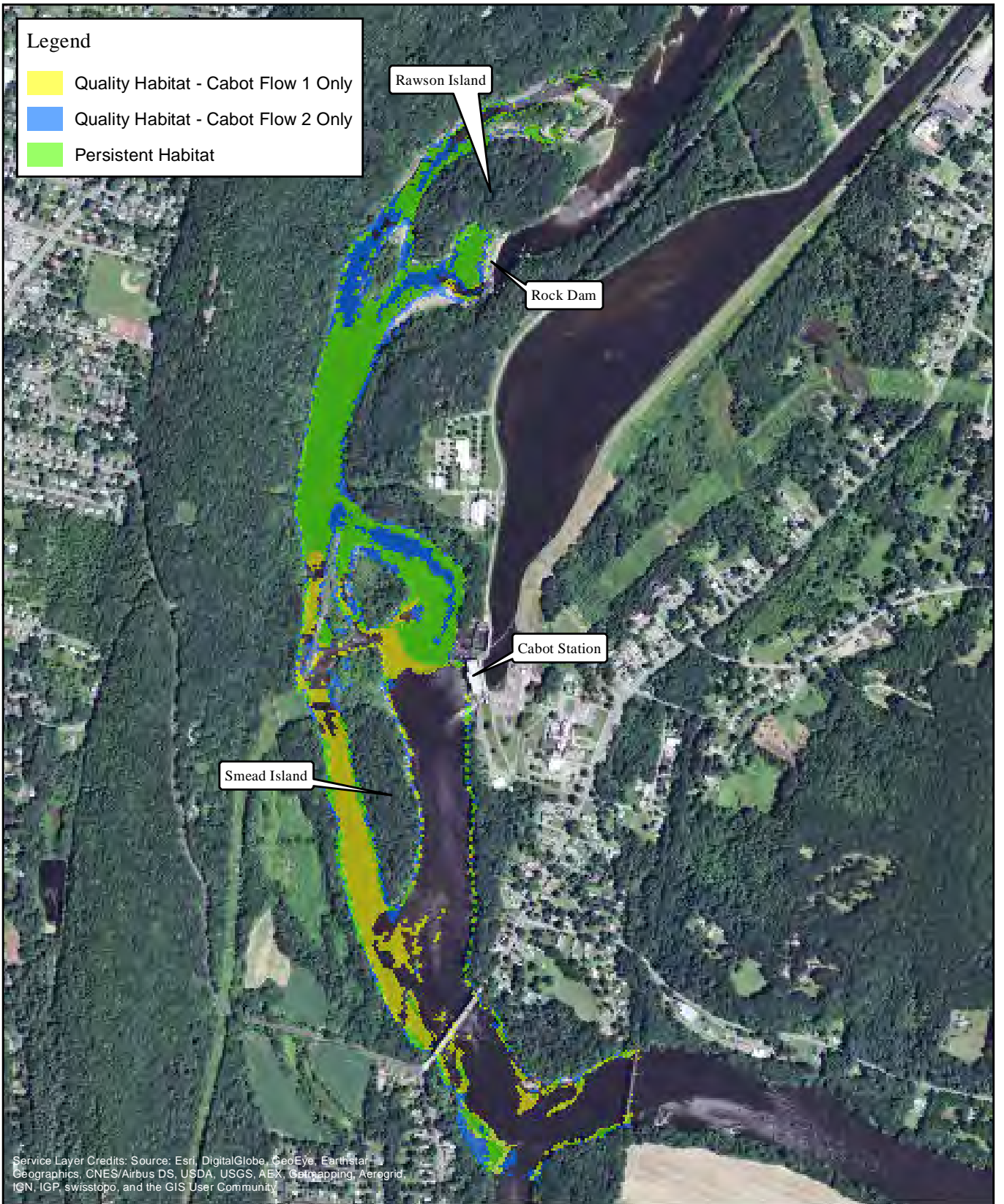


**Persistent Habitat**  
**Species/Life Stage:**  
 White Sucker Fry  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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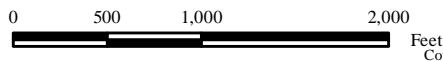
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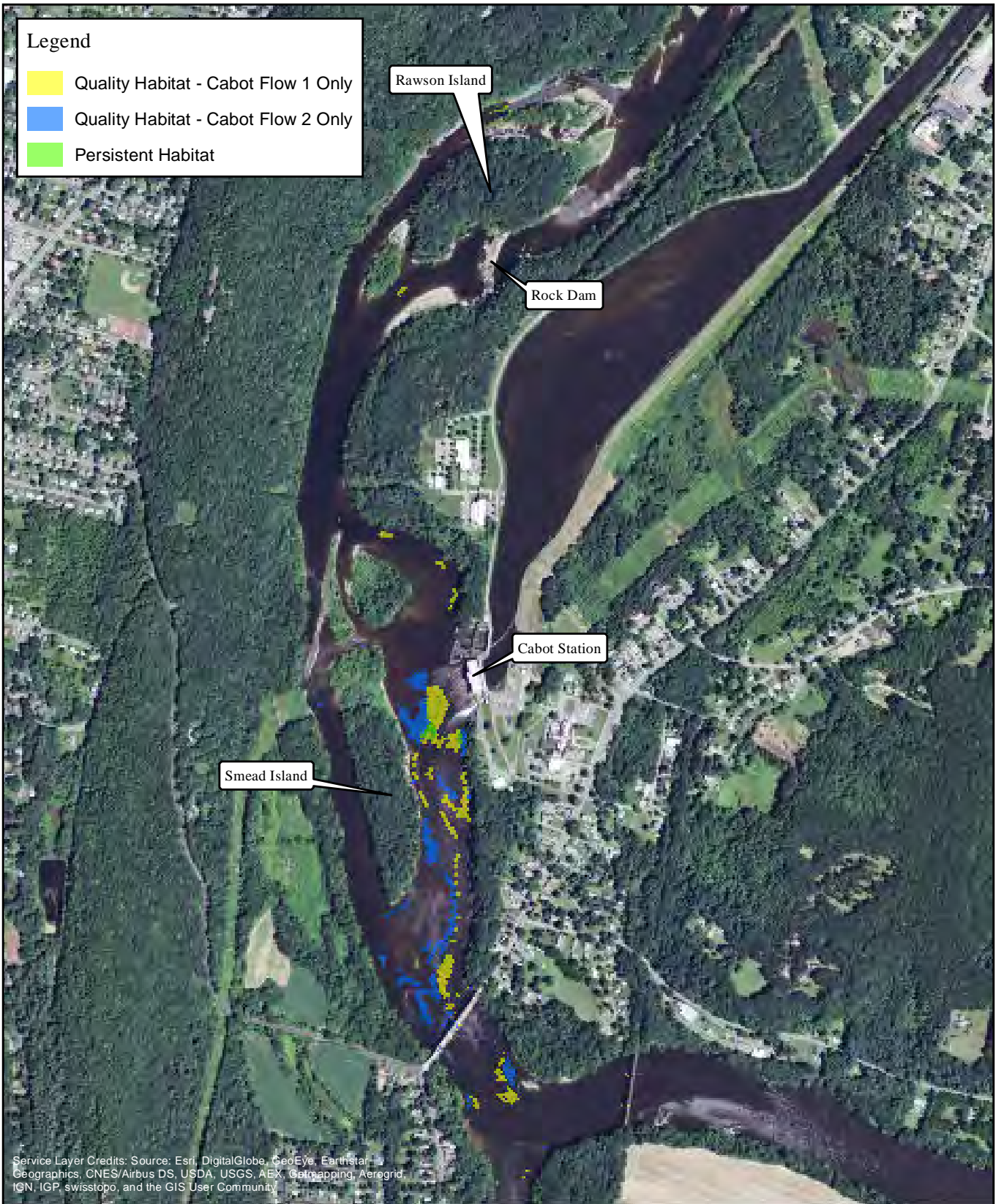


Persistent Habitat  
Species/Life Stage:  
White Sucker Fry  
Bypass Flow: 500 cfs  
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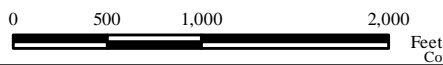
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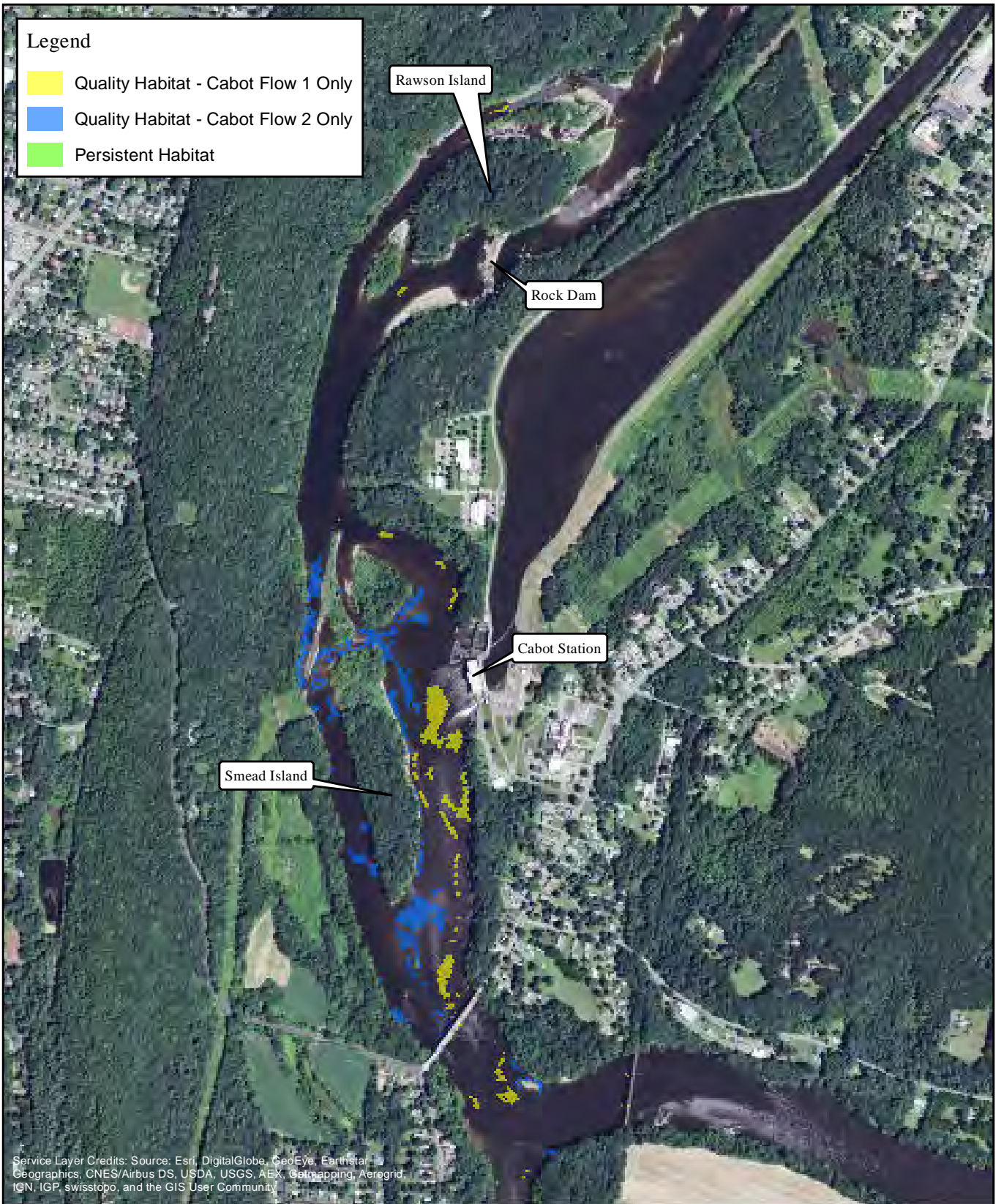


Persistent Habitat  
Species/Life Stage:  
Deep-Fast Guild  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

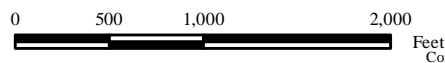
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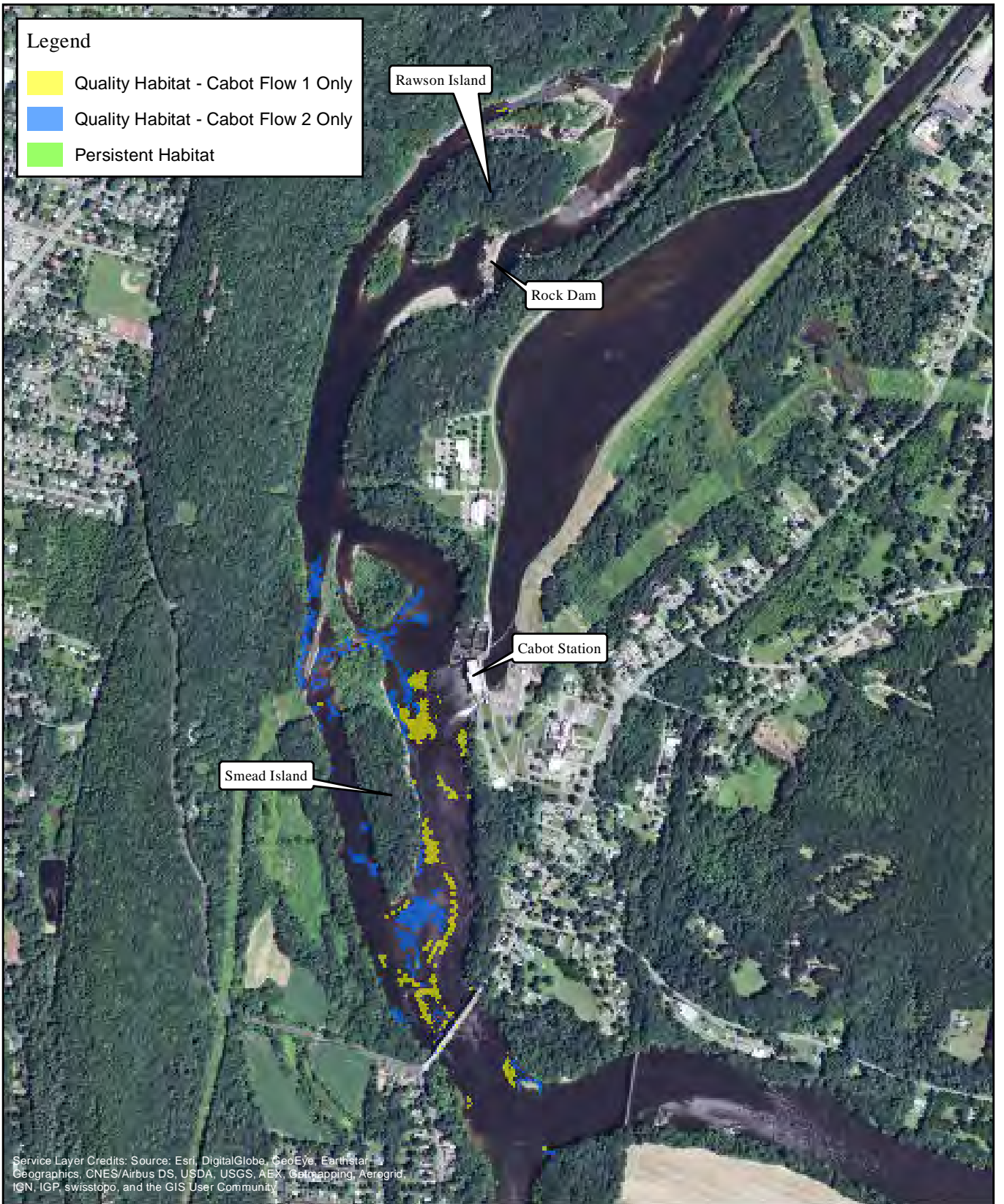


Persistent Habitat  
 Species/Life Stage:  
 Deep-Fast Guild  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
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Legend

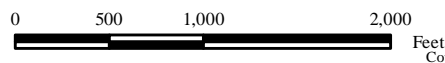
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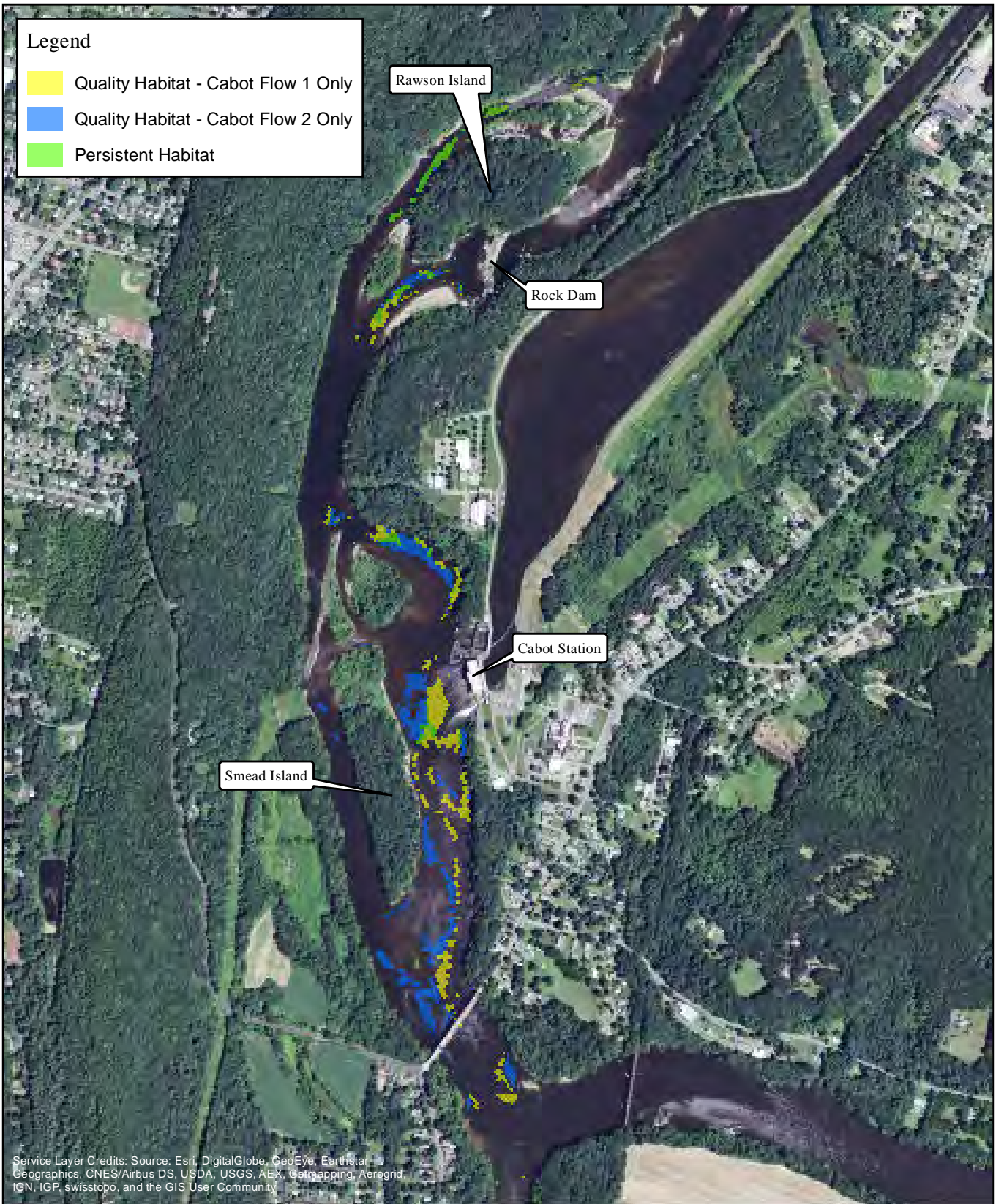


Persistent Habitat  
Species/Life Stage:  
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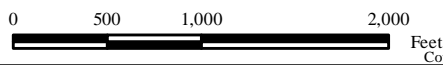
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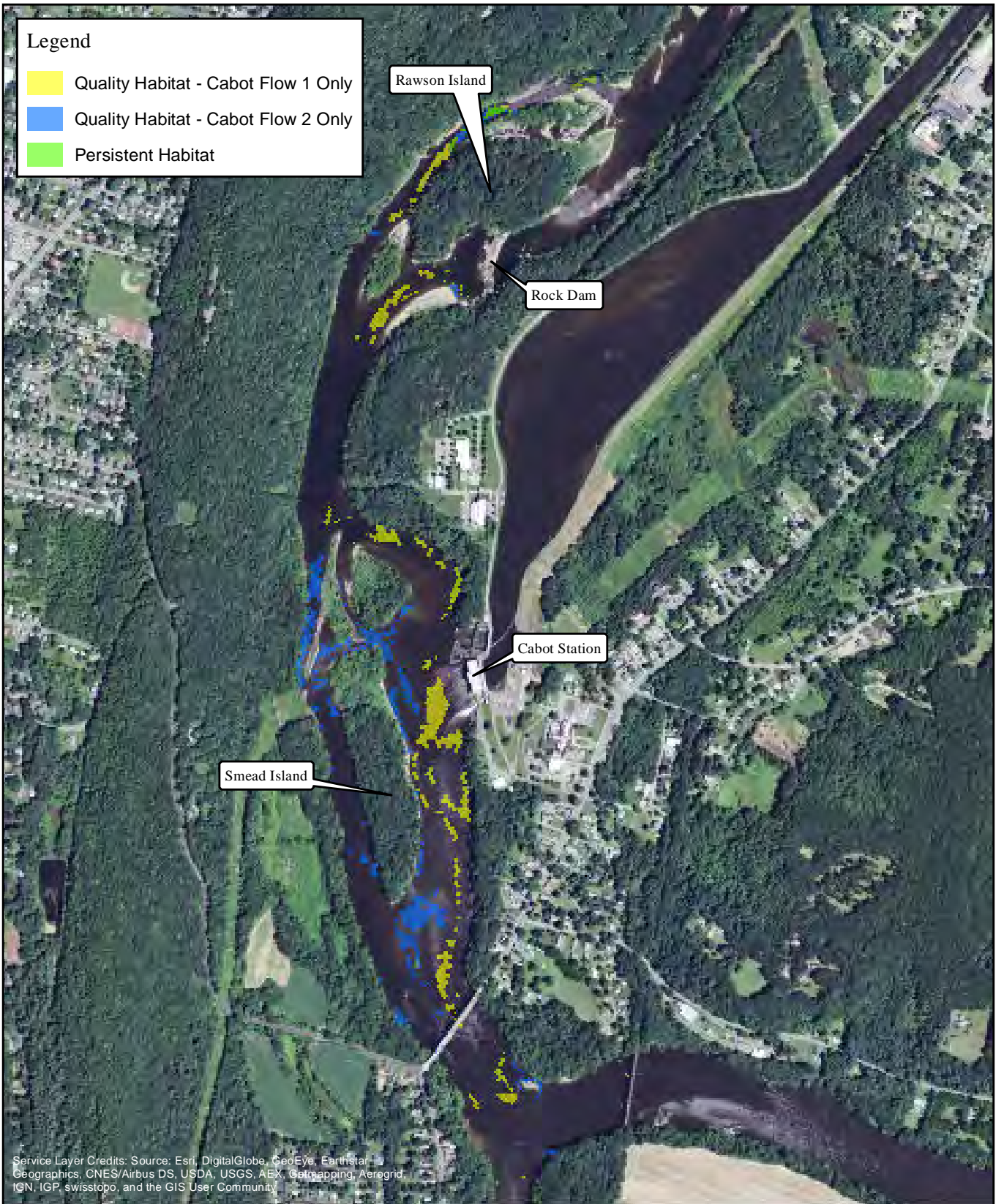


**Persistent Habitat**  
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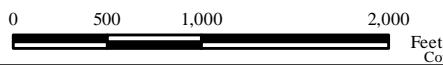
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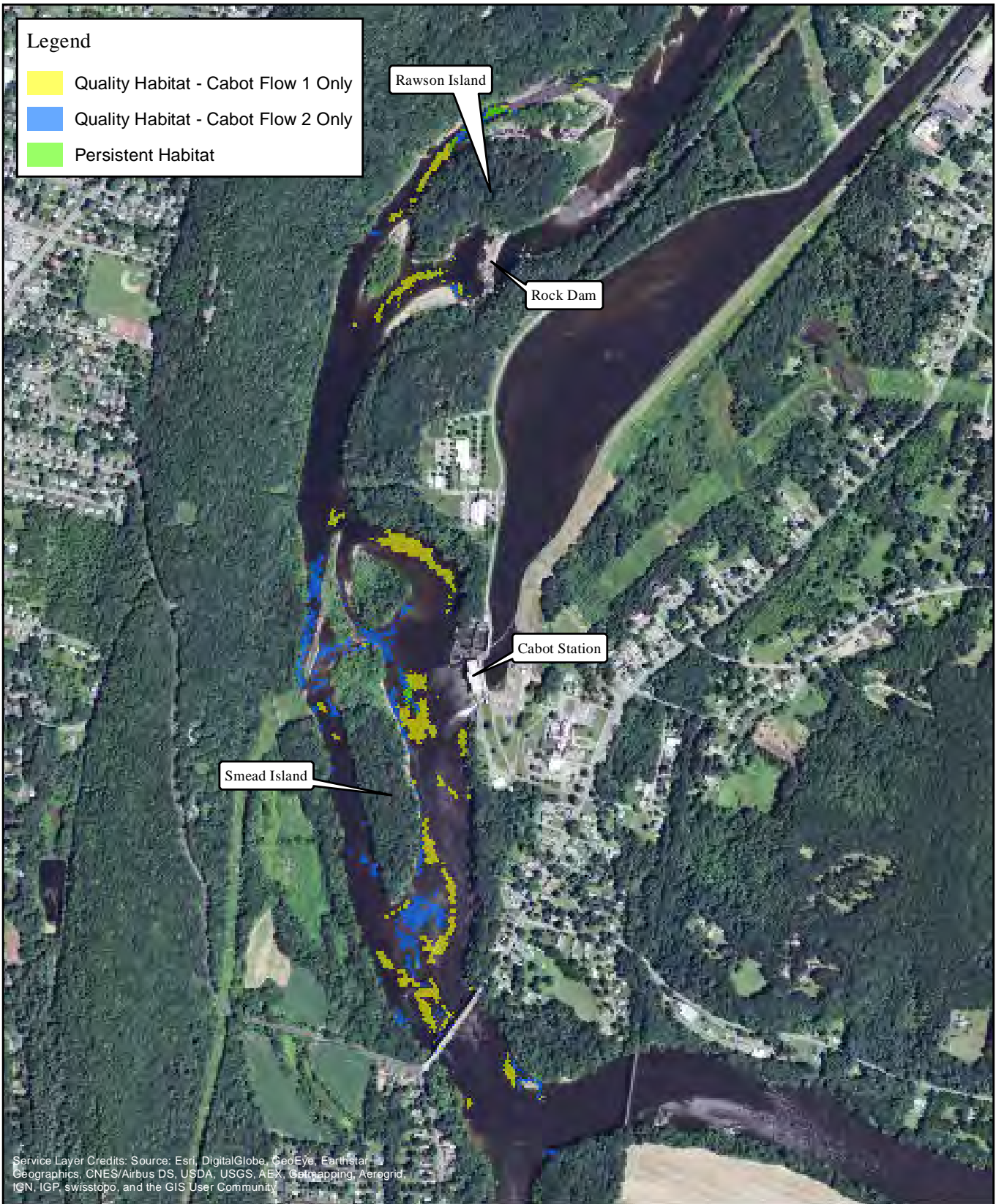


Persistent Habitat  
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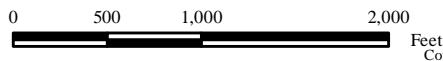
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 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**



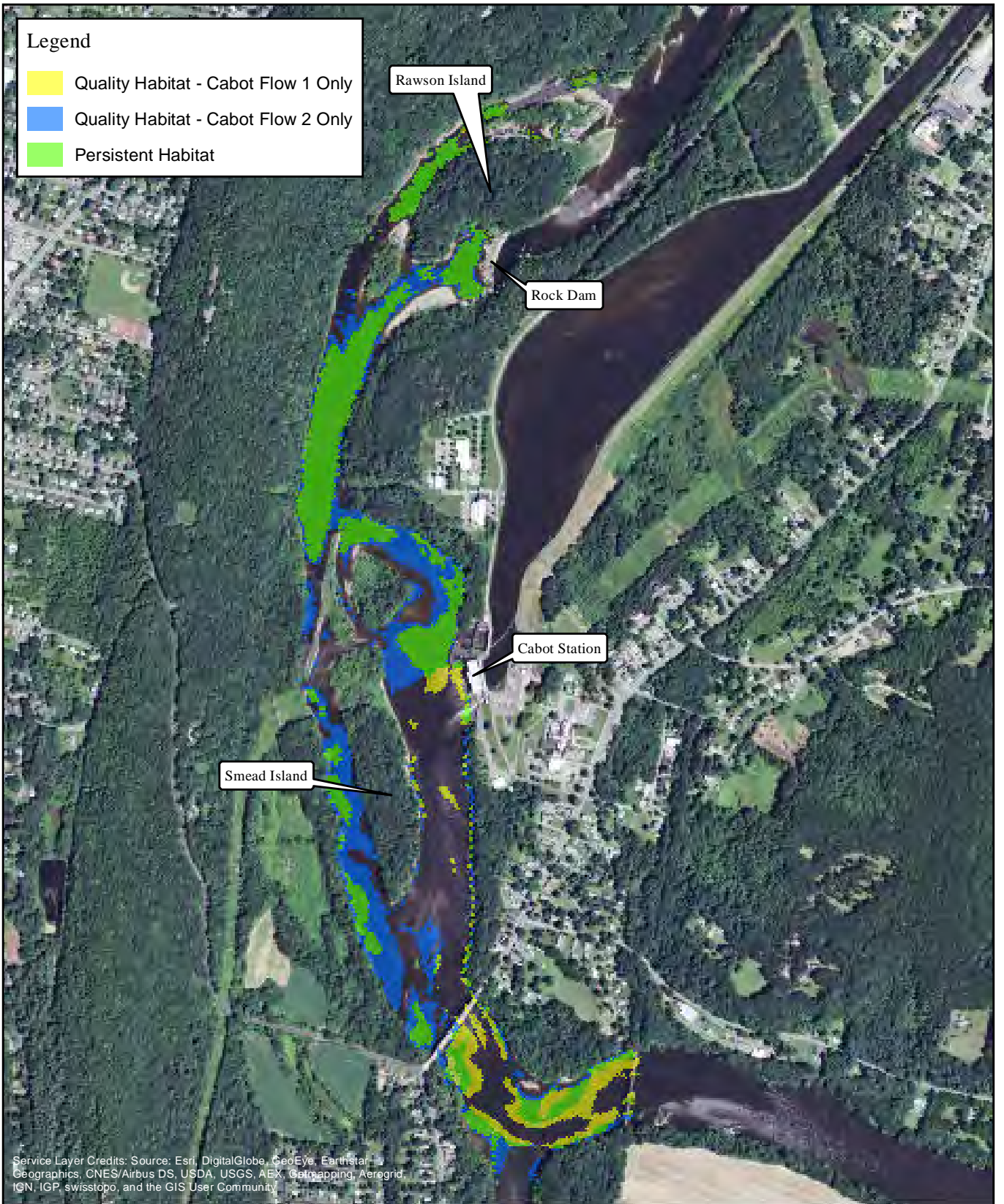
Persistent Habitat  
 Species/Life Stage:  
 Deep-Fast Guild  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

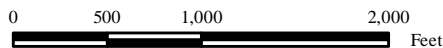
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

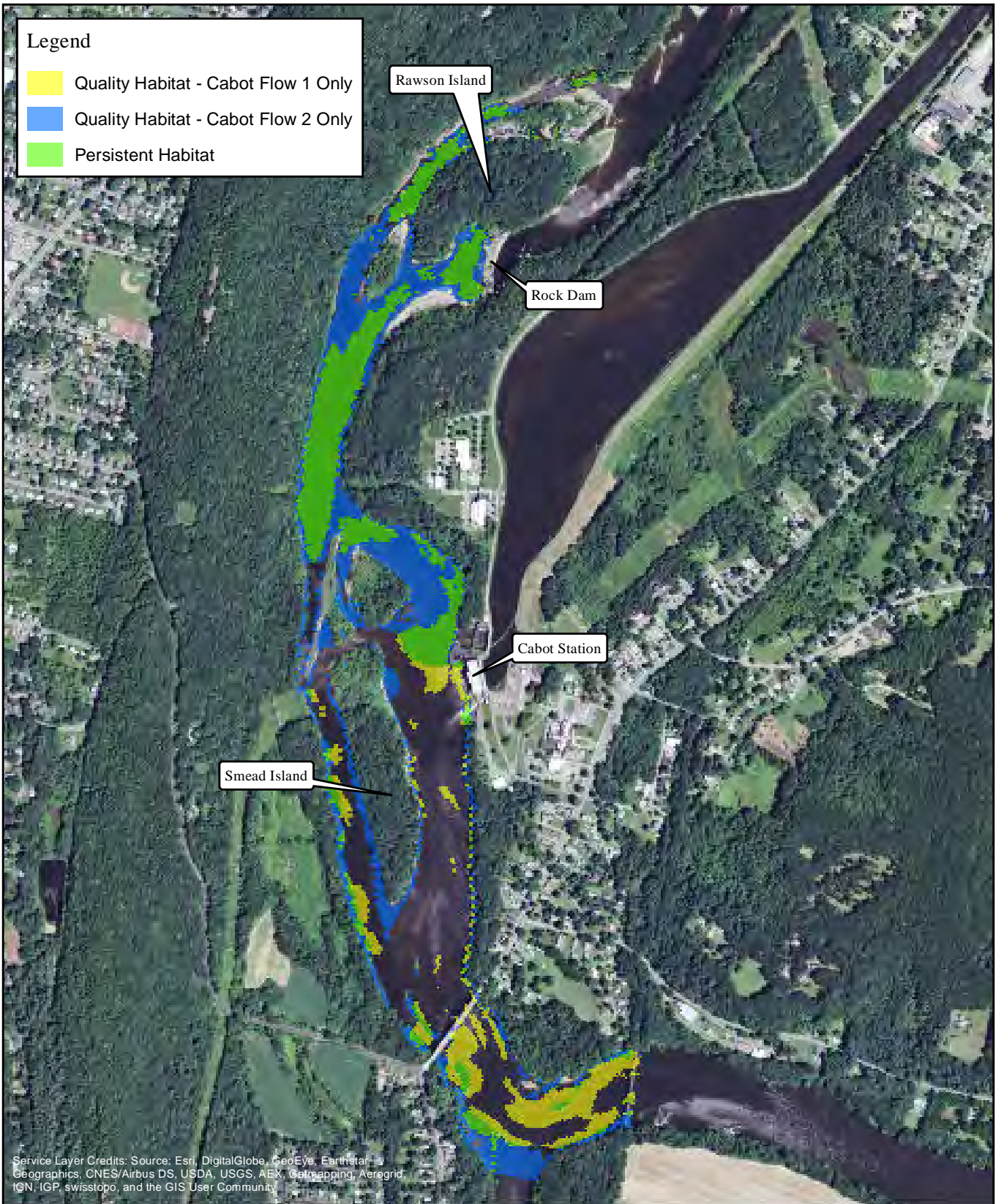


Persistent Habitat  
 Species/Life Stage:  
 Deep-Slow Guild  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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Legend

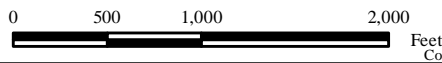
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



FIRSTLIGHT HYDRO GENERATING COMPANY  
Northfield Mountain Pumped Storage Project No. 2485  
Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

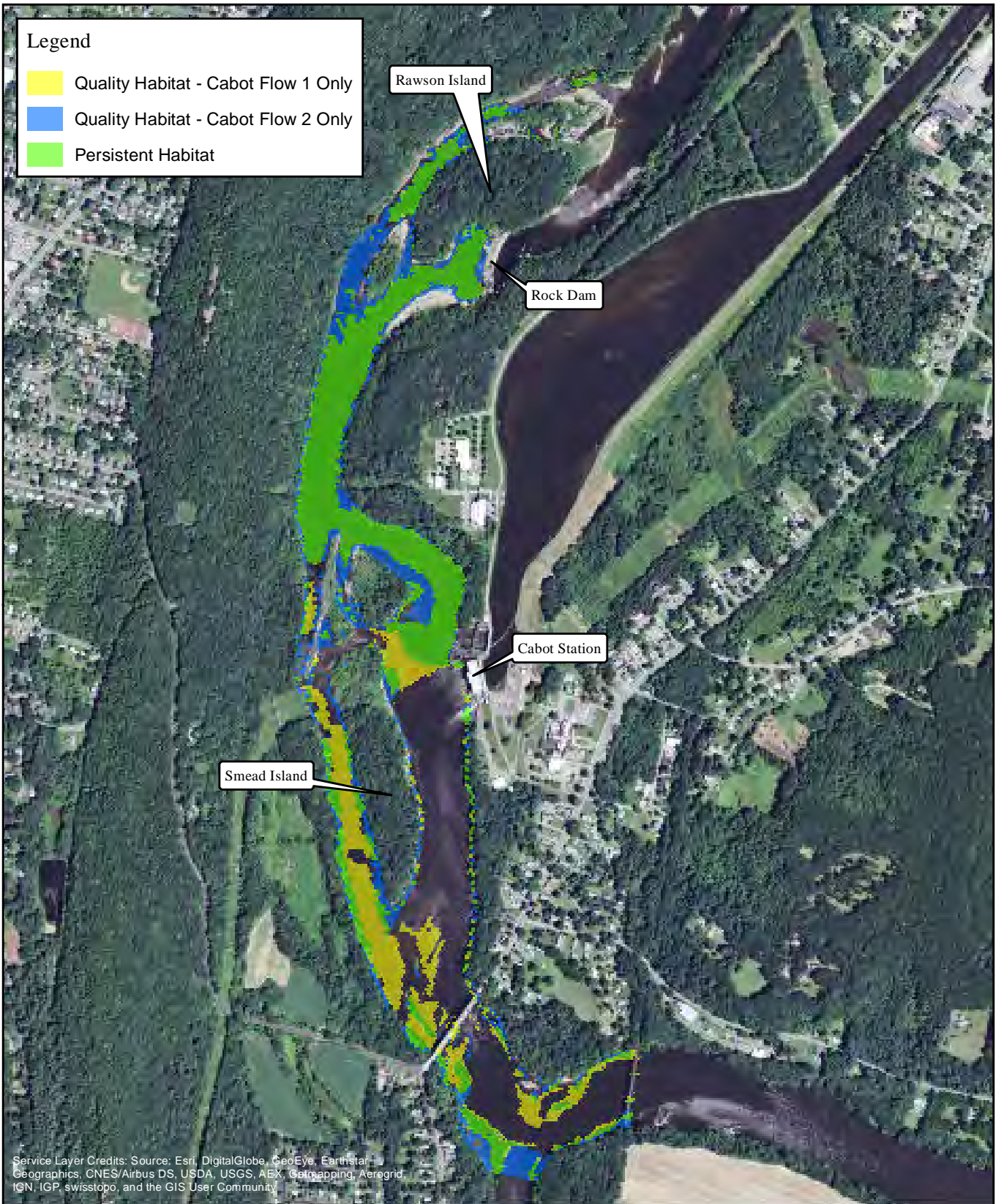


Persistent Habitat  
Species/Life Stage:  
Deep-Slow Guild  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

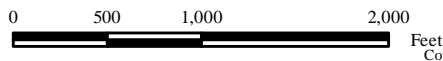
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

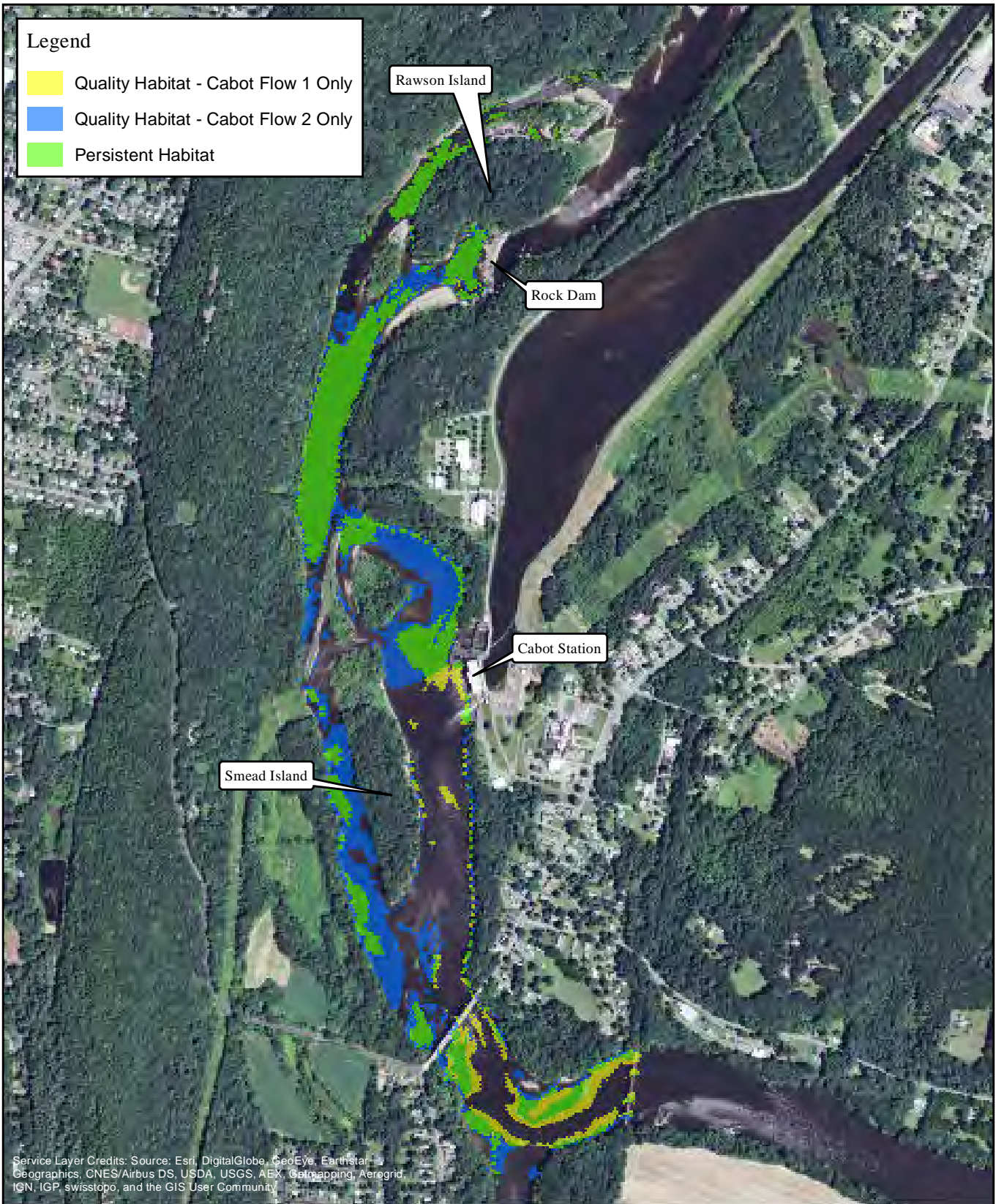


**Persistent Habitat**  
**Species/Life Stage:**  
 Deep-Slow Guild  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

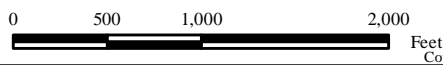
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

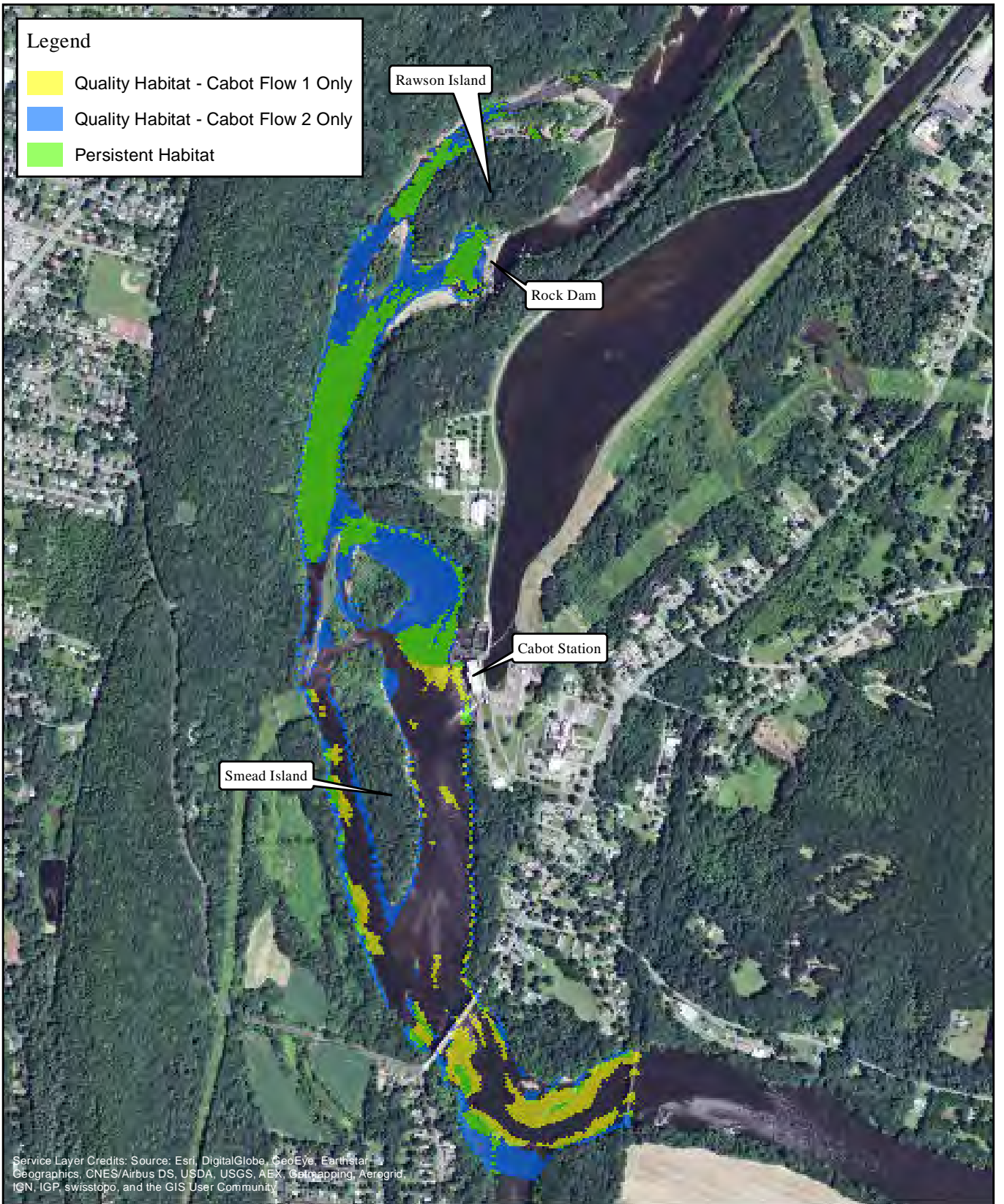


Persistent Habitat  
 Species/Life Stage:  
 Deep-Slow Guild  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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**Legend**

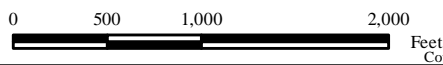
- Quality Habitat - Cabot Flow 1 Only
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 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

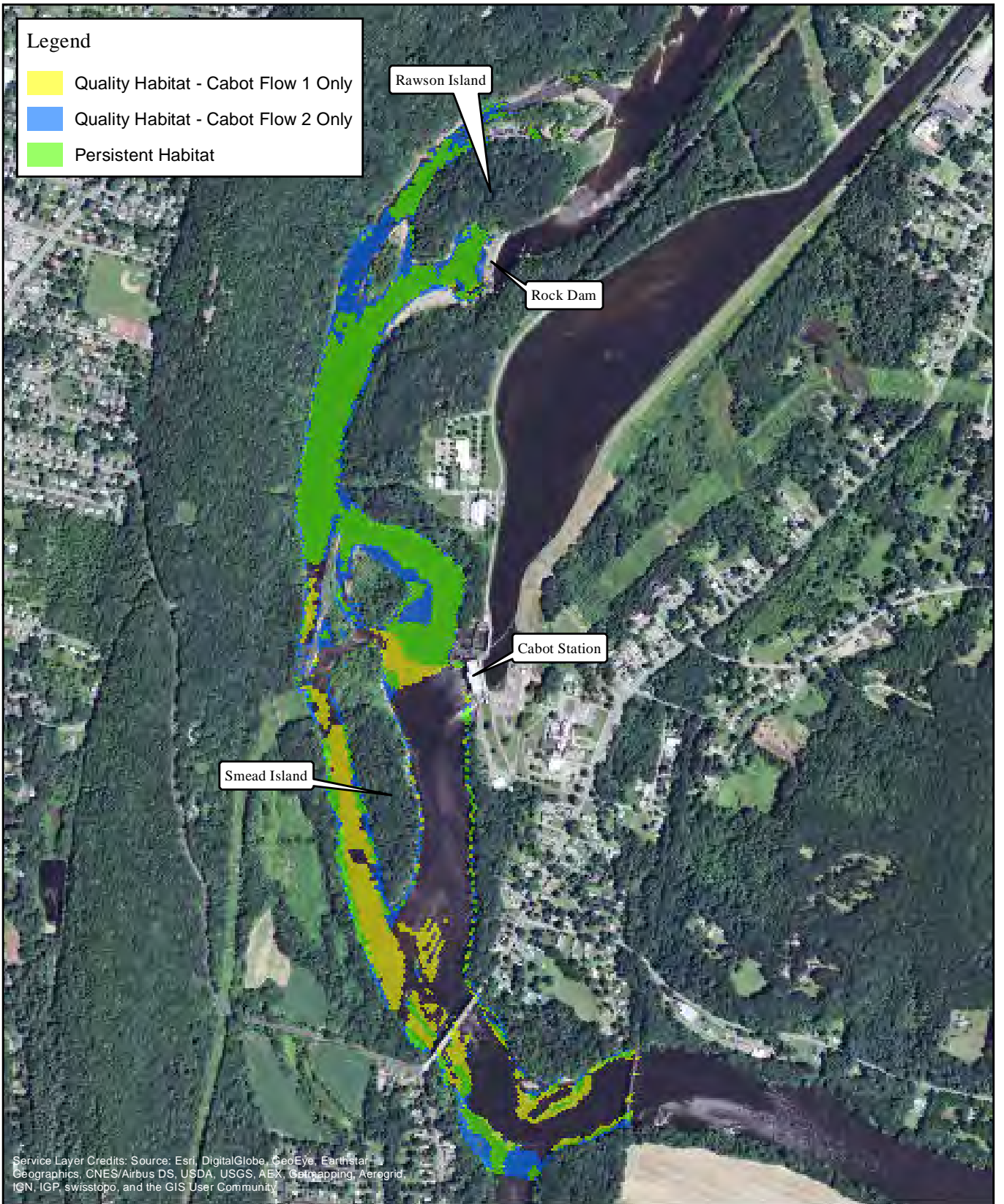


Persistent Habitat  
 Species/Life Stage:  
 Deep-Slow Guild  
 Bypass Flow: 500 cfs  
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 Cabot Flow 2: 14000 cfs

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**Legend**

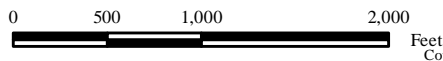
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

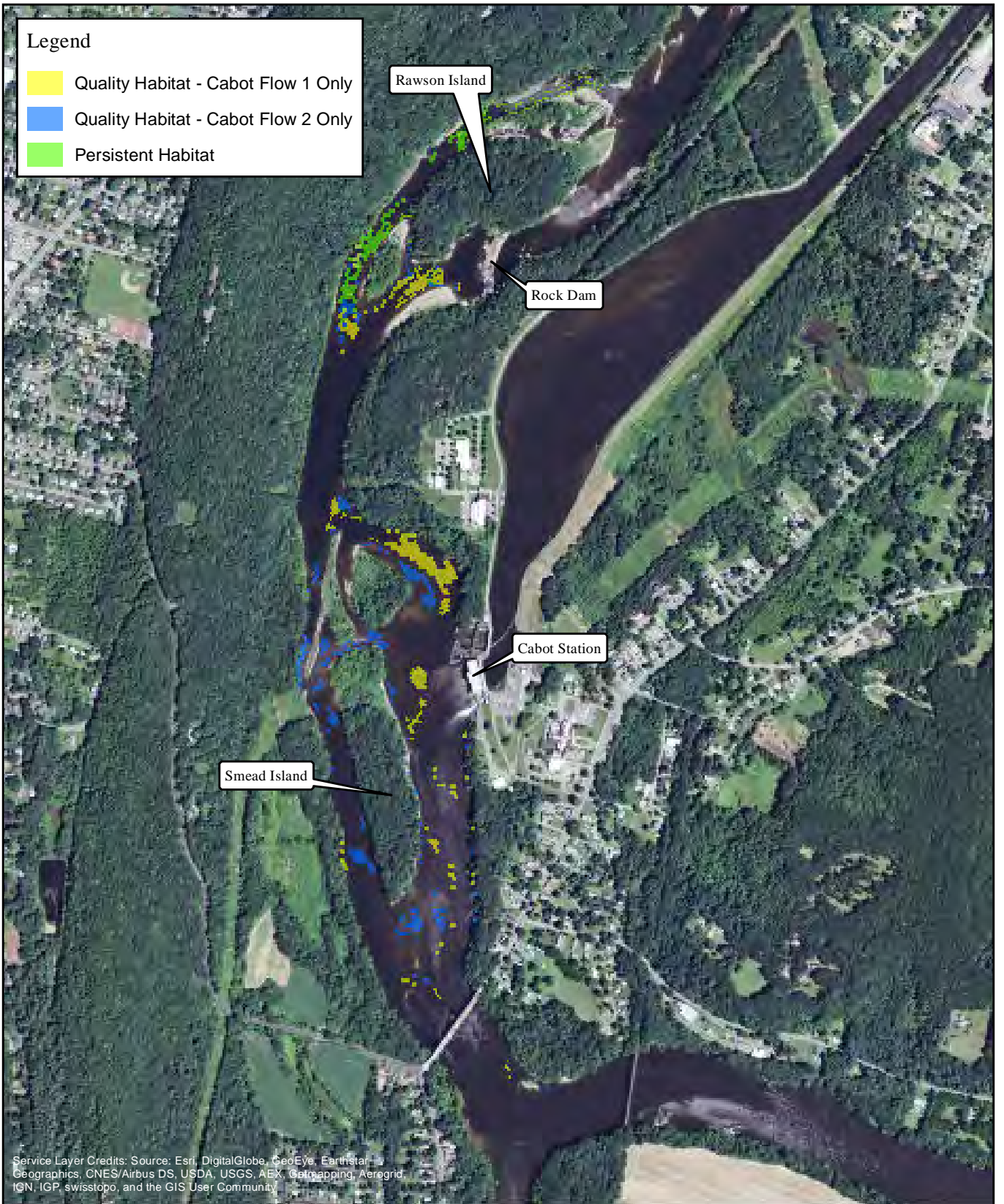


Persistent Habitat  
 Species/Life Stage:  
 Deep-Slow Guild  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 7000 cfs  
 Cabot Flow 2: 14000 cfs

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**Legend**

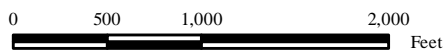
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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 Northfield Mountain Pumped Storage Project No. 2485  
 Turners Falls Hydroelectric Project No. 1889  
**RELICENSING STUDY 3.3.1**

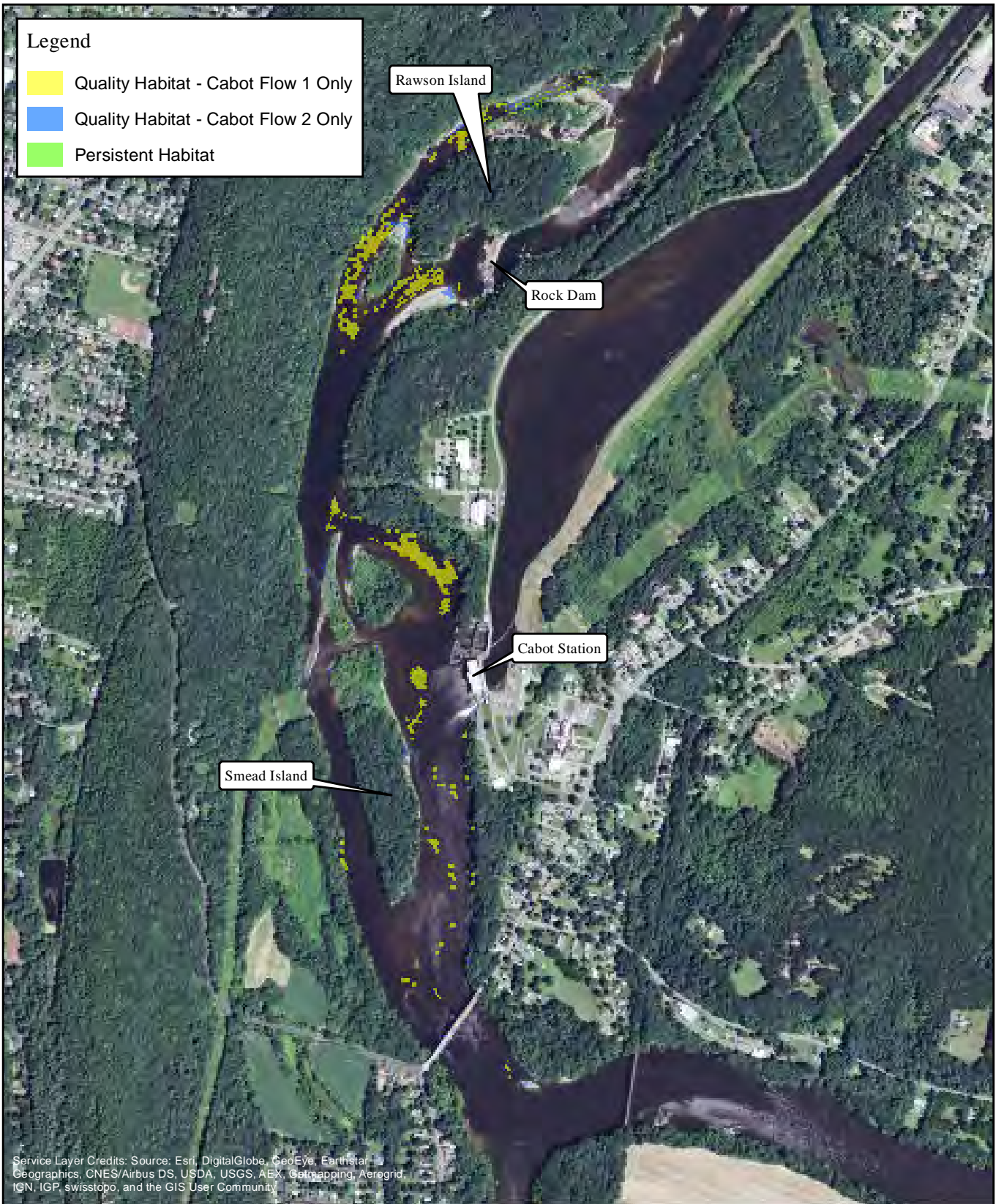


**Persistent Habitat**  
**Species/Life Stage:**  
 Shallow-Fast Guild  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 7000 cfs

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**Legend**

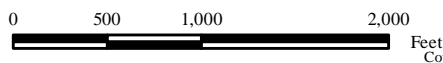
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**RELICENSING STUDY 3.3.1**



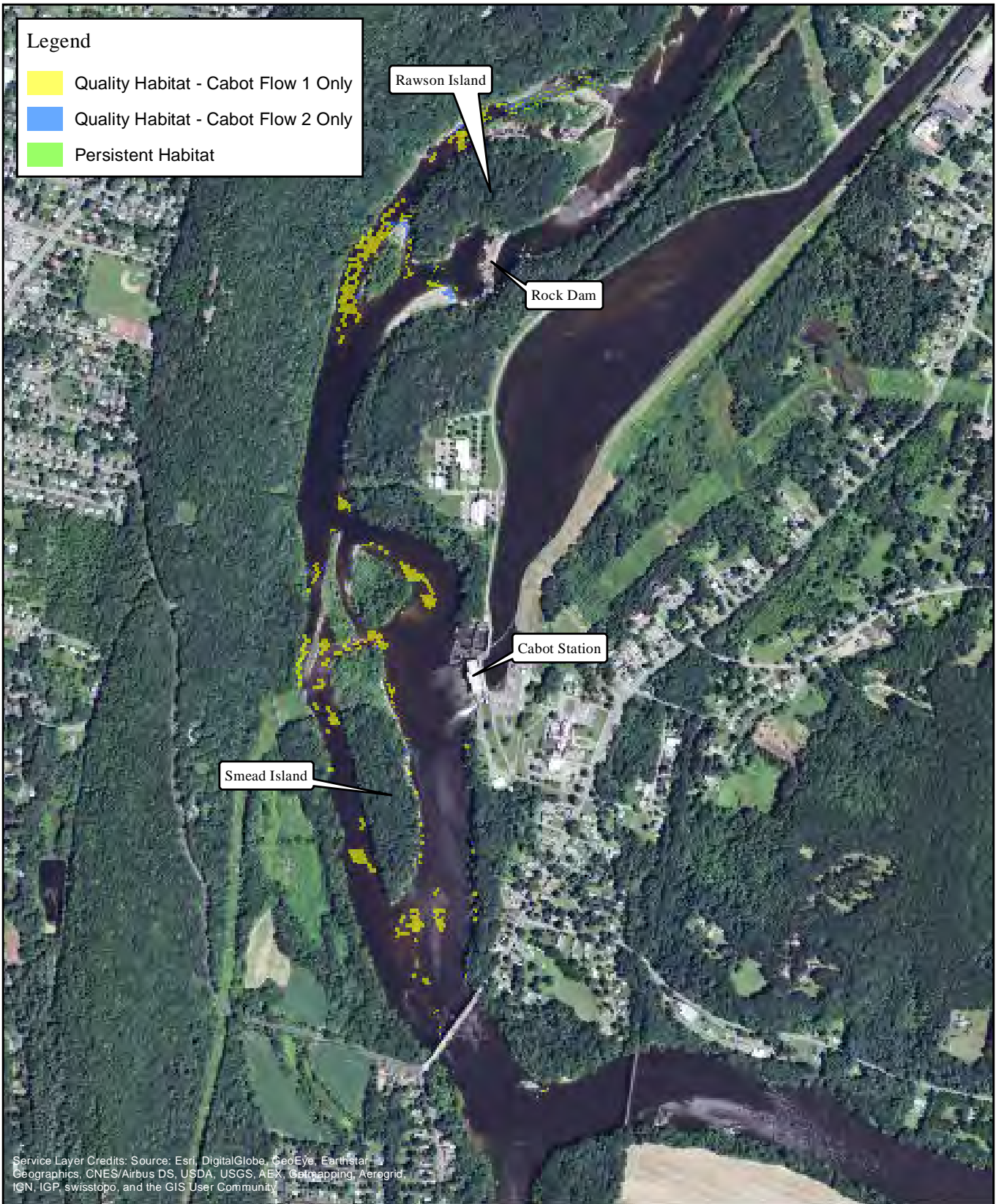
**Persistent Habitat**  
**Species/Life Stage:**  
 Shallow-Fast Guild  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
 Cabot Flow 2: 14000 cfs

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Legend

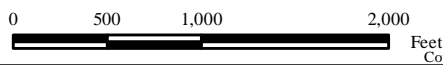
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Northfield Mountain Pumped Storage Project No. 2485  
Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

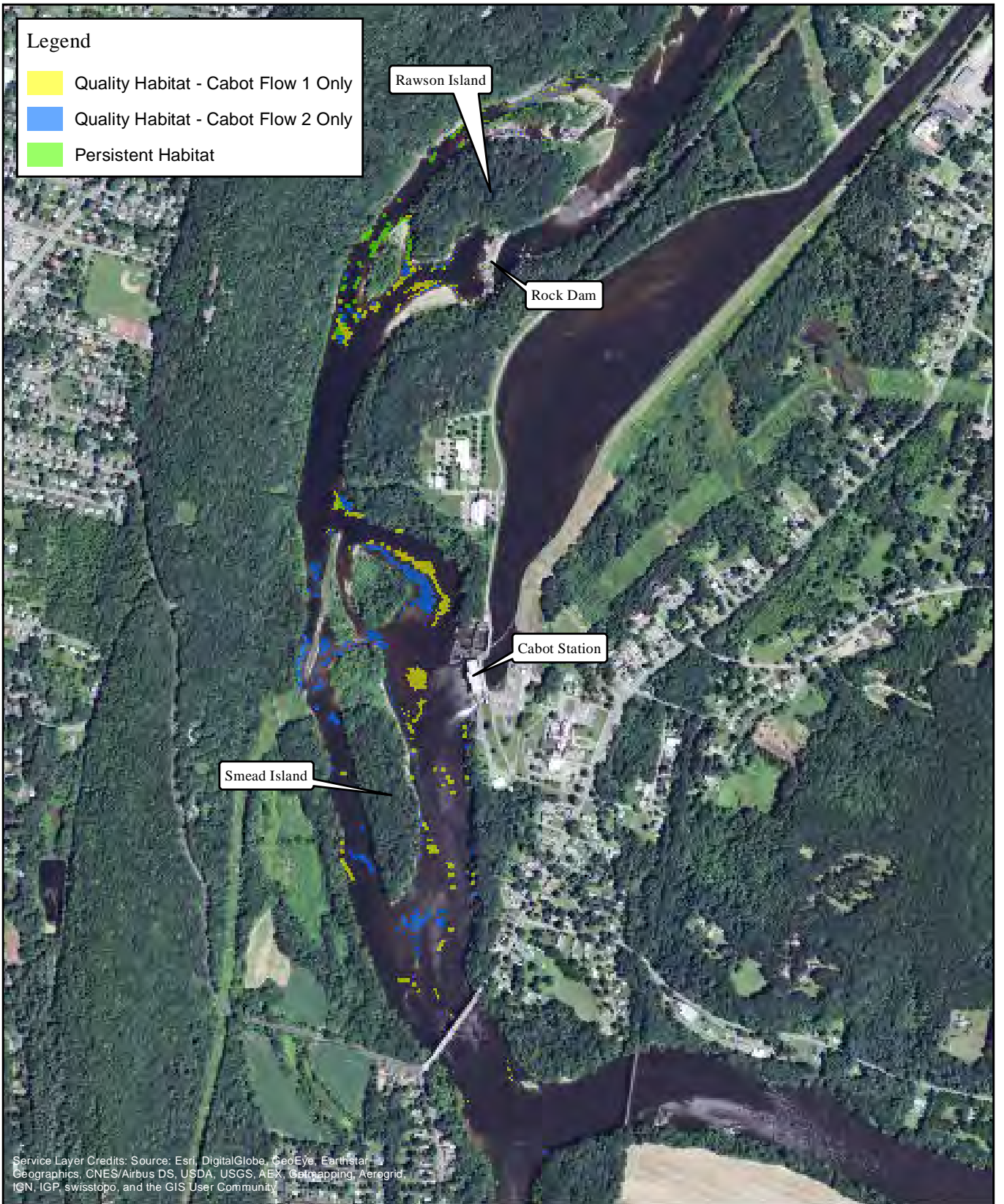


Persistent Habitat  
Species/Life Stage:  
Shallow-Fast Guild  
Bypass Flow: 200 cfs  
Cabot Flow 1: 7000 cfs  
Cabot Flow 2: 14000 cfs

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**Legend**

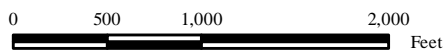
- Quality Habitat - Cabot Flow 1 Only
- Quality Habitat - Cabot Flow 2 Only
- Persistent Habitat



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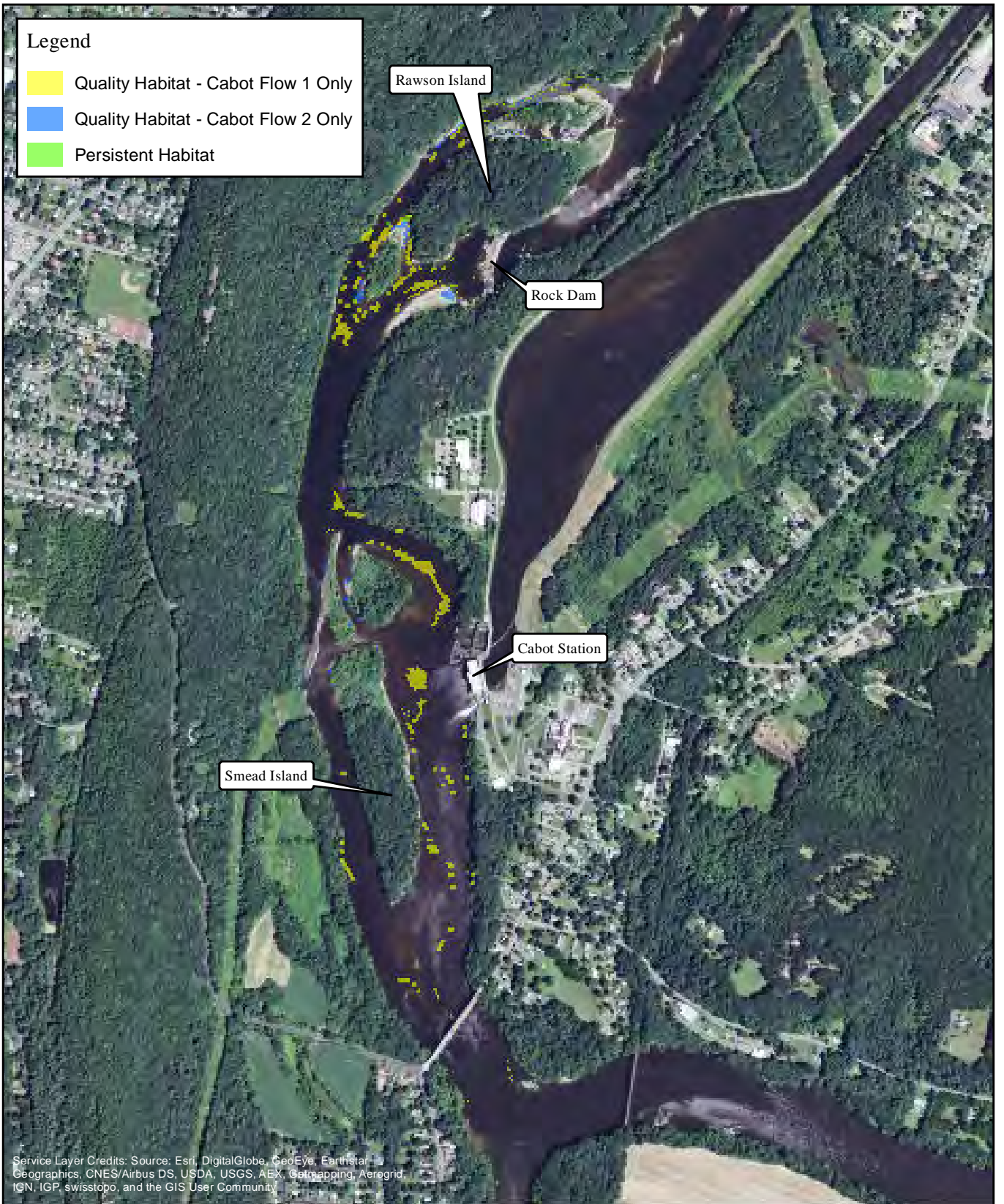


**Persistent Habitat**  
**Species/Life Stage:**  
 Shallow-Fast Guild  
 Bypass Flow: 500 cfs  
 Cabot Flow 1: 2500 cfs  
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Legend

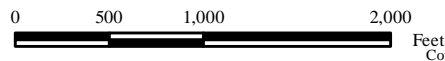
- Quality Habitat - Cabot Flow 1 Only
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RELICENSING STUDY 3.3.1

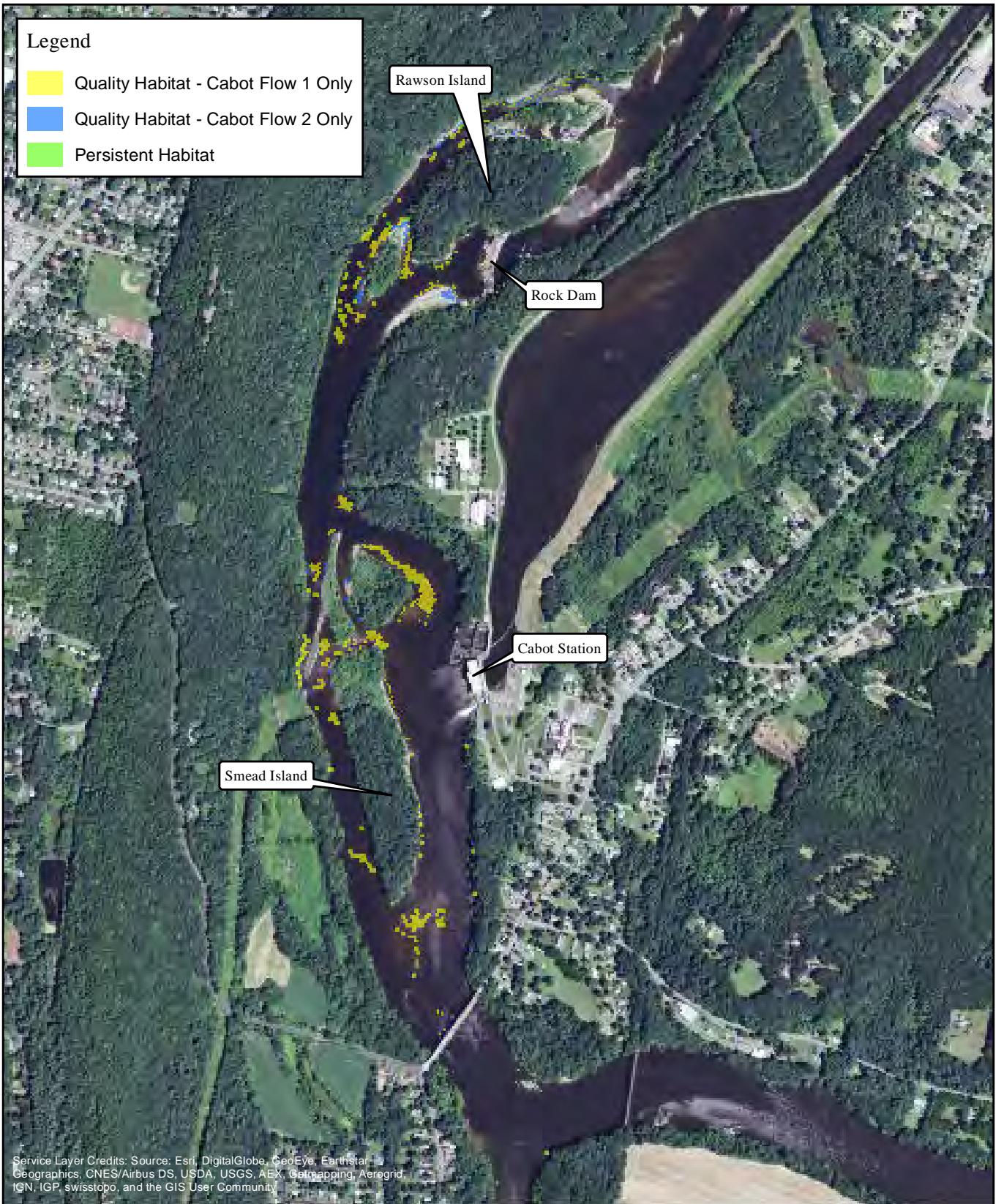


Persistent Habitat  
Species/Life Stage:  
Shallow-Fast Guild  
Bypass Flow: 500 cfs  
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**Legend**

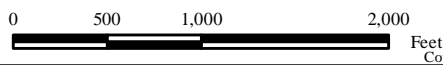
- Quality Habitat - Cabot Flow 1 Only
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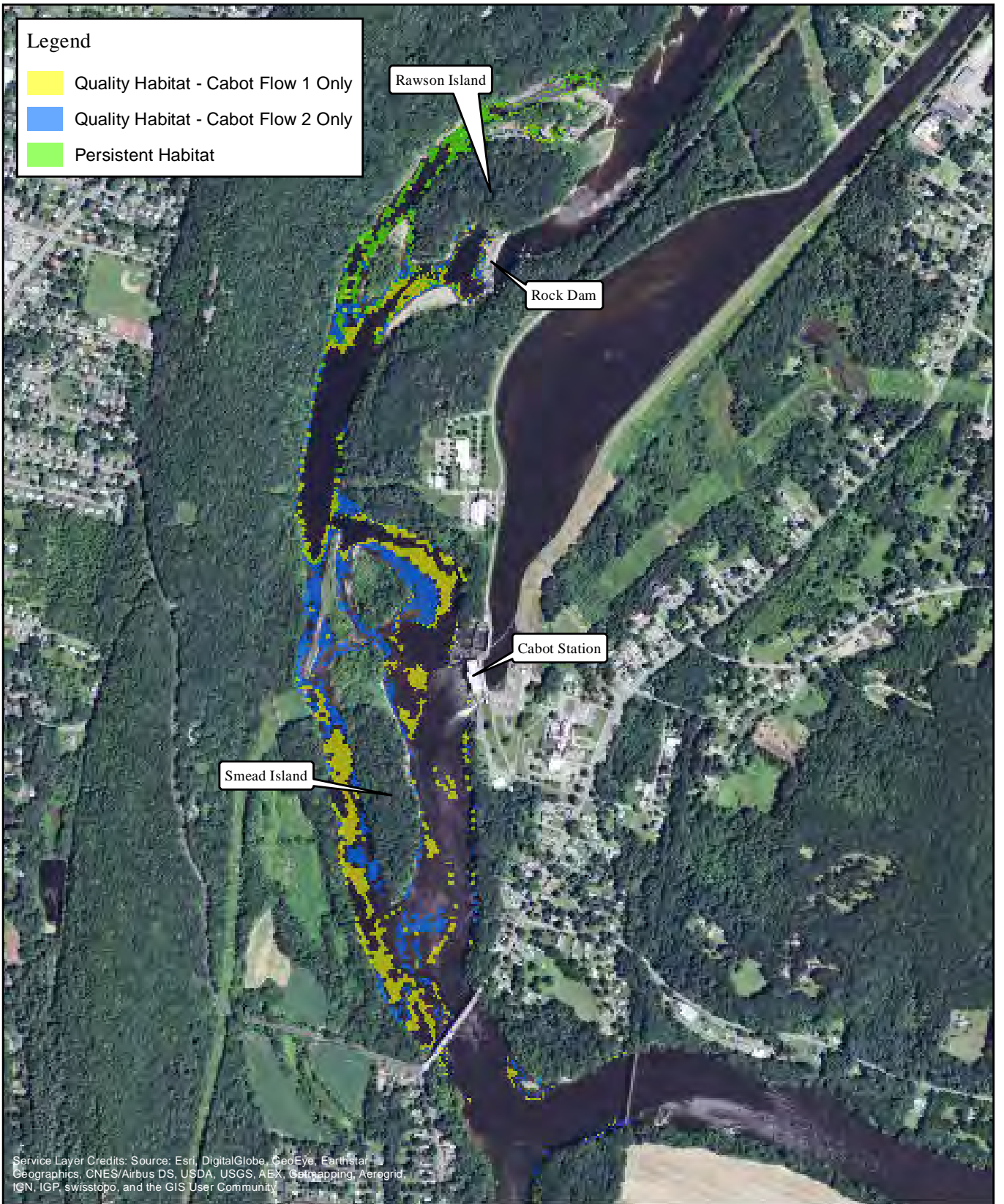


**Persistent Habitat**  
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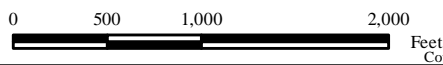
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Northfield Mountain Pumped Storage Project No. 2485  
Turners Falls Hydroelectric Project No. 1889  
RELICENSING STUDY 3.3.1

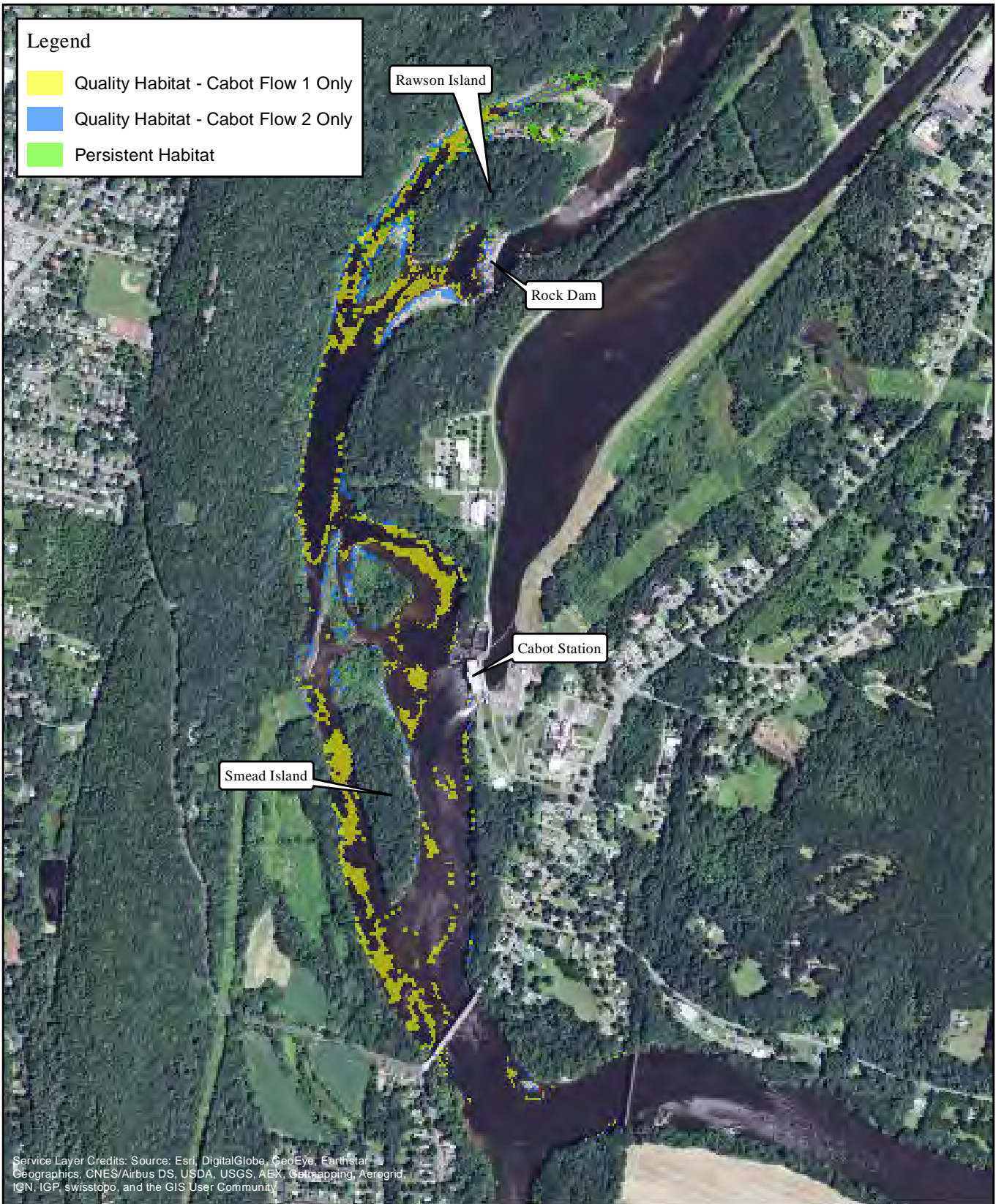


Persistent Habitat  
Species/Life Stage:  
Shallow-Slow Guild  
Bypass Flow: 200 cfs  
Cabot Flow 1: 2500 cfs  
Cabot Flow 2: 7000 cfs

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**Legend**

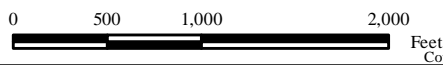
- Quality Habitat - Cabot Flow 1 Only
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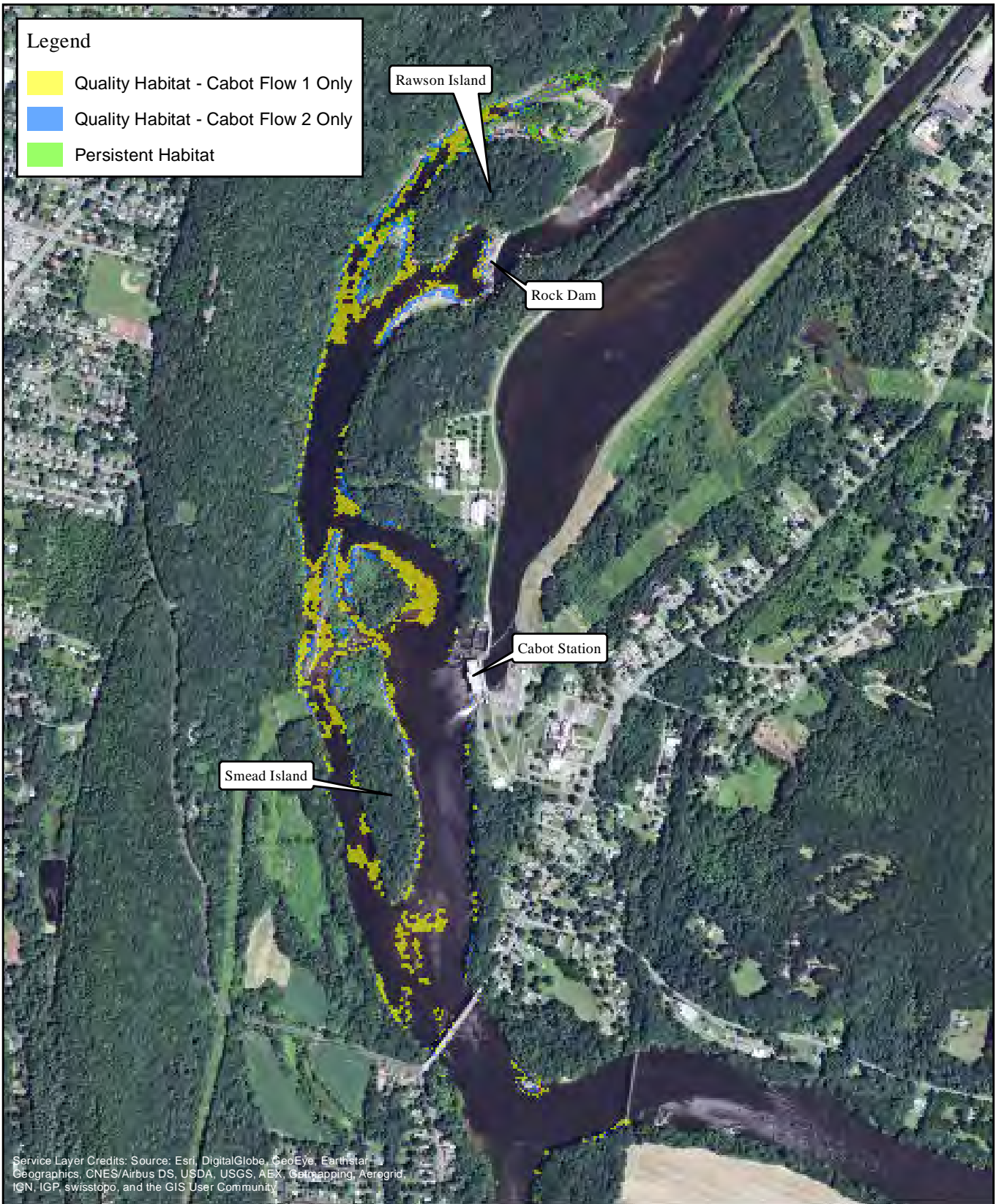


**Persistent Habitat**  
**Species/Life Stage:**  
 Shallow-Slow Guild  
 Bypass Flow: 200 cfs  
 Cabot Flow 1: 2500 cfs  
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**Legend**

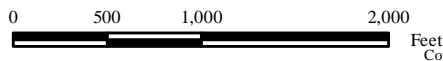
- Quality Habitat - Cabot Flow 1 Only
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**RELICENSING STUDY 3.3.1**

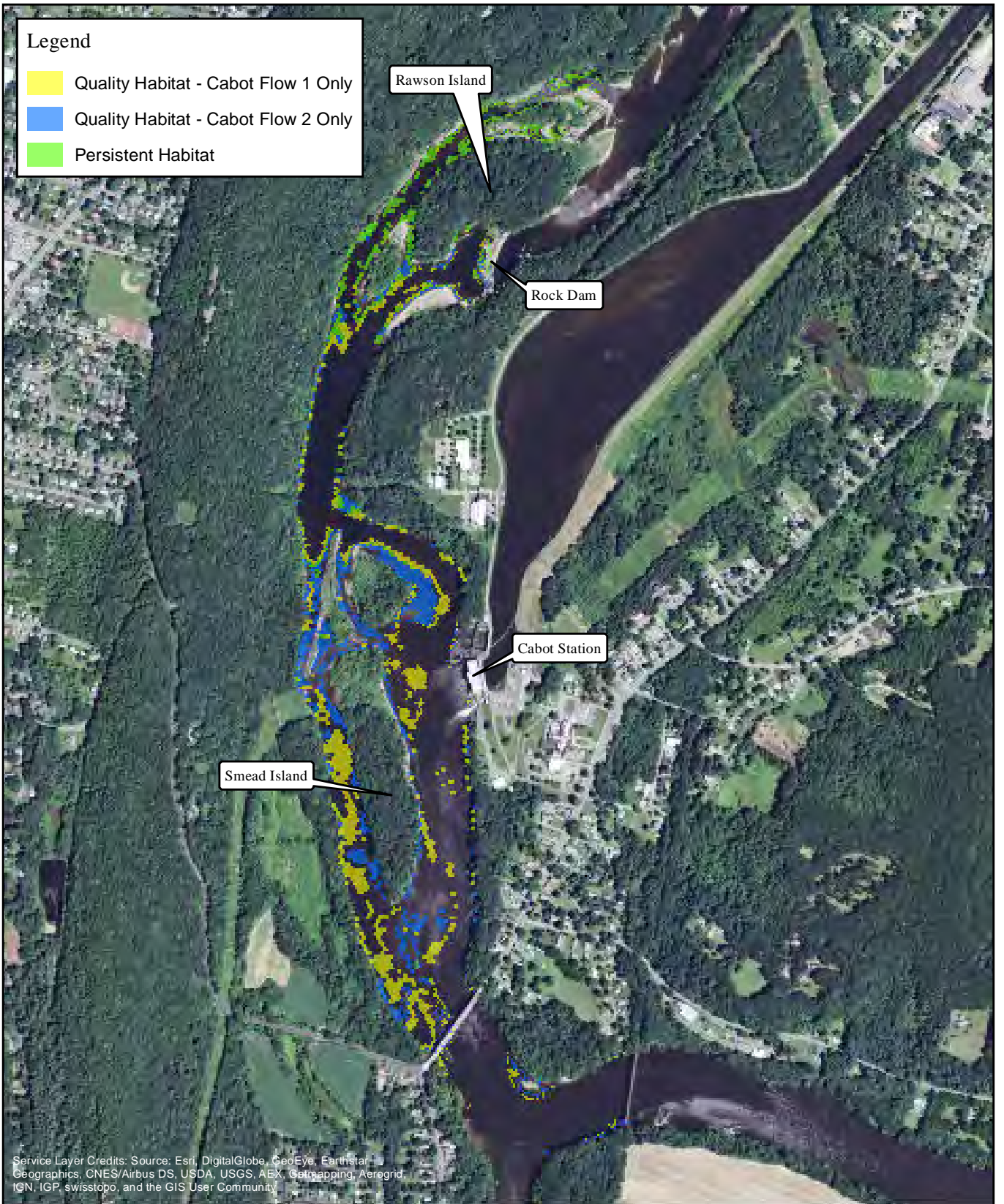


**Persistent Habitat**  
**Species/Life Stage:**  
 Shallow-Slow Guild  
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**Legend**

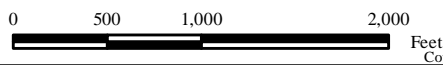
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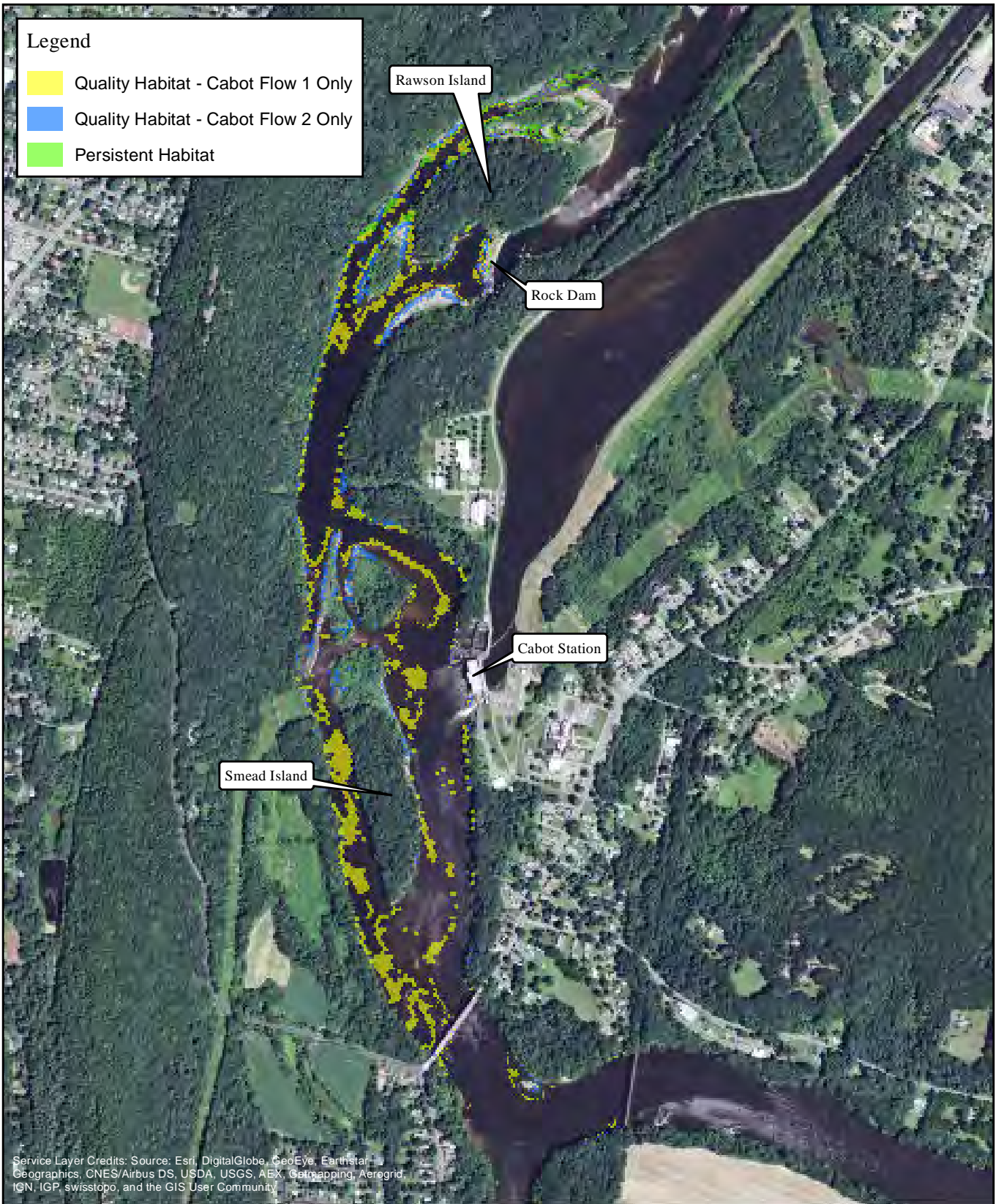
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**Legend**

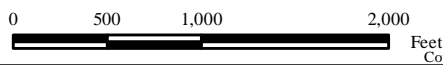
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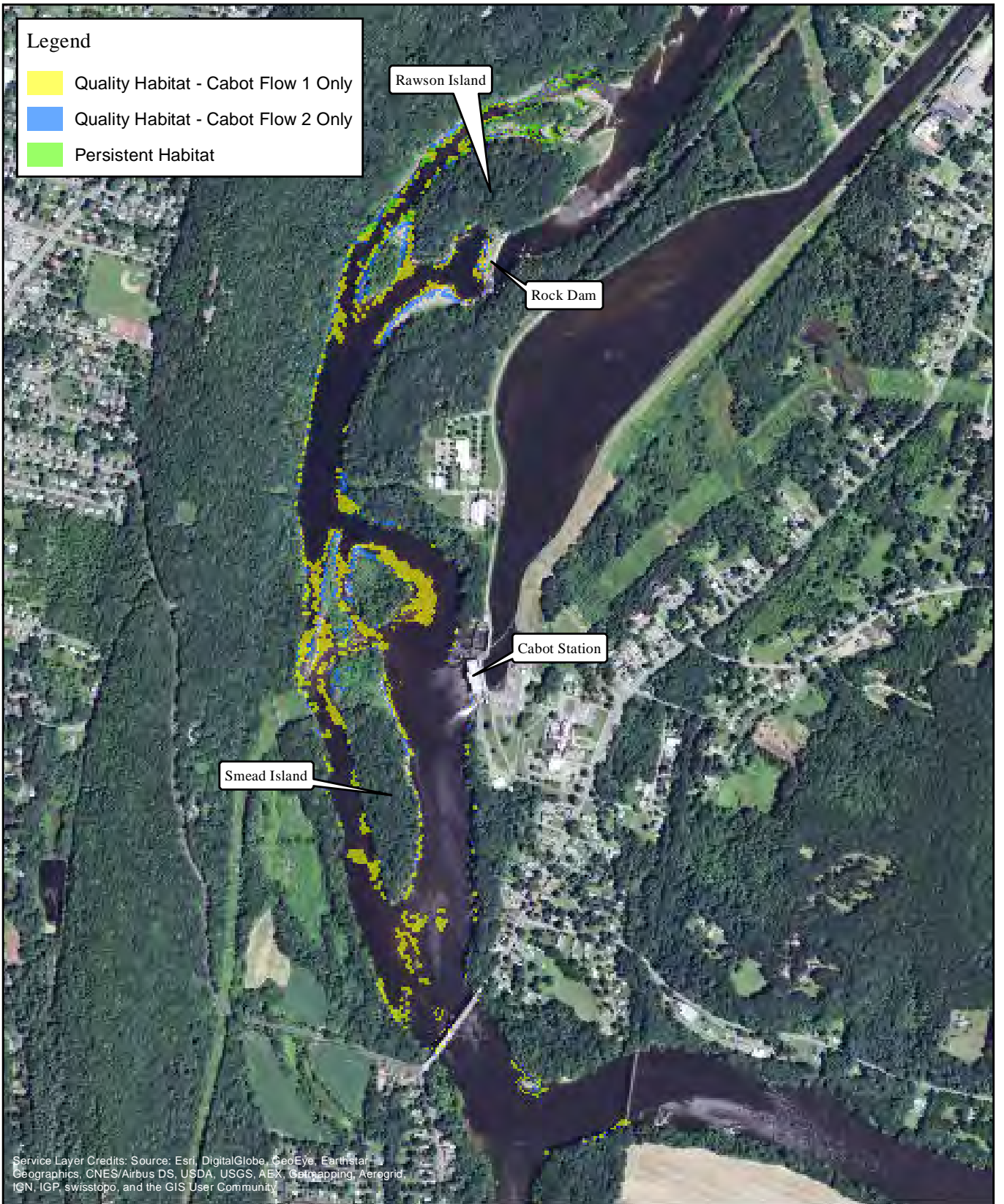


**Persistent Habitat**  
**Species/Life Stage:**  
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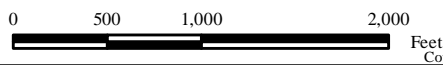
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**RELICENSING STUDY 3.3.1**



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