Appendix 15

Discussion of Site 11

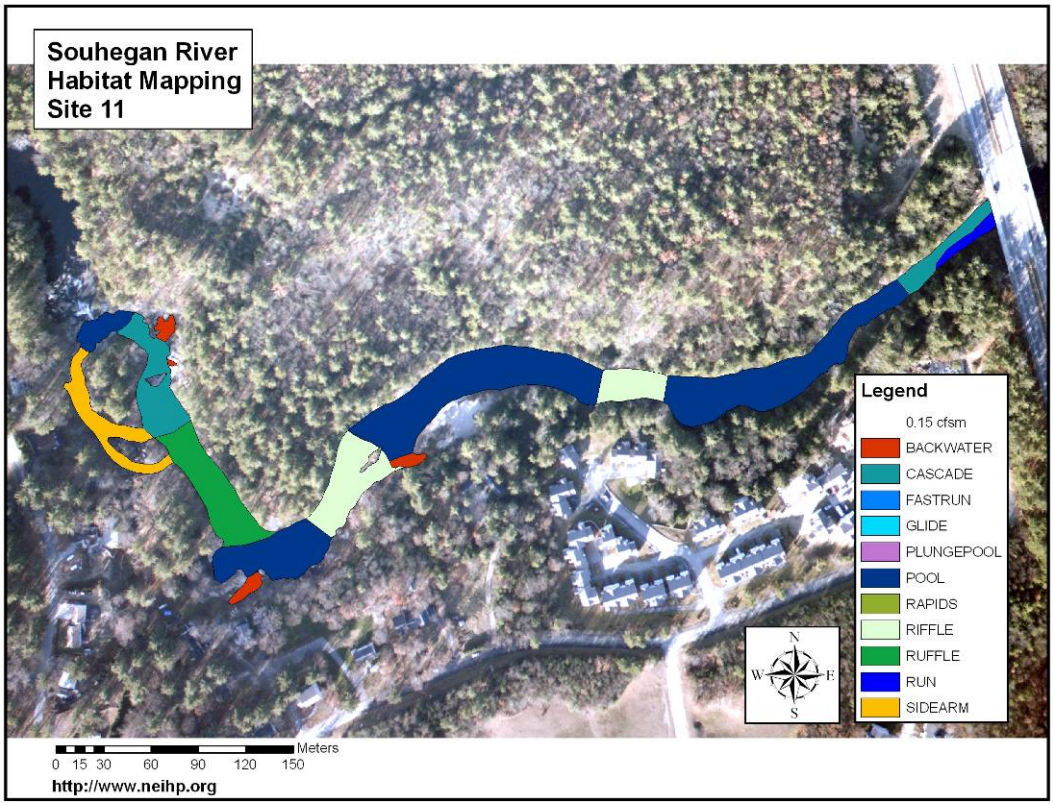
Site 11 Discussion

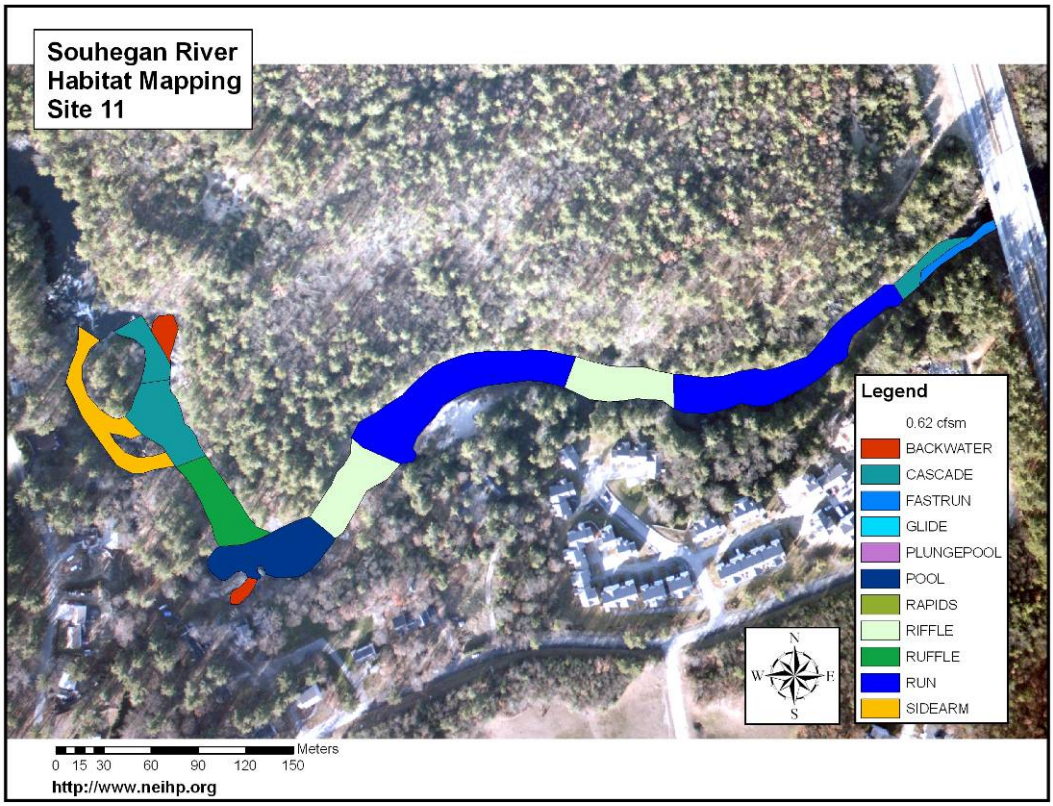
Due to very unstable flow conditions in spring and summer 2005, Site 11 has only been mapped at two lower flows: 0.15 cfsm and 0.62cfsm. Therefore we were unable to create flow habitat rating curves for this site. Nevertheless, the habitat model has been developed for the two mapped flows and this appendix presents results of these two mappings. Table 1 summarizes the amount of suitable habitat area for the investigated species. The following can be concluded from analysis of the table:

- For the majority of species we observed a decline in suitable habitat as flow increased.
- Fluvial specialists like brook trout, slimy sculpin, Atlantic salmon, blacknose dace and longnose dace had less than 25% of wetted area as a suitable habitat and it declined as flows increased.
- Fluvial dependent species such as common shiner and white sucker had large areas that were suitable and they declined only slightly with increased flows. In the case of white sucker, this change can be attributed to an increase of total wetted area not a reduction in suitable habitat area. However, optimal habitat for white sucker declined strongly as flows increased.
- American eel's habitat occurred over a large area, but declined strongly as flow increased.
- Suitable habitat for mussels and odonates was also widely available, however, odonate habitat declined with flow. The change in suitable habitat for mussels can be attributed to an increase in wetted area.
- Young-of-the-year (YOY) habitat was widely available (almost 100% of the wetted area) and declined slightly with increased flows.
- There was no spawning habitat available for Atlantic salmon.
- Spawning habitat for American shad was available only at the higher of the two mapped flows and most of it was optimal.
- Spawning habitat for generic resident adult fish (GRAF) species was available for most of the lower of the mapped flows.

Table 1. Suitable and Optimal habitat areas for Adult and Spawning habitat mapped for two flows at site 11.

Mapping Flow	0.15 cfsm		0.62 cfsm	
Adult Habitat	**Suitable**	**Optimal**	**Suitable**	**Optimal**
Brook Trout	23%	23%	12%	2%
Blacknose dace	20%	9%	8%	0%
Common shiner	87%	N/A	80%	N/A
American Eel	75%	42%	34%	32%
Fallfish	31%	25%	71%	71%
Longnose dace	20%	10%	26%	18%
Mussel	54%	0%	50%	0%
Odonates	57%	55%	14%	14%
Atlantic salmon	13%	N/A	8%	N/A
Slimy sculpin	21%	0%	14%	8%
White sucker	54%	54%	50%	12%
YOY	99%	34%	73%	24%
Spawning habitat	**Suitable**	**Optimal**	**Suitable**	**Optimal**
American shad	1%	0%	22%	21%
Atlantic salmon	0%	0%	0%	0%
Blacknose dace	9%	0%	0%	0%
Common shiner	13%	0%	8%	0%
Fallfish	55%	0%	19%	0%
Longnose dace	13%	9%	0%	0%
Slimy sculpin	23%	9%	8%	0%
White sucker	23%	13%	24%	0%


Souhegan River
Habitat Mapping
Site 11
Legend
0.15 cfsm
BACKWATER
CASCADE
FASTRUN
GLIDE
PLUNGEPOOL
POOL
RAPIDS
RIFFLE
RUFFLE
RUN
SIDEARM
N
W
E
S
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Mapping
Site 11
Legend
0.62 cfsm
BACKWATER
CASCADE
FASTRUN
GLIDE
PLUNGEPOOL
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RUFFLE
RUN
SIDEARM
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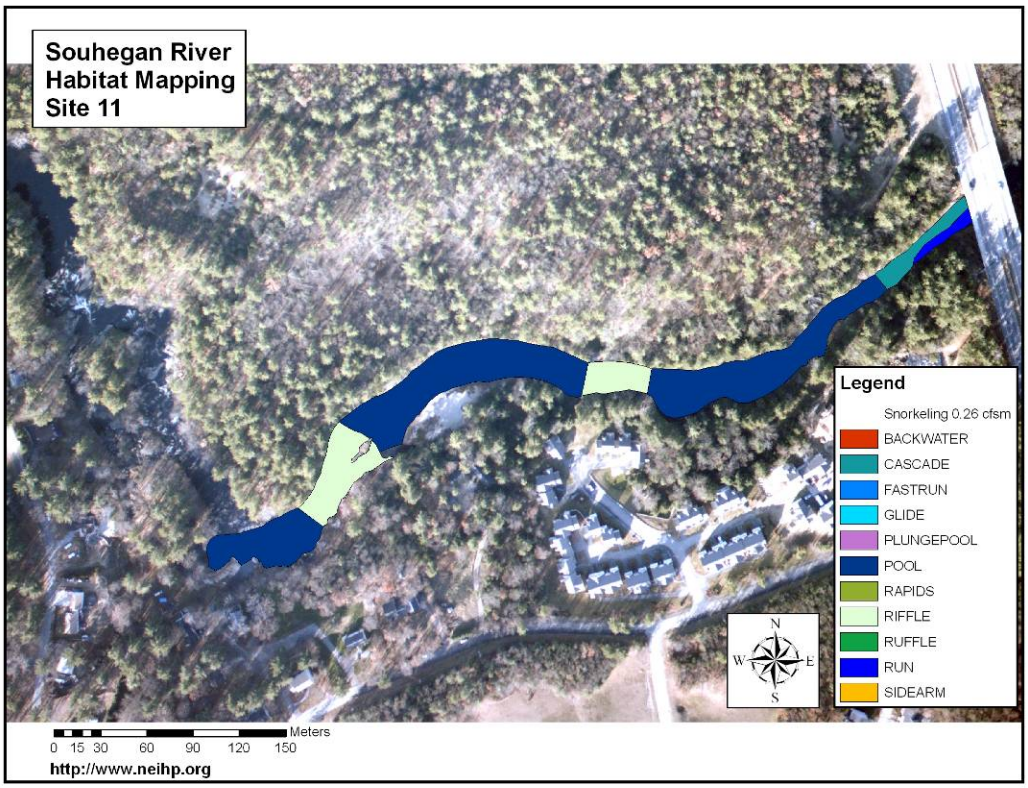
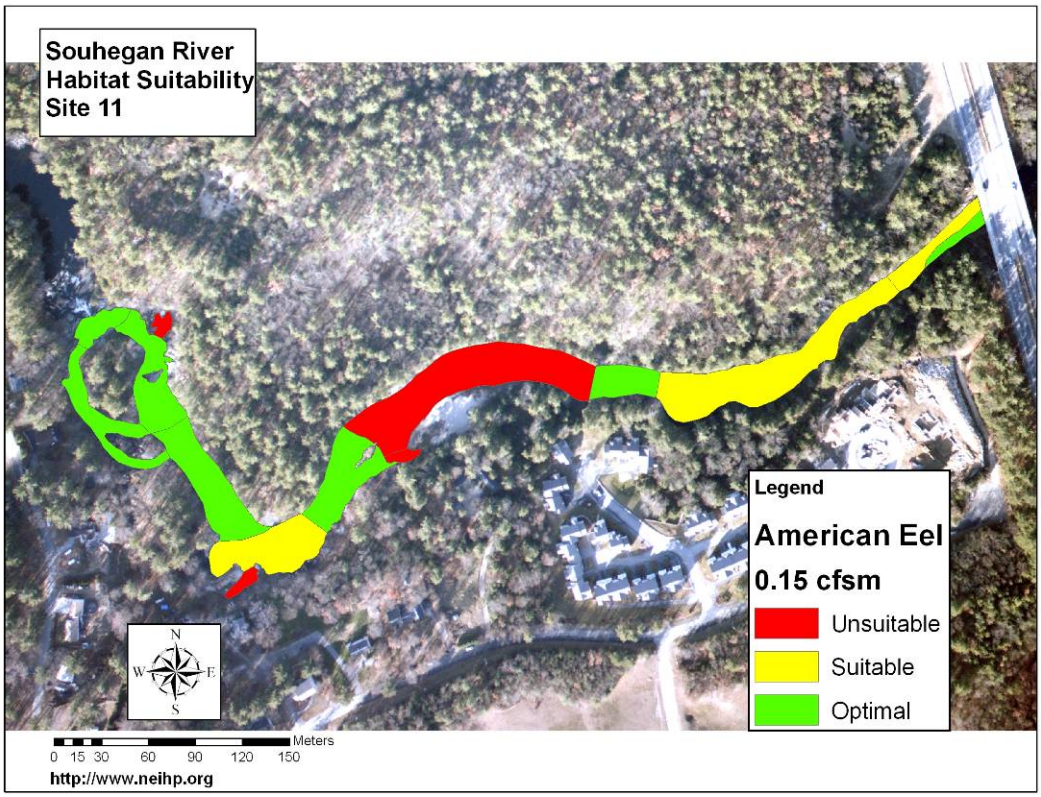
Meters
0 15 30 60 90 120 150
http://www.neihp.org



Habitat Suitability Maps


Souhegan River
Habitat Suitability
Site 11
Legend
American Eel
0.15 cfsm
Unsuitable
Suitable
Optimal
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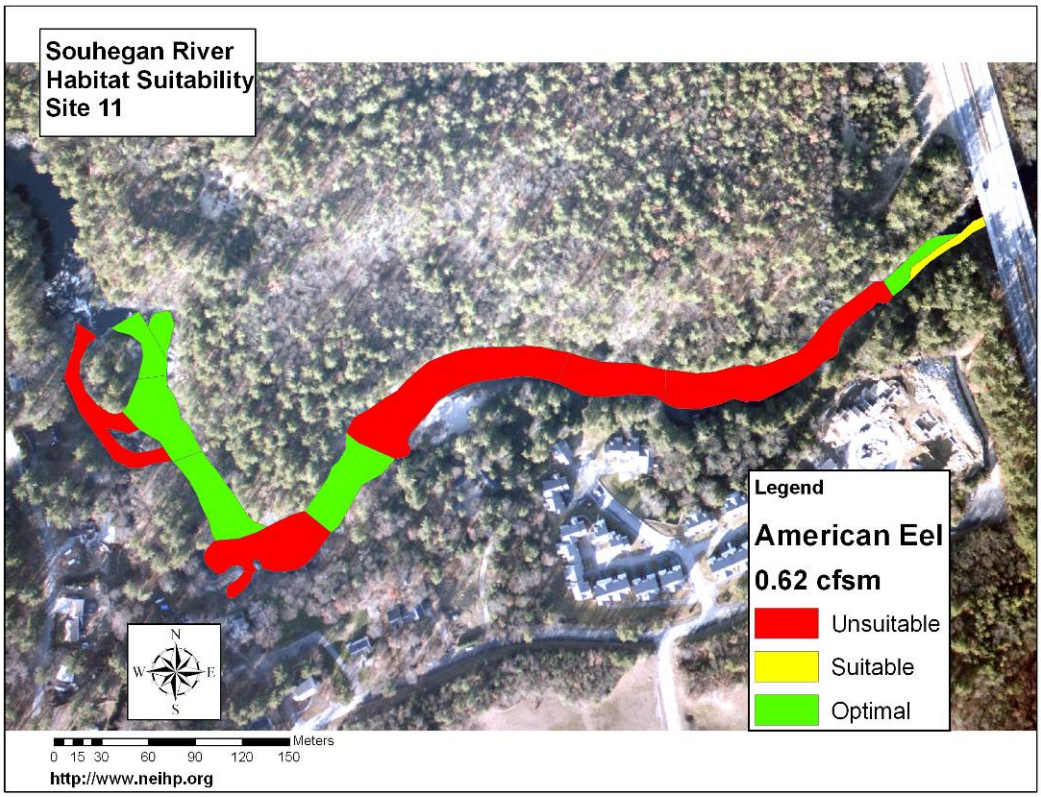
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
American Eel
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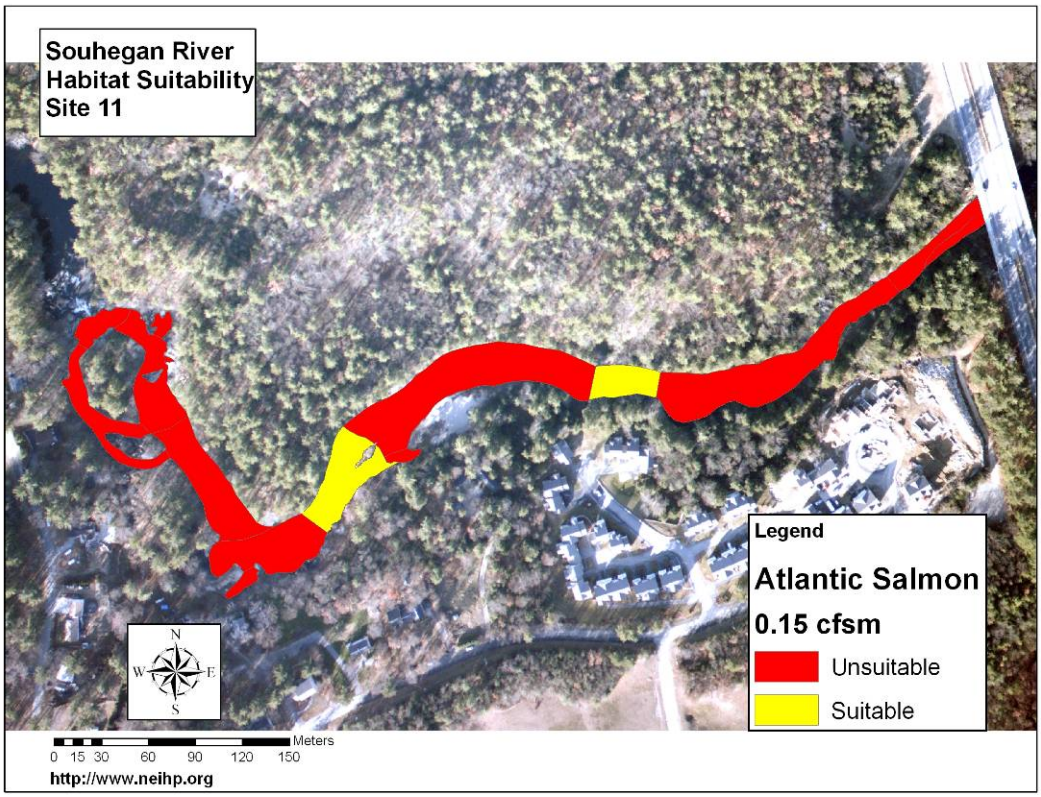
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Habitat Suitability
Site 11
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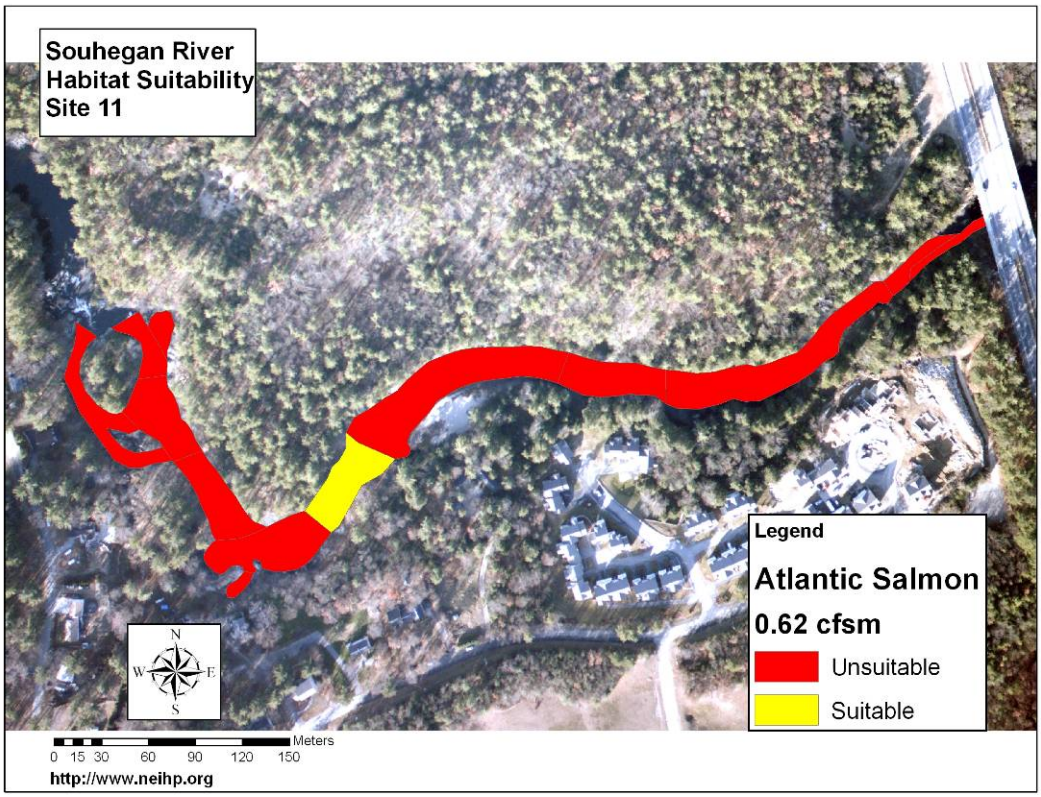
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Habitat Suitability
Site 11
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Atlantic Salmon
0.62 cfsm
Unsuitable
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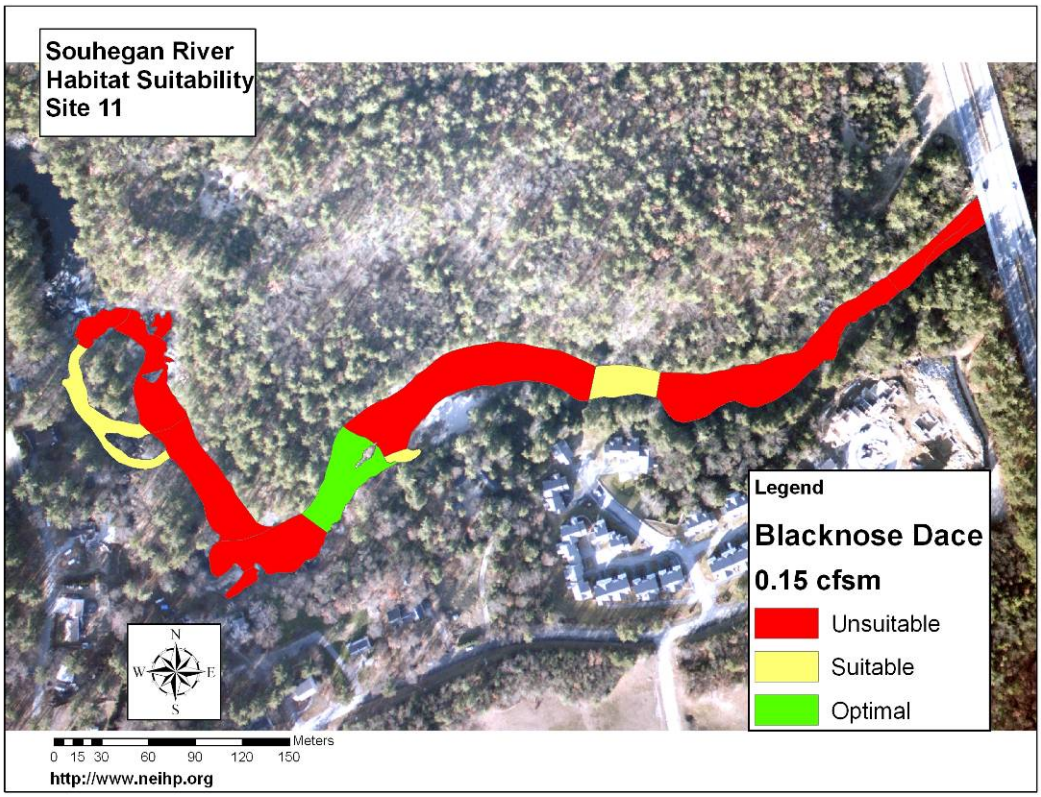
Souhegan River
Habitat Suitability
Site 11
Legend
Blacknose Dace
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Unsuitable
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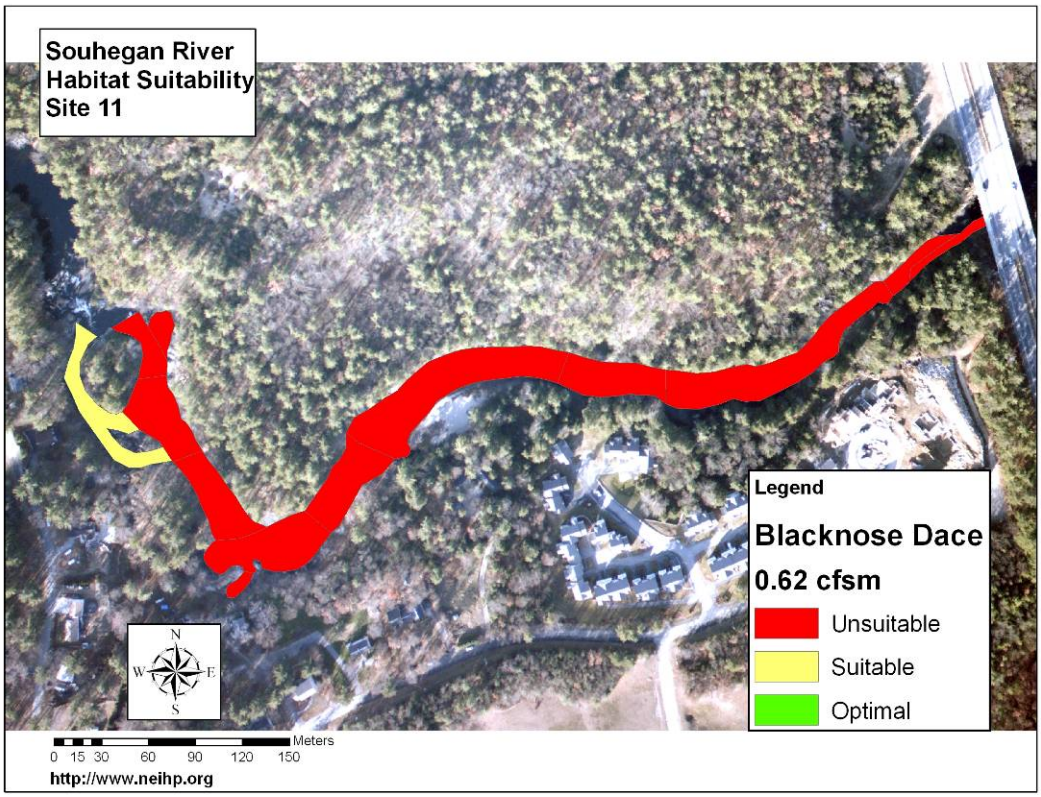
Souhegan River
Habitat Suitability
Site 11
Legend
Blacknose Dace
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Unsuitable
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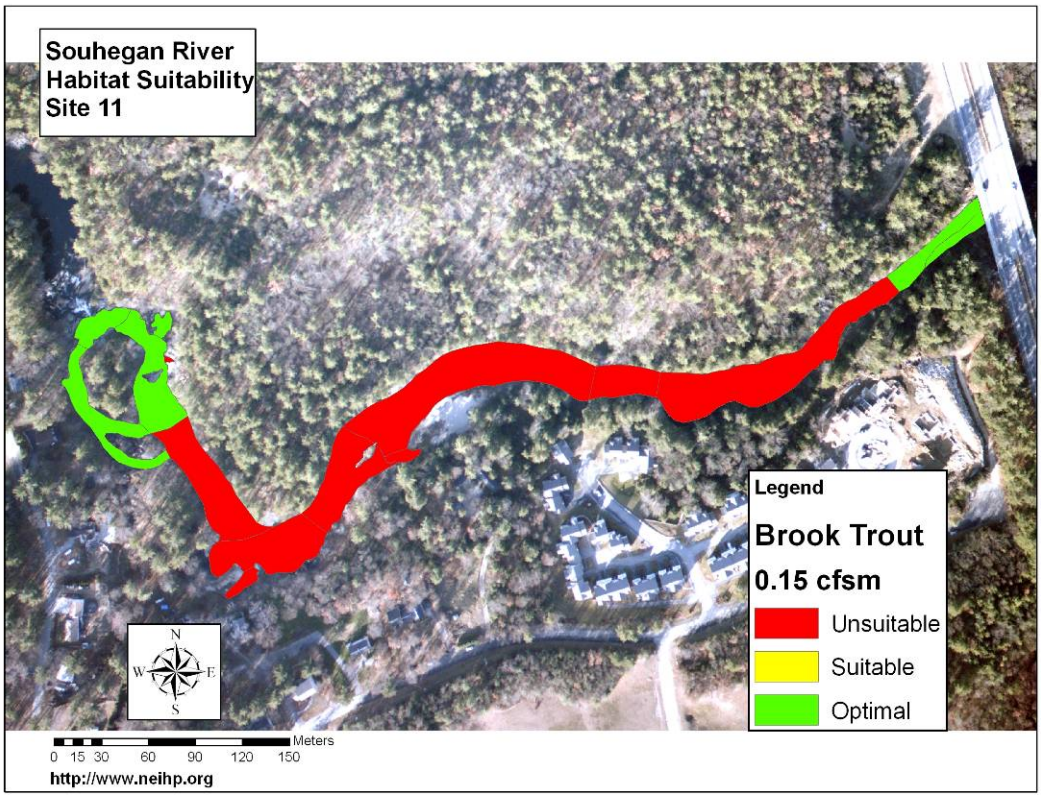
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Brook Trout
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Unsuitable
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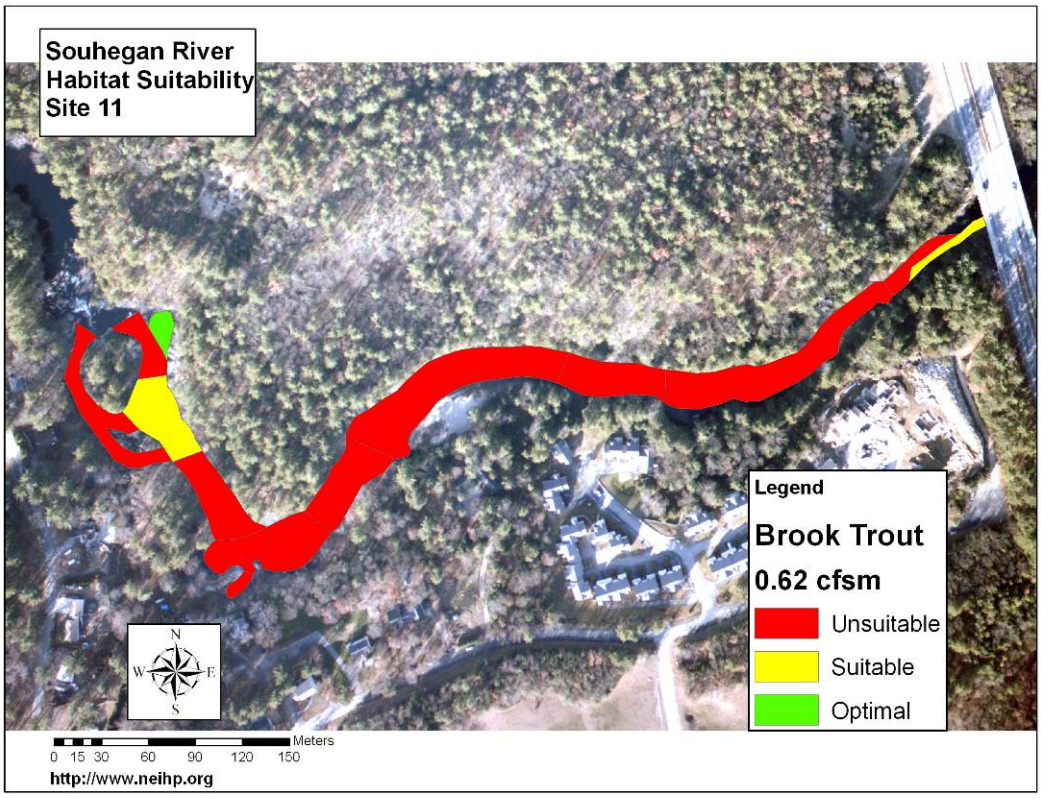
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Brook Trout
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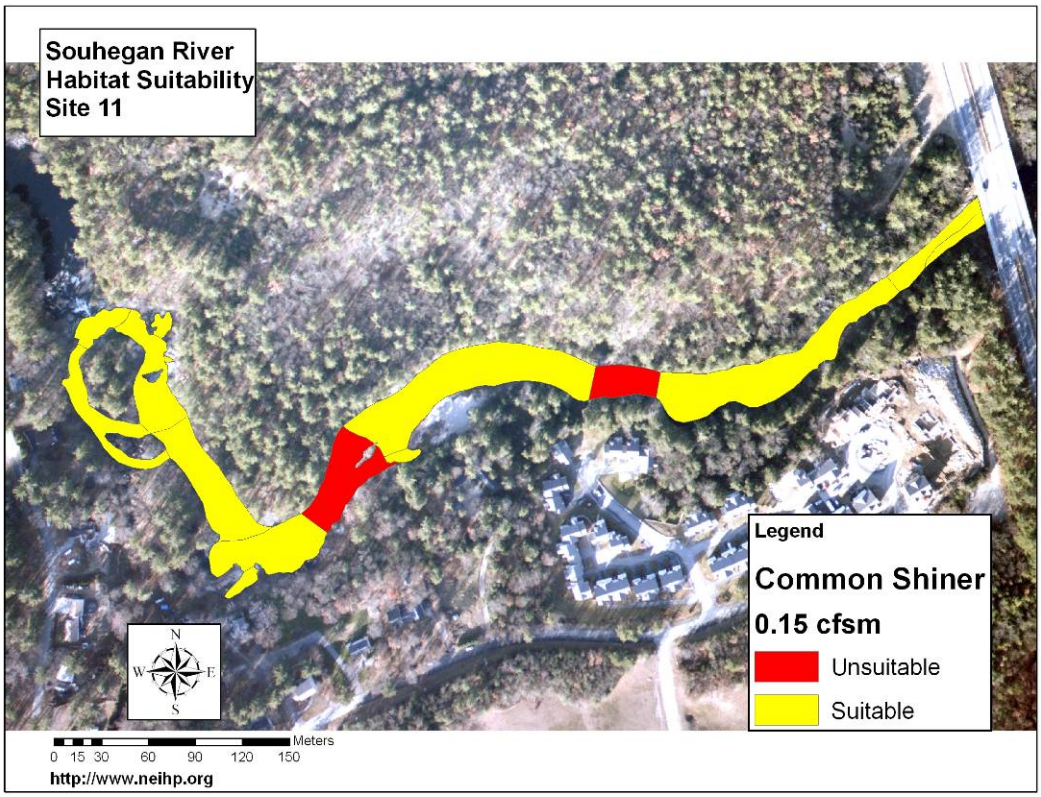
Souhegan River
Habitat Suitability
Site 11
Legend
Common Shiner
0.15 cfsm
Unsuitable
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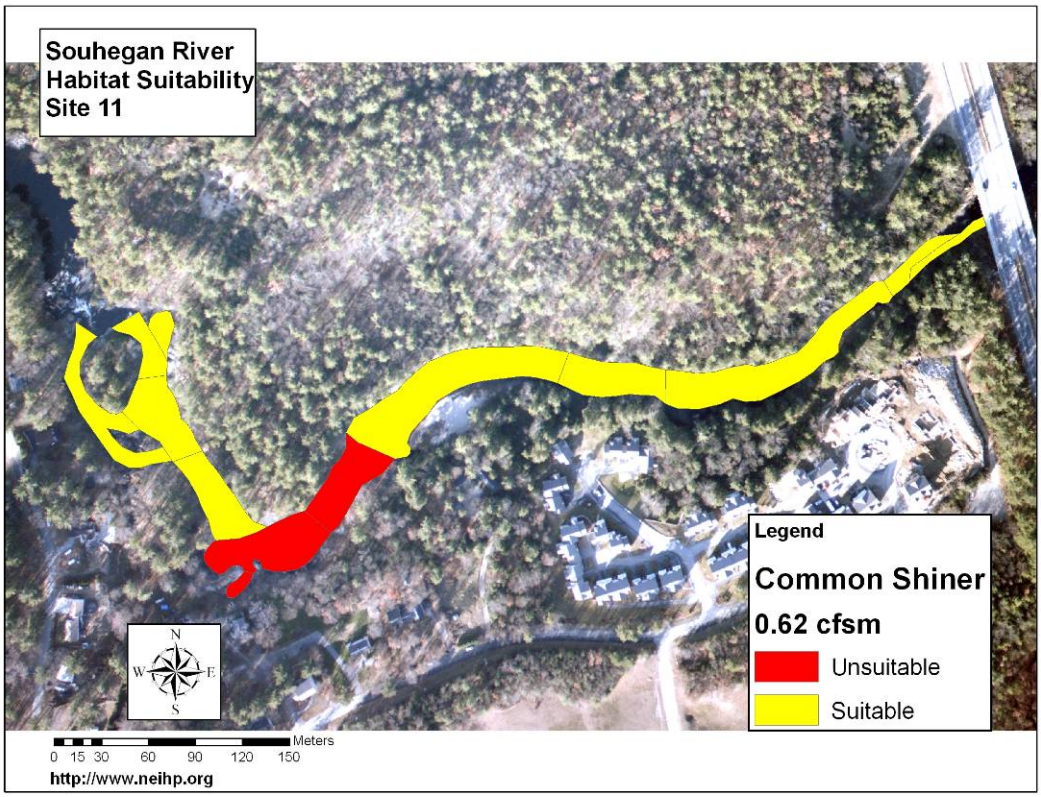
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
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Common Shiner
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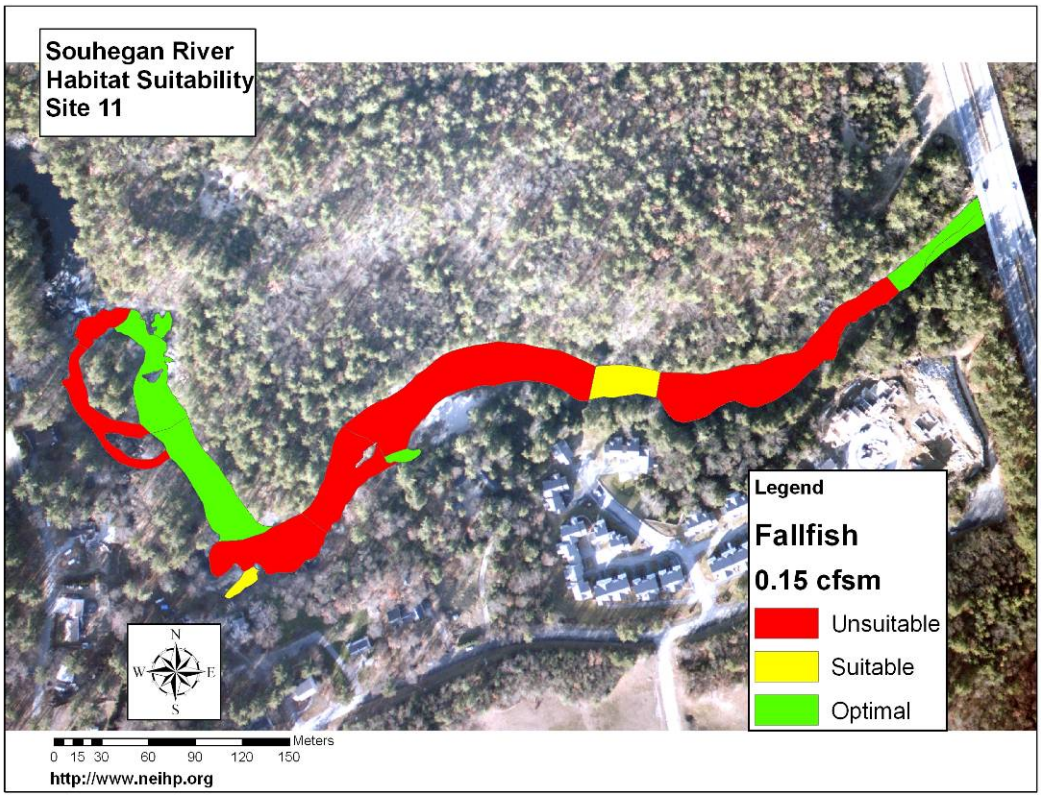
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Habitat Suitability
Site 11
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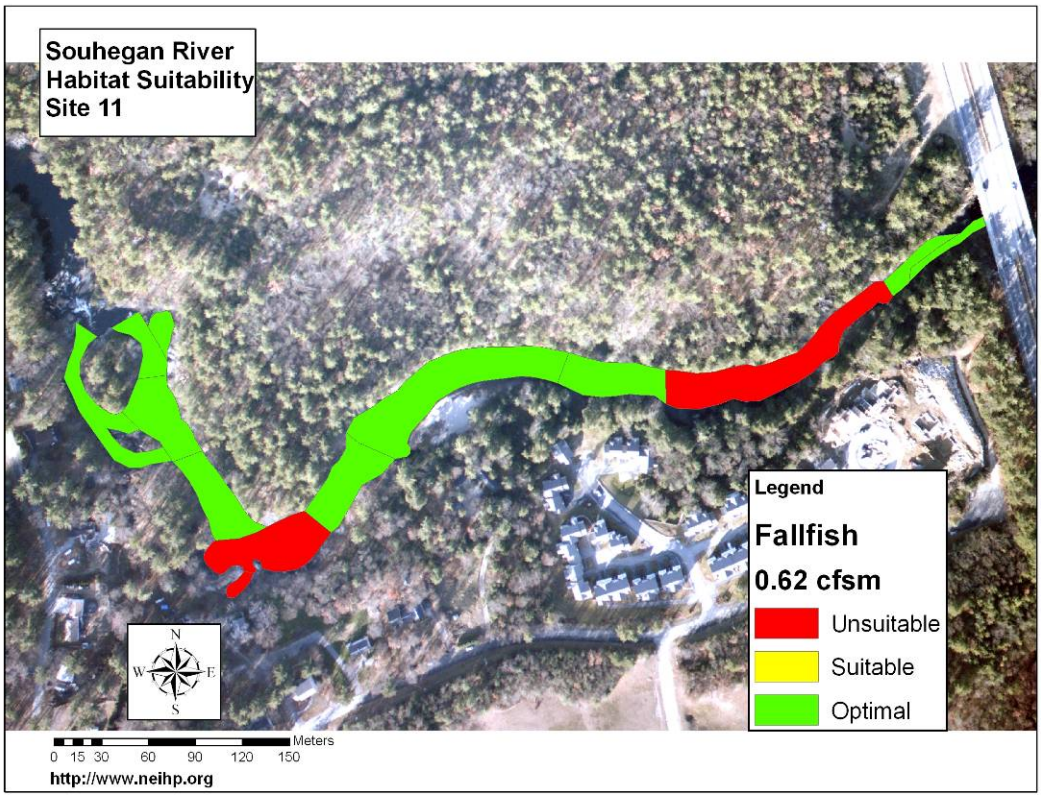
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Habitat Suitability
Site 11
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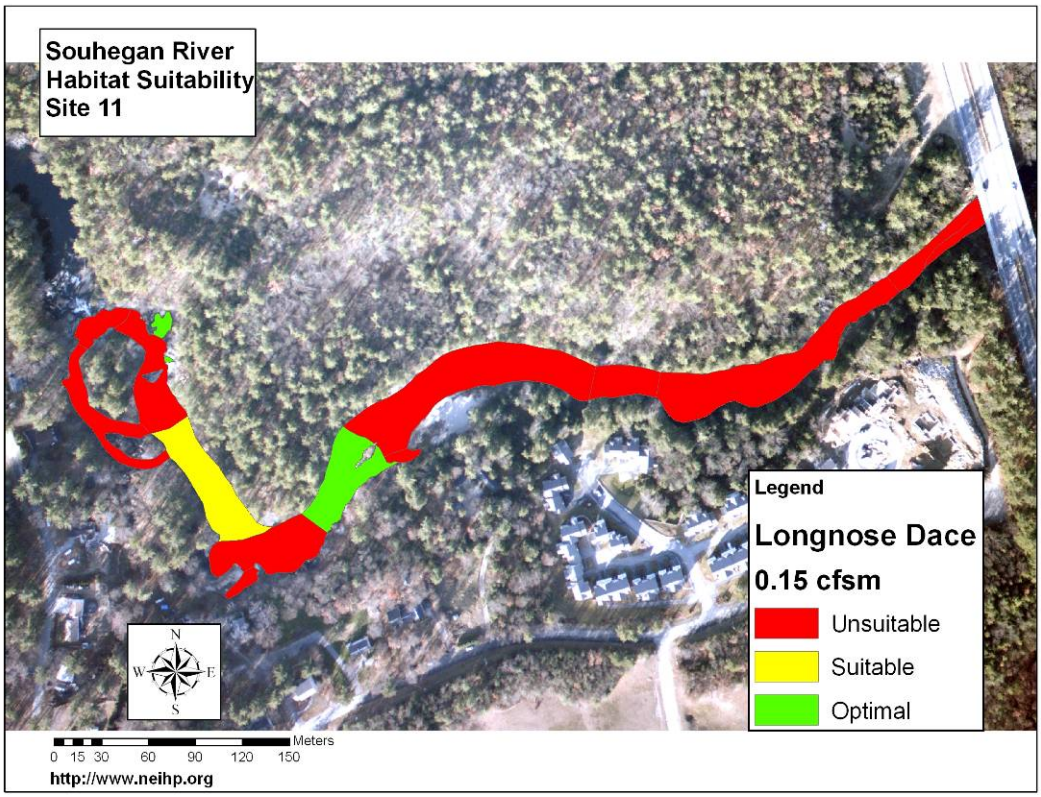
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Habitat Suitability
Site 11
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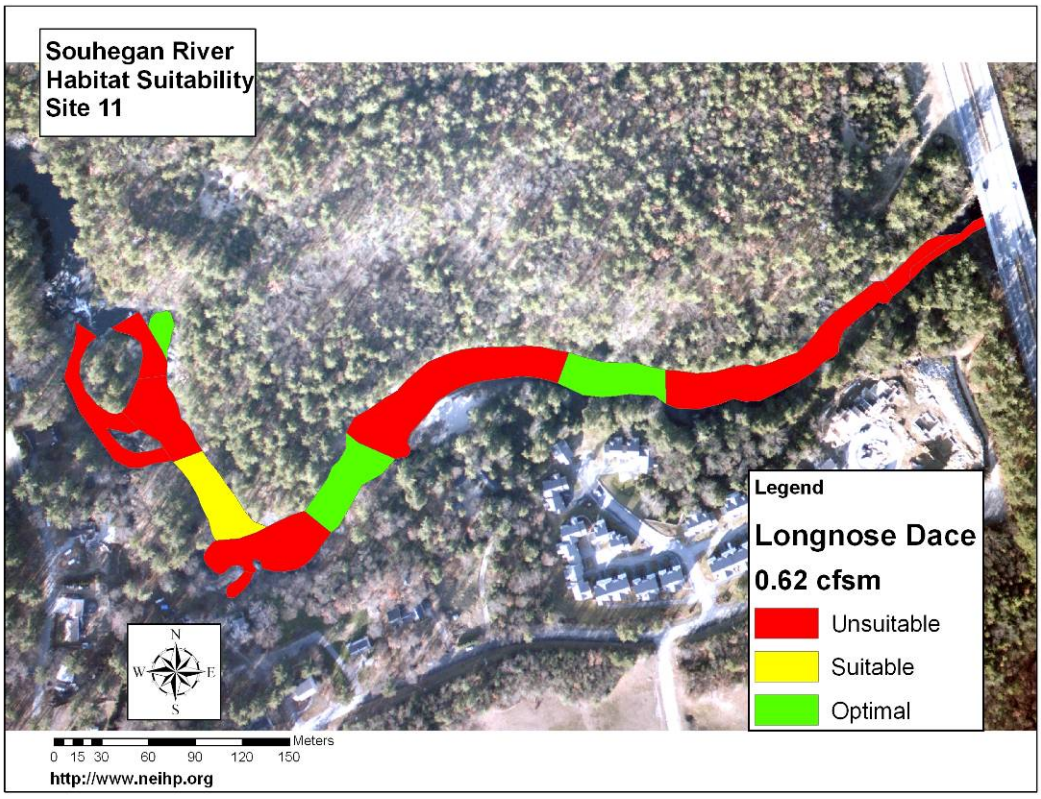
Souhegan River
Habitat Suitability
Site 11
Legend
Longnose Dace
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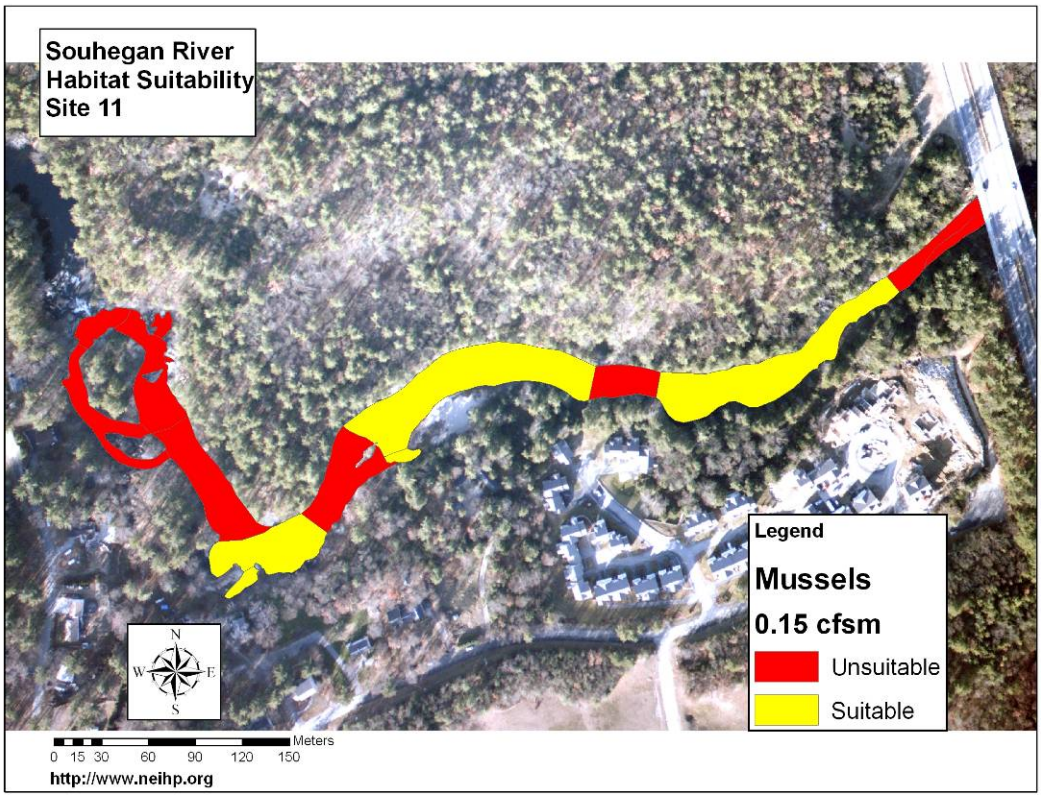
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Habitat Suitability
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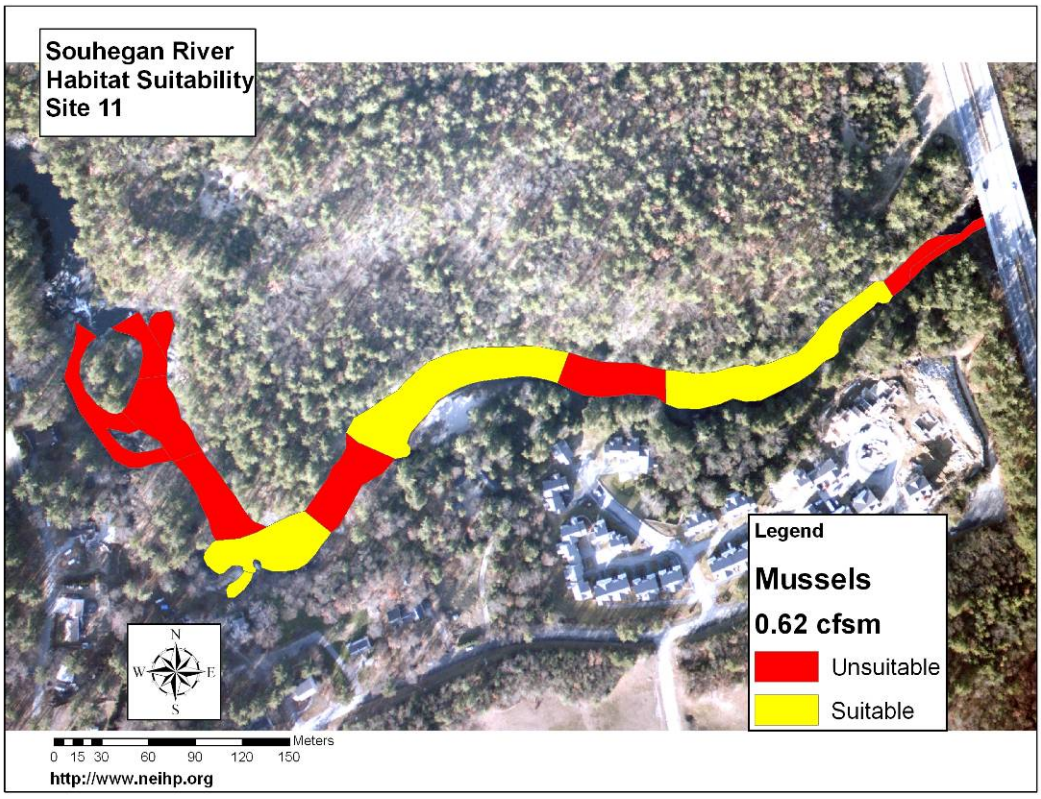
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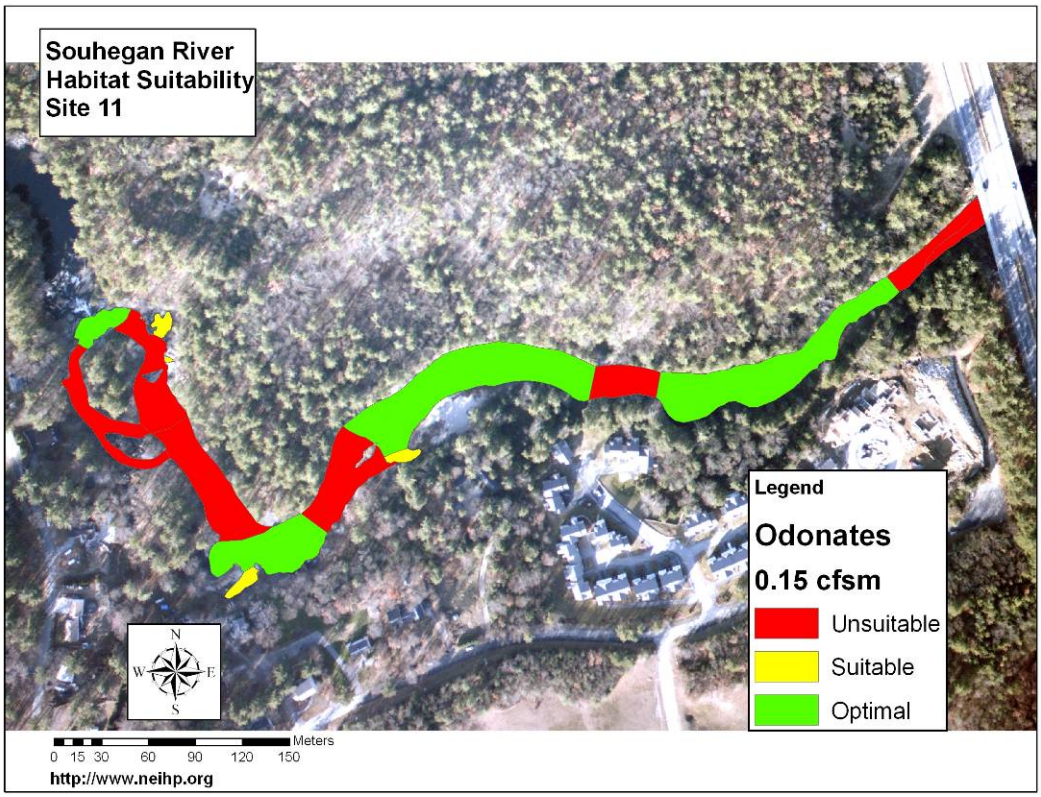
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Habitat Suitability
Site 11
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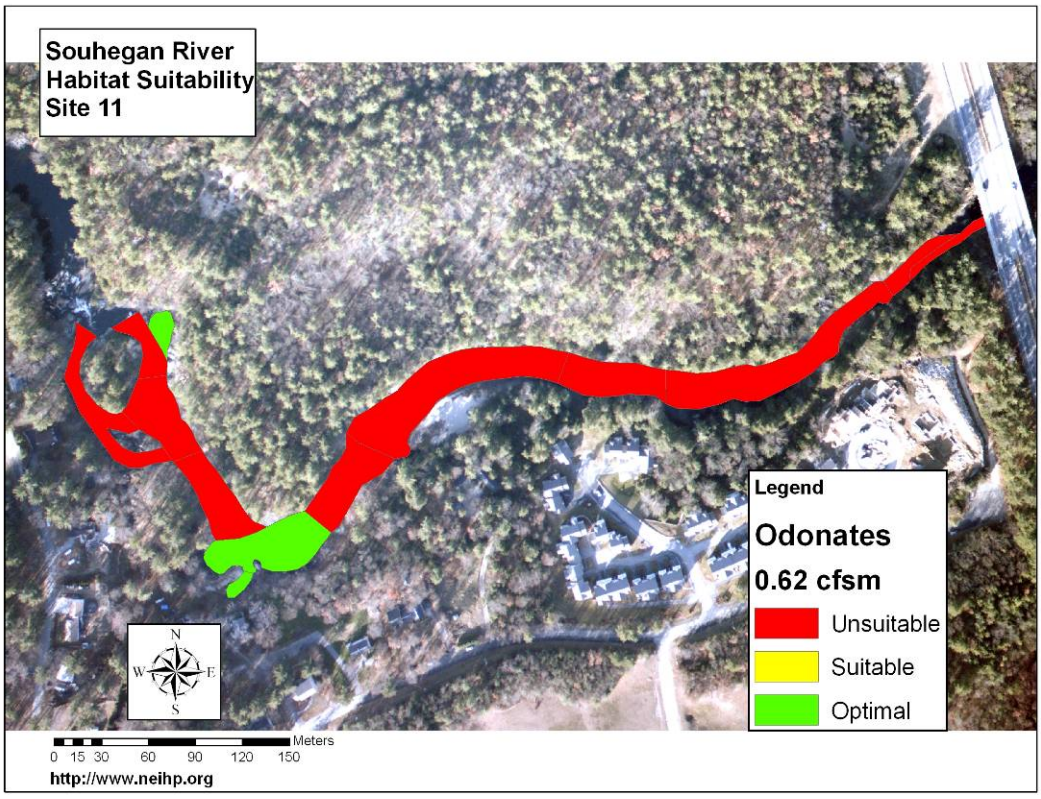
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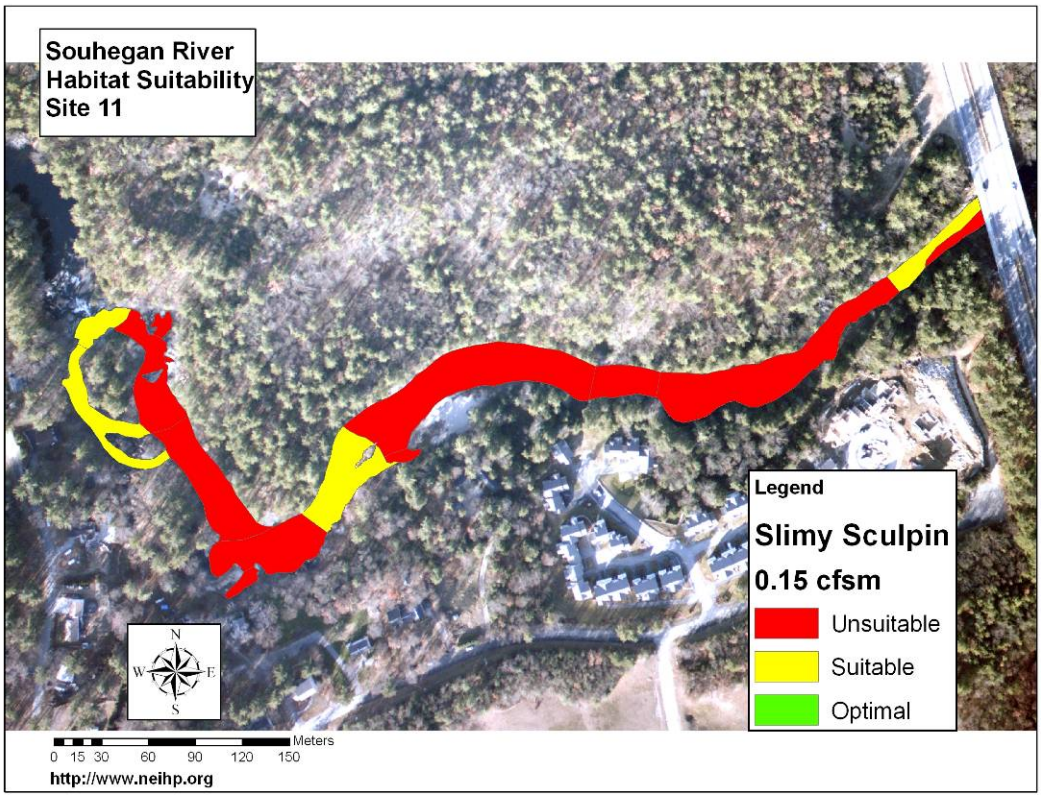
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Habitat Suitability
Site 11
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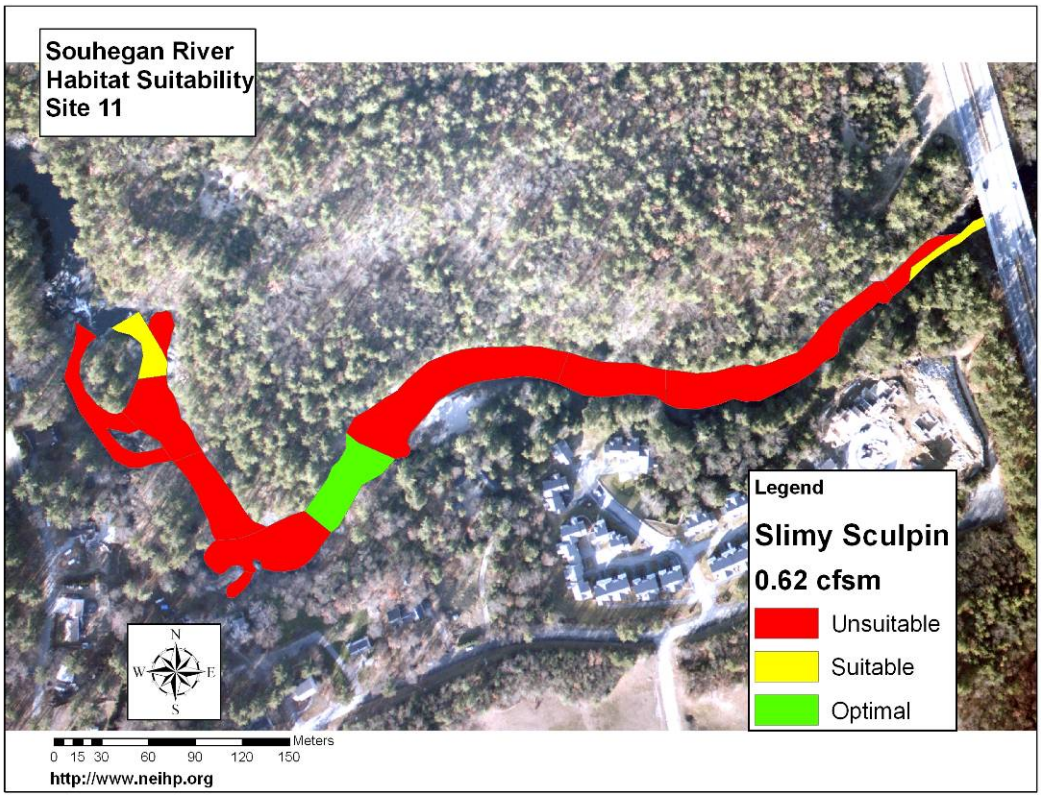
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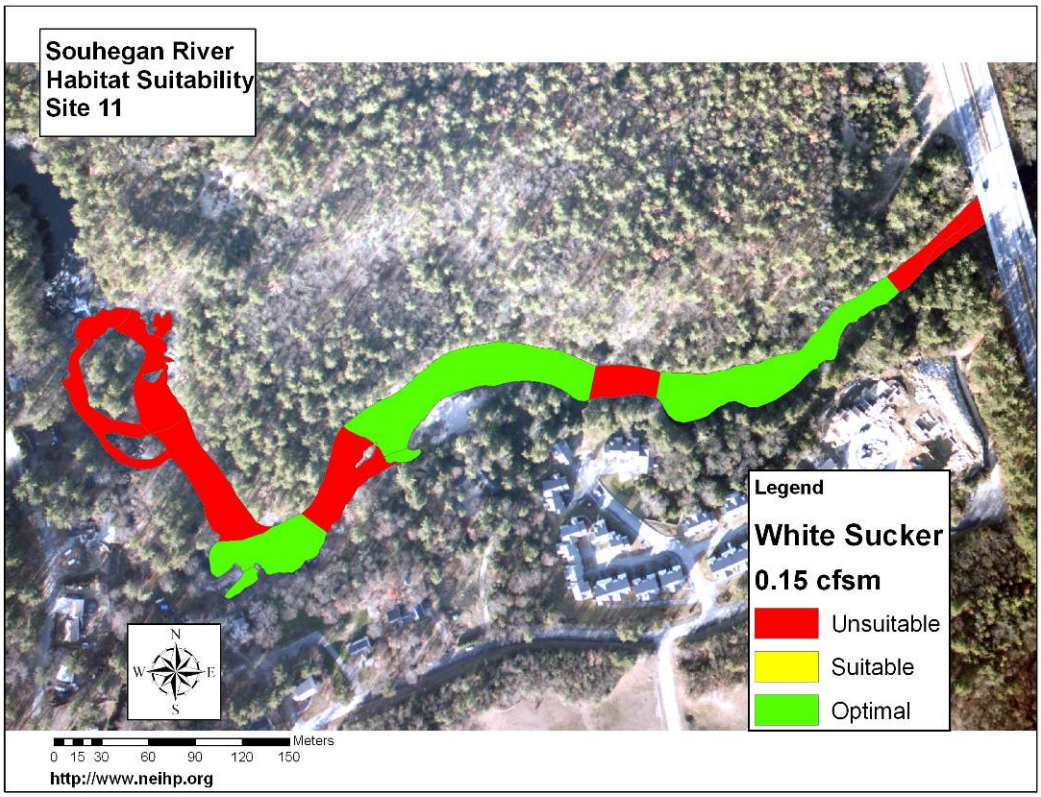
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Habitat Suitability
Site 11
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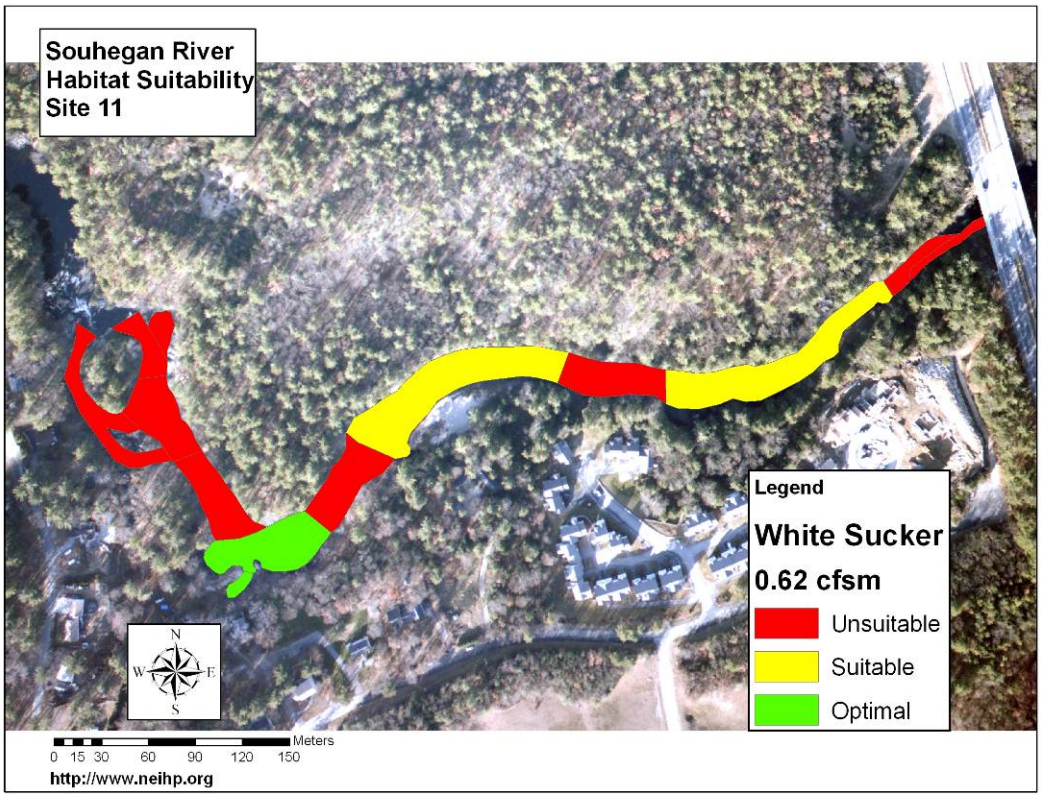
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Habitat Suitability
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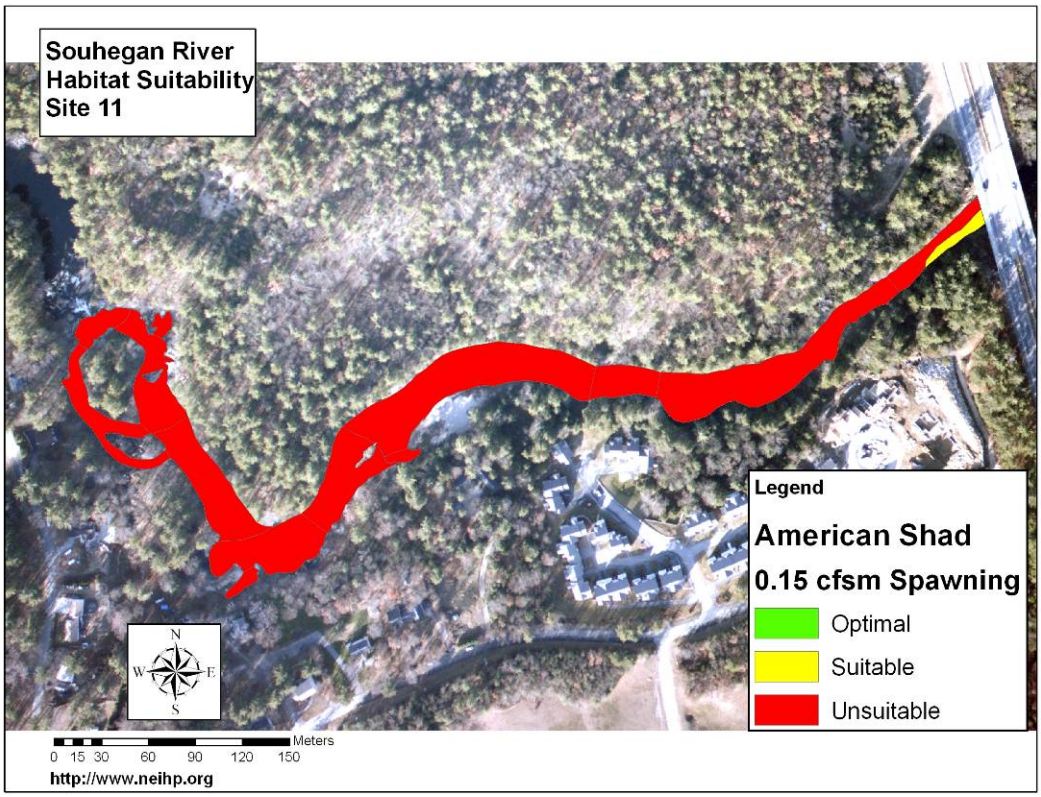
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Habitat Suitability
Site 11
Legend
American Shad
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Optimal
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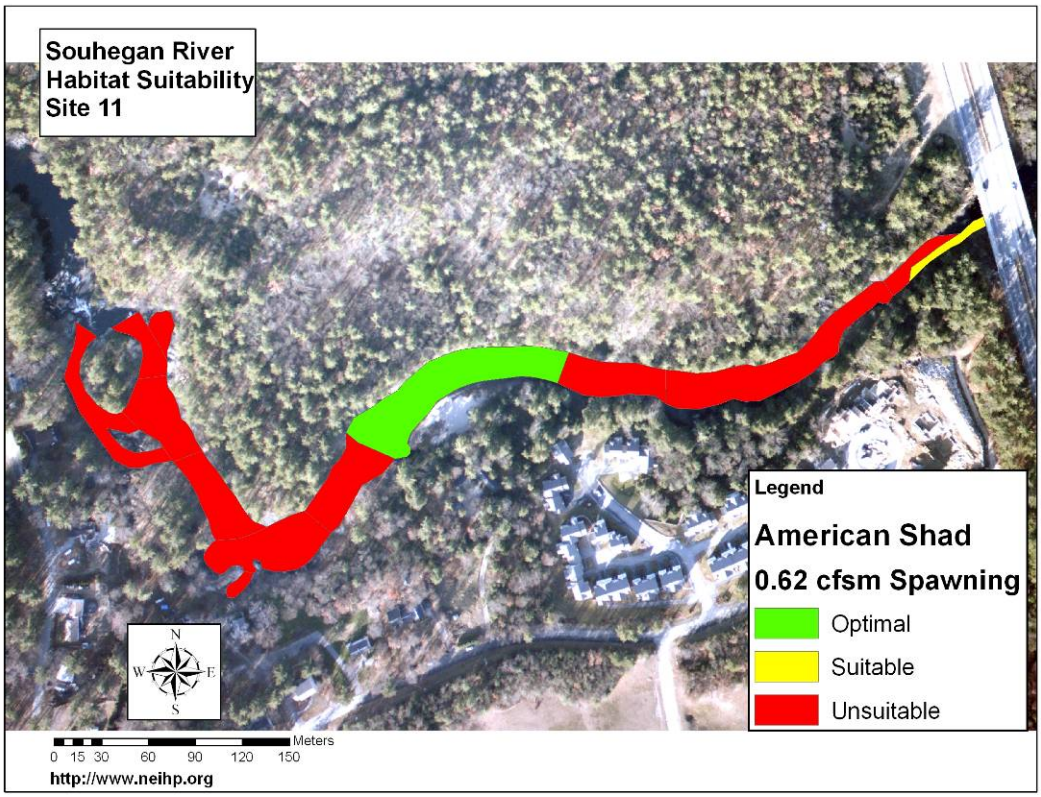
Souhegan River
Habitat Suitability
Site 11
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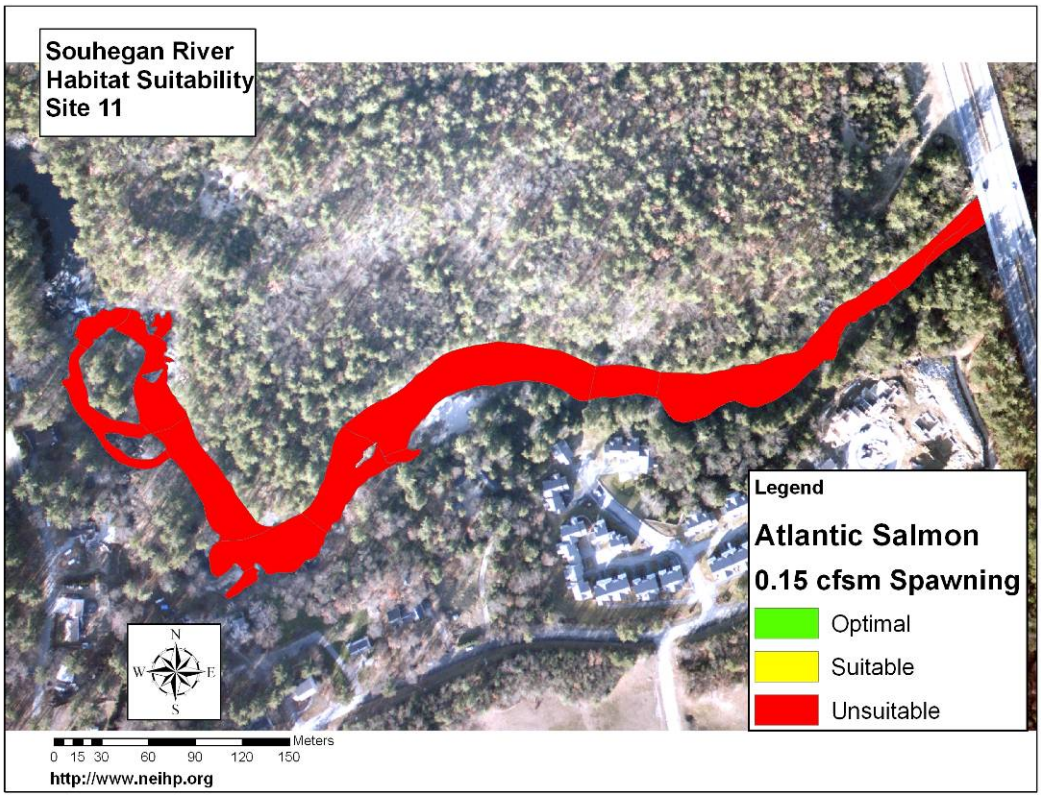
Souhegan River
Habitat Suitability
Site 11
Legend
Atlantic Salmon
0.15 cfsm Spawning
Optimal
Suitable
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Meters
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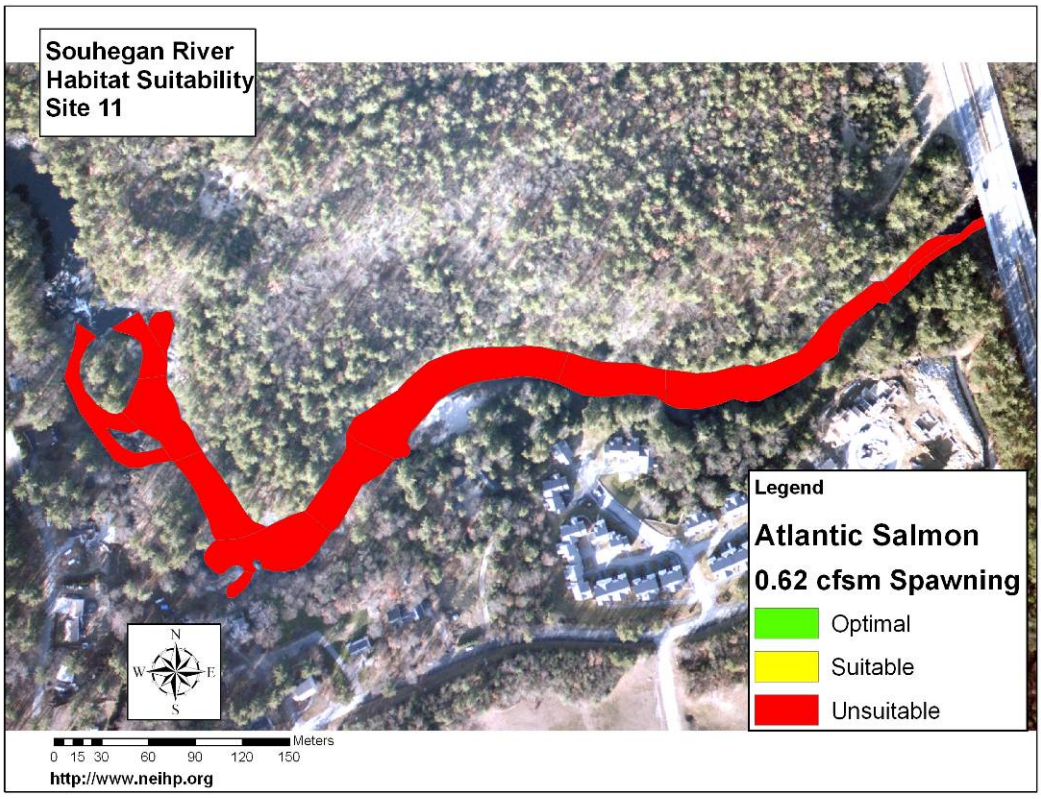
Souhegan River
Habitat Suitability
Site 11
Legend
Atlantic Salmon
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Optimal
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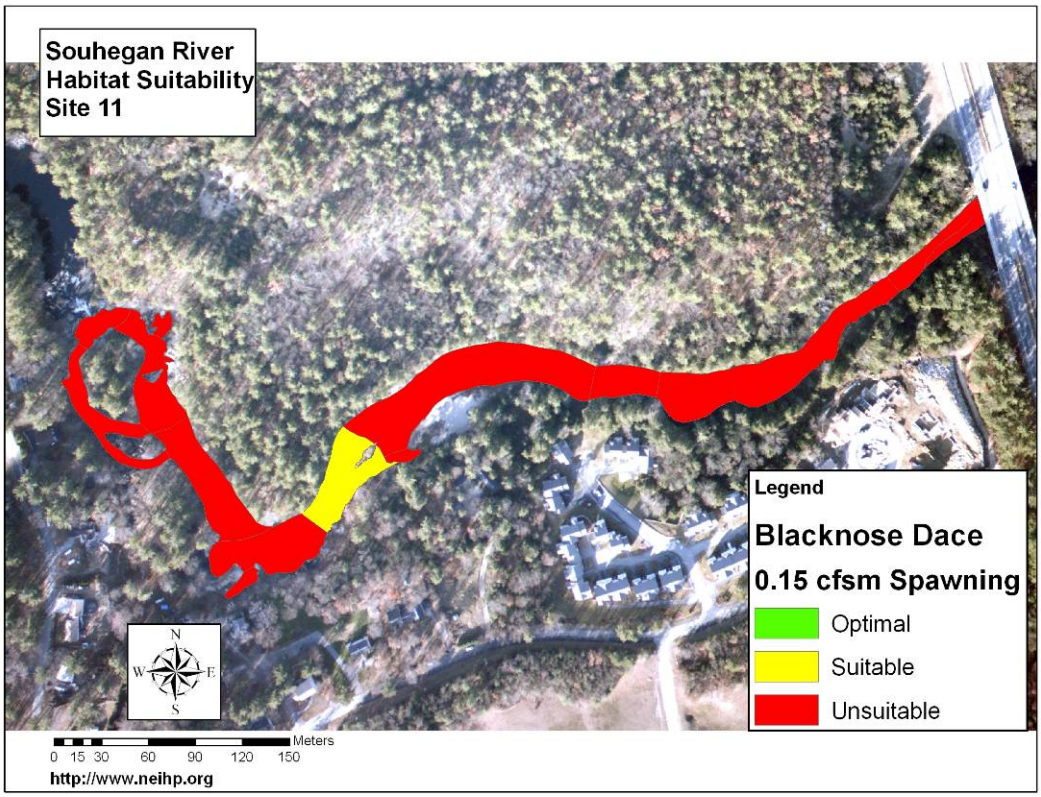
Souhegan River
Habitat Suitability
Site 11
Legend
Blacknose Dace
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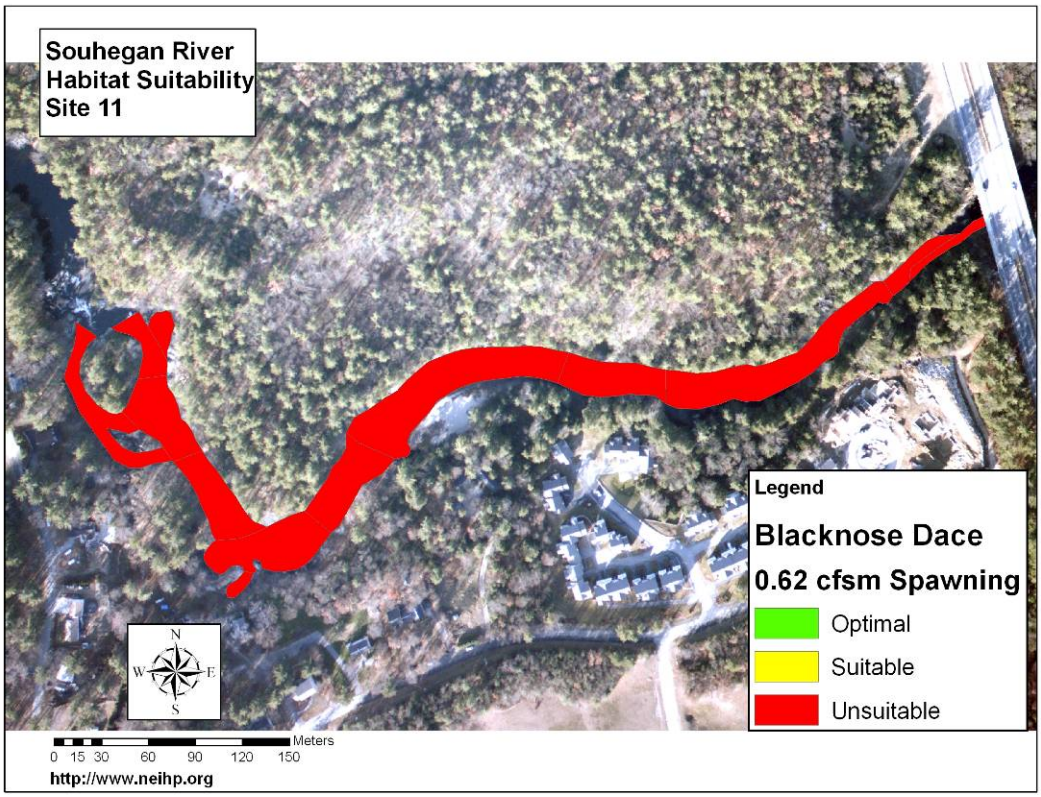
Souhegan River
Habitat Suitability
Site 11
Legend
Blacknose Dace
0.62 cfsm Spawning
Optimal
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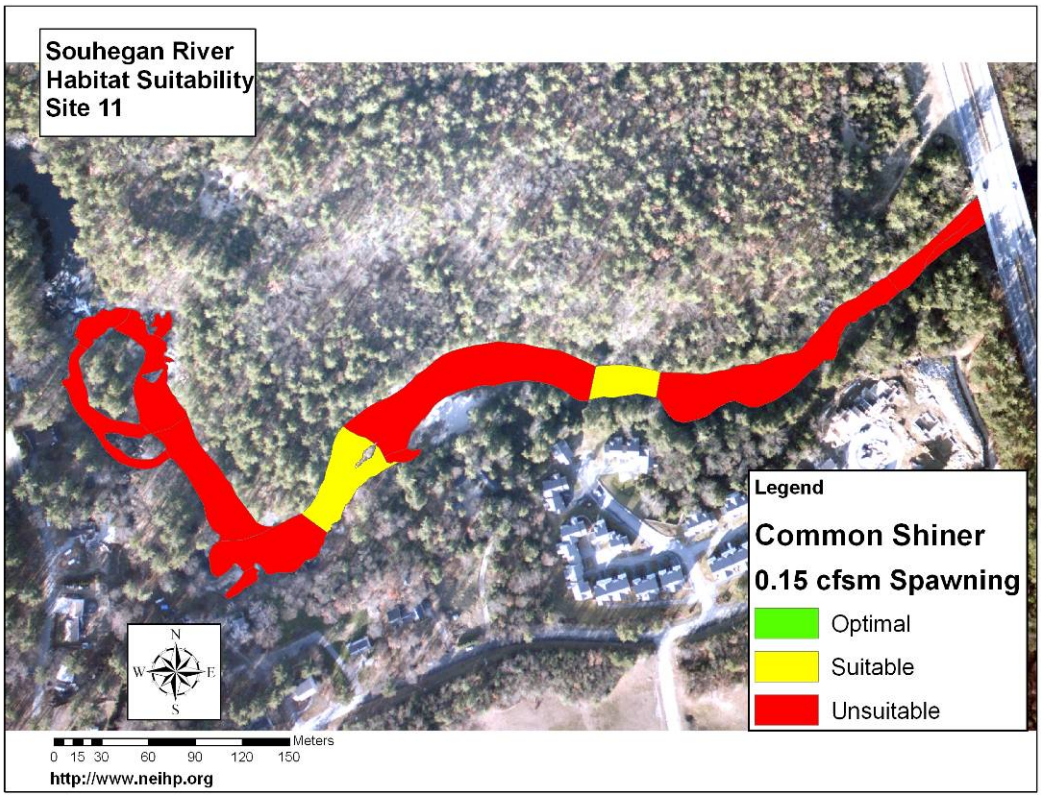
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Common Shiner
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Optimal
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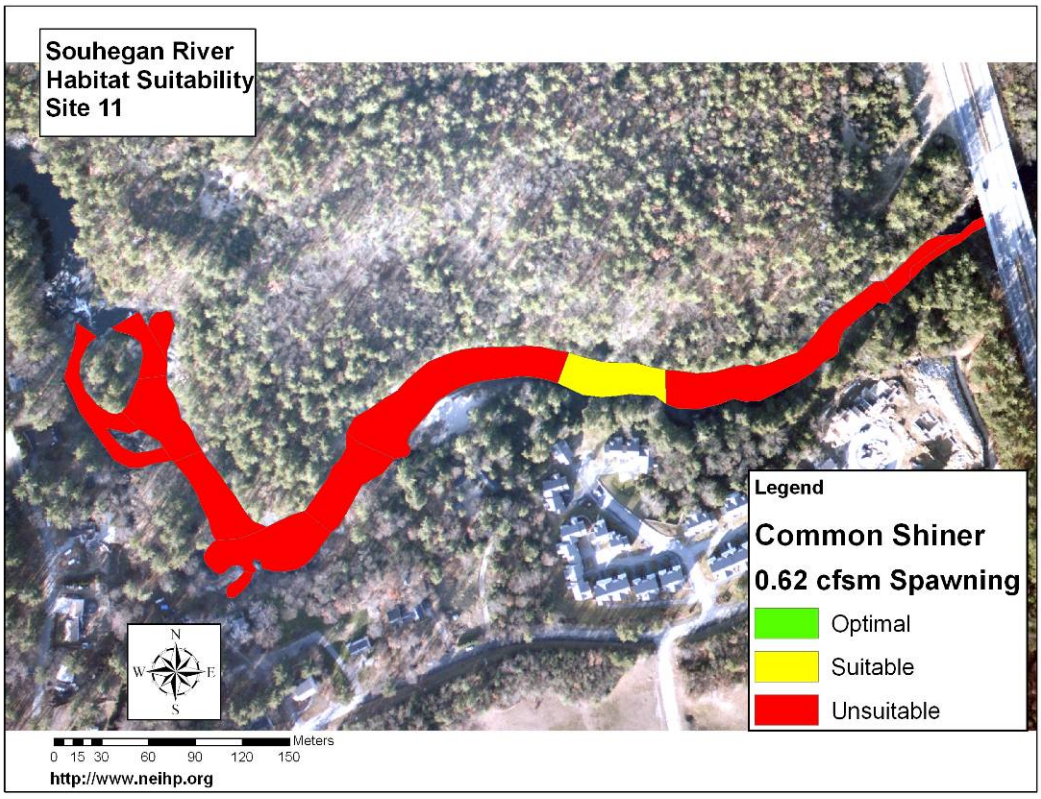
Souhegan River
Habitat Suitability
Site 11
Legend
Common Shiner
0.62 cfsm Spawning
Optimal
Suitable
Unsuitable
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Meters
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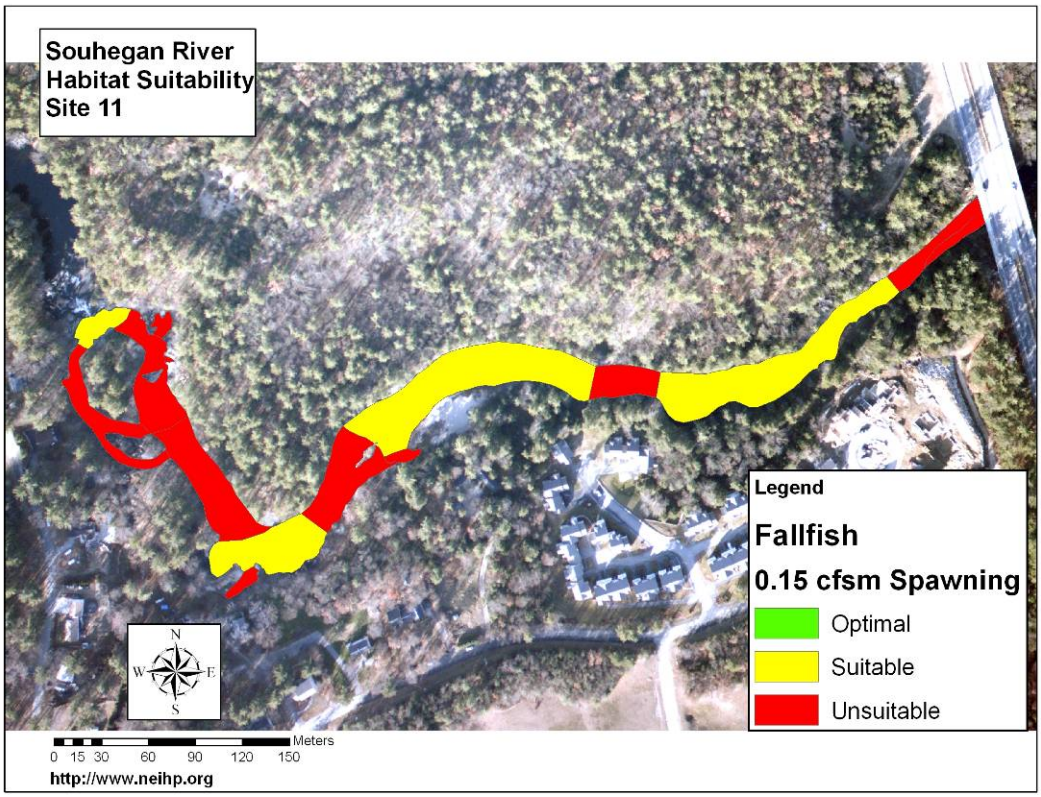
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Fallfish
0.15 cfsm Spawning
Optimal
Suitable
Unsuitable
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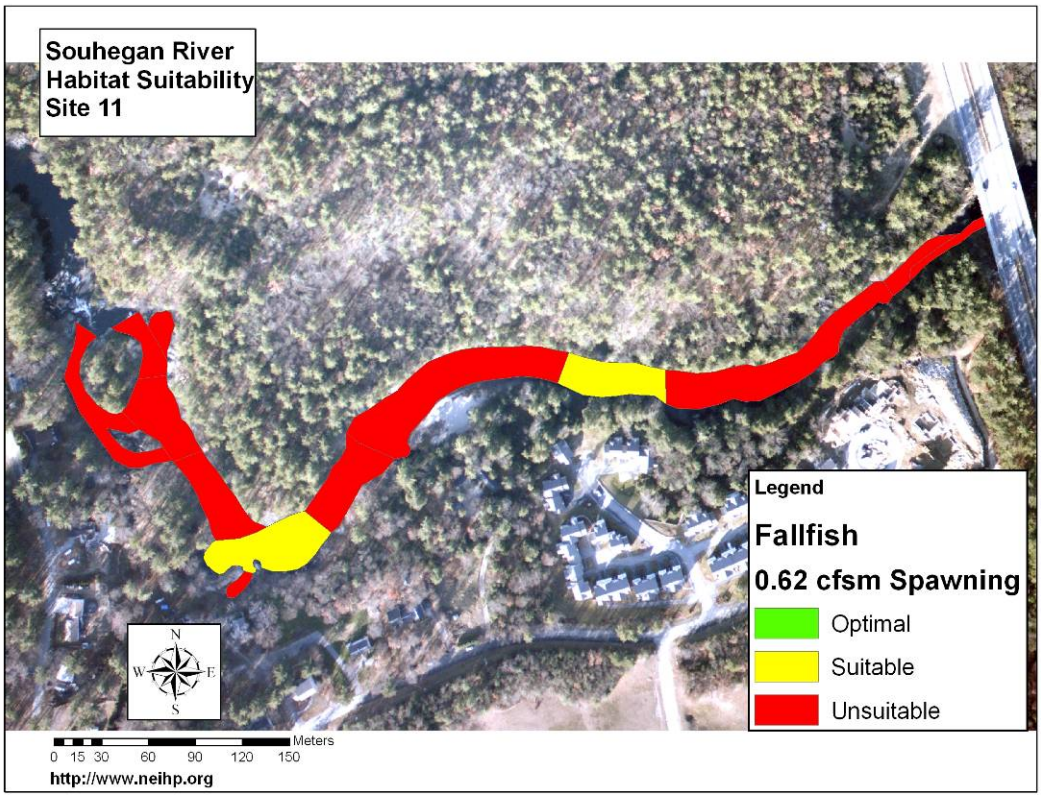
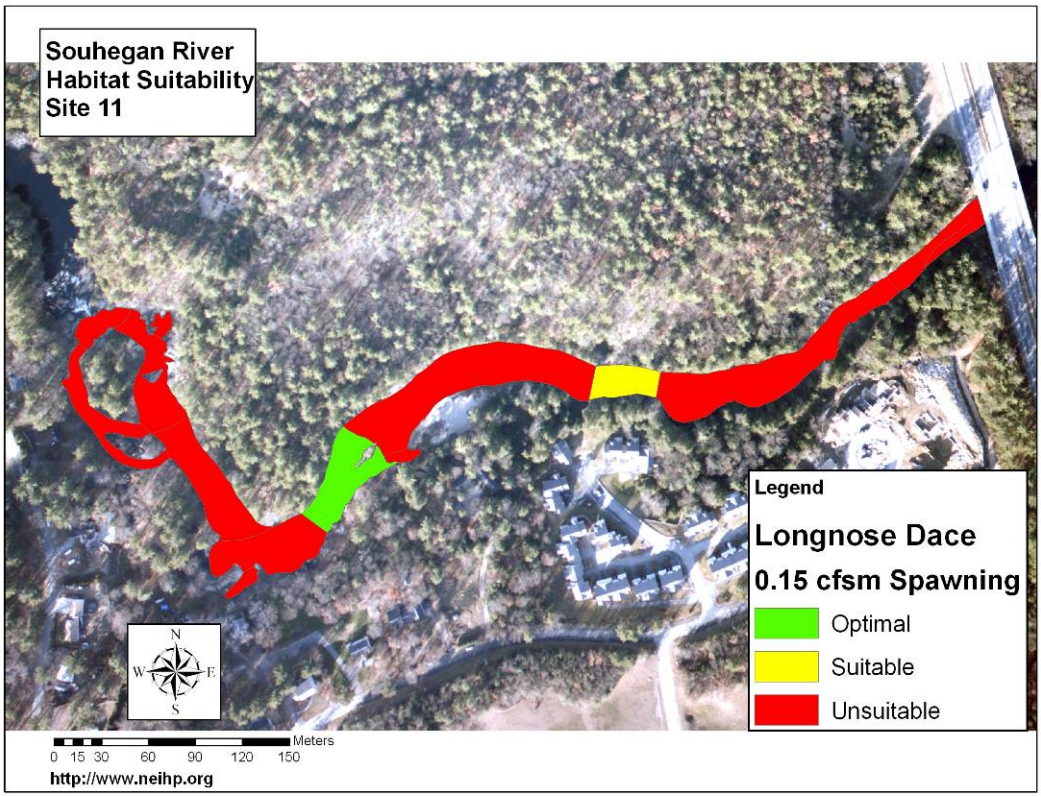
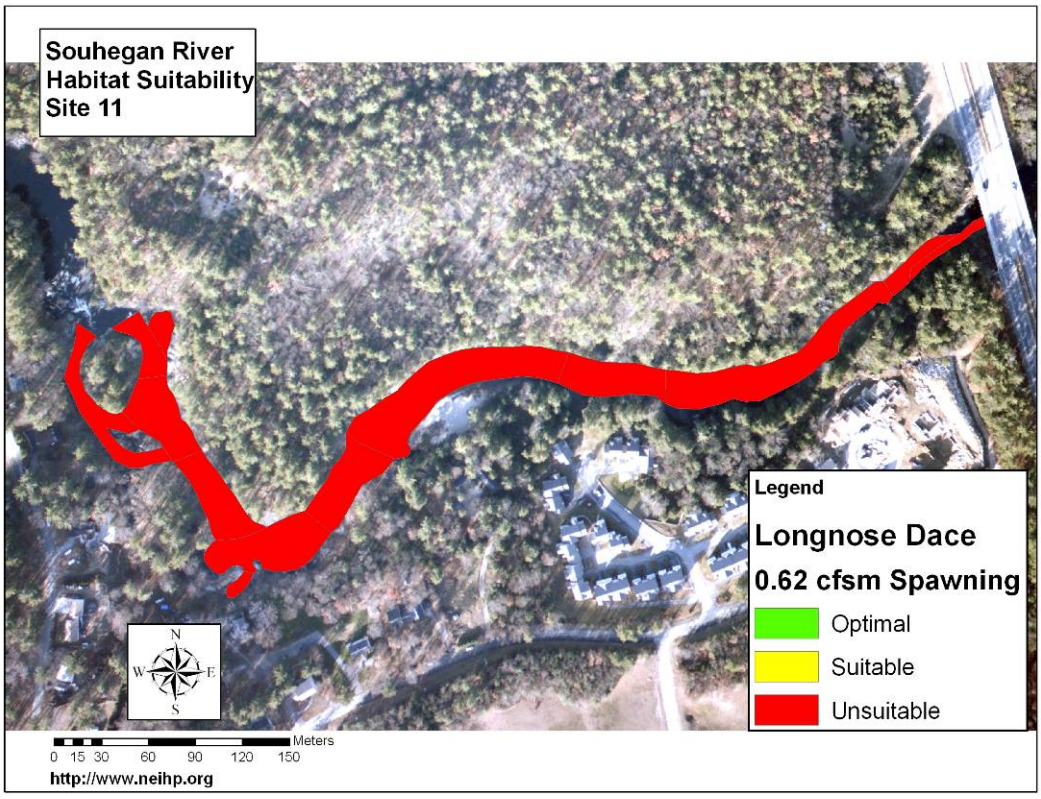
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Fallfish
0.62 cfsm Spawning
Optimal
Suitable
Unsuitable
N
W
E
S
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Longnose Dace
0.15 cfsm Spawning
Optimal
Suitable
Unsuitable
N
W
E
S
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Longnose Dace
0.62 cfsm Spawning
Optimal
Suitable
Unsuitable
N
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Meters
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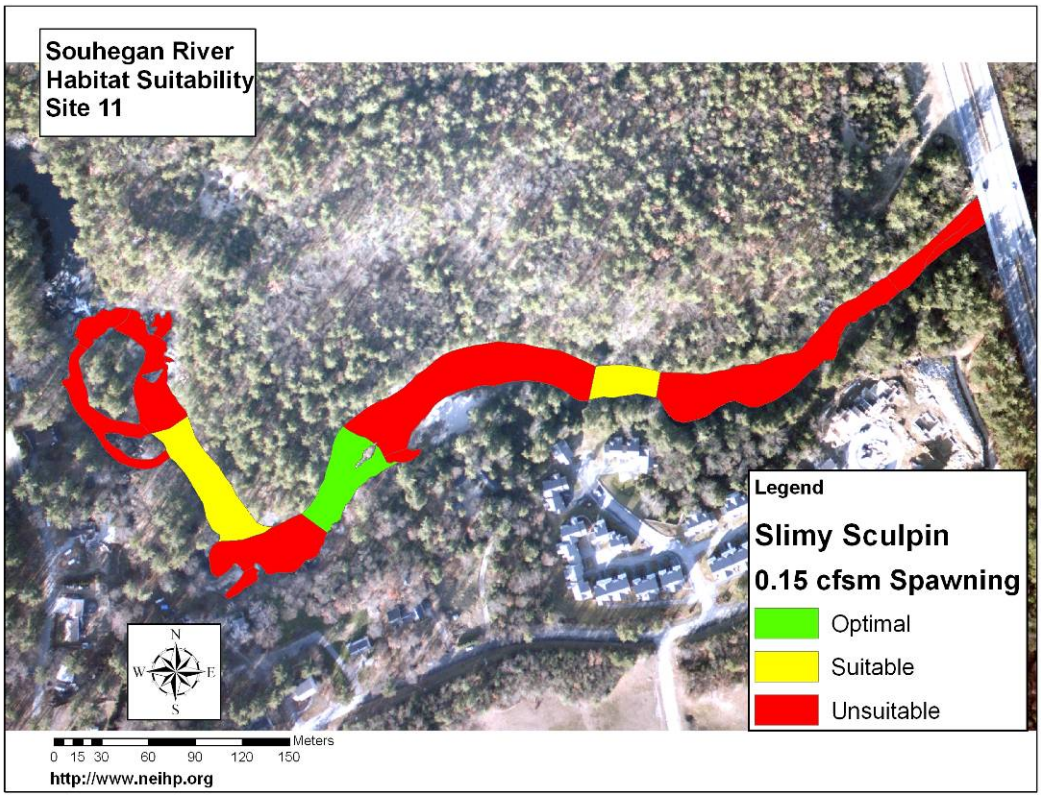
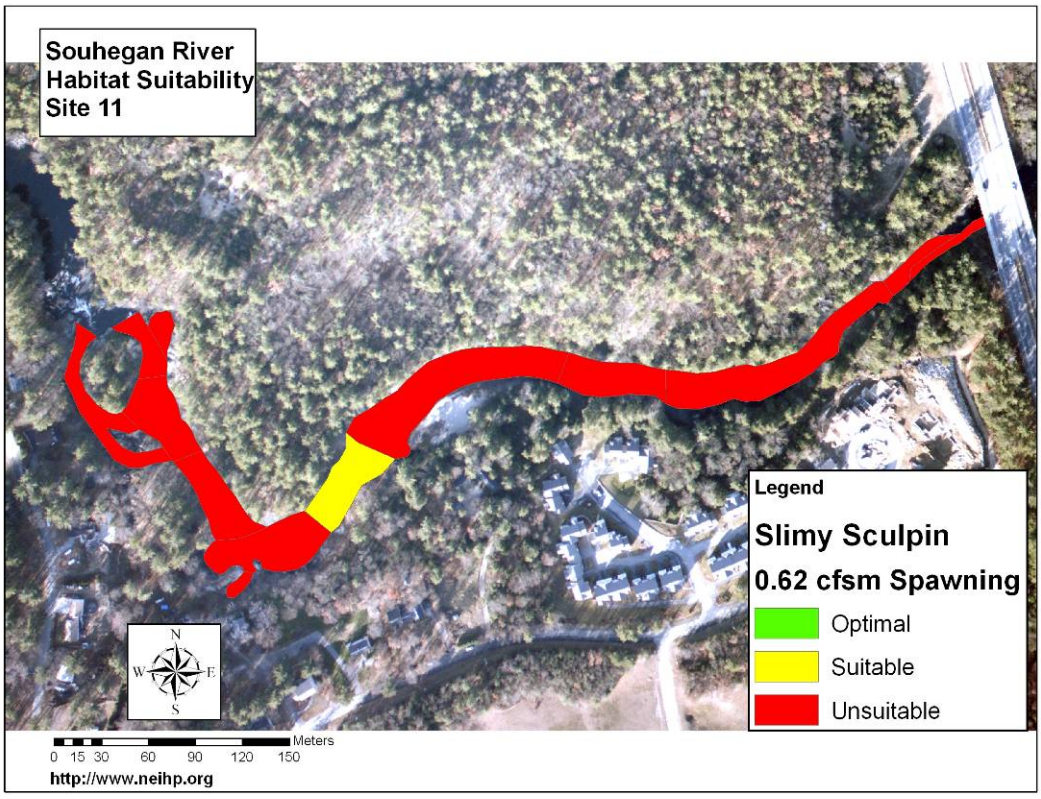
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Slimy Sculpin
0.15 cfsm Spawning
Optimal
Suitable
Unsuitable
N
W
E
S
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
Slimy Sculpin
0.62 cfsm Spawning
Optimal
Suitable
Unsuitable
N
W
E
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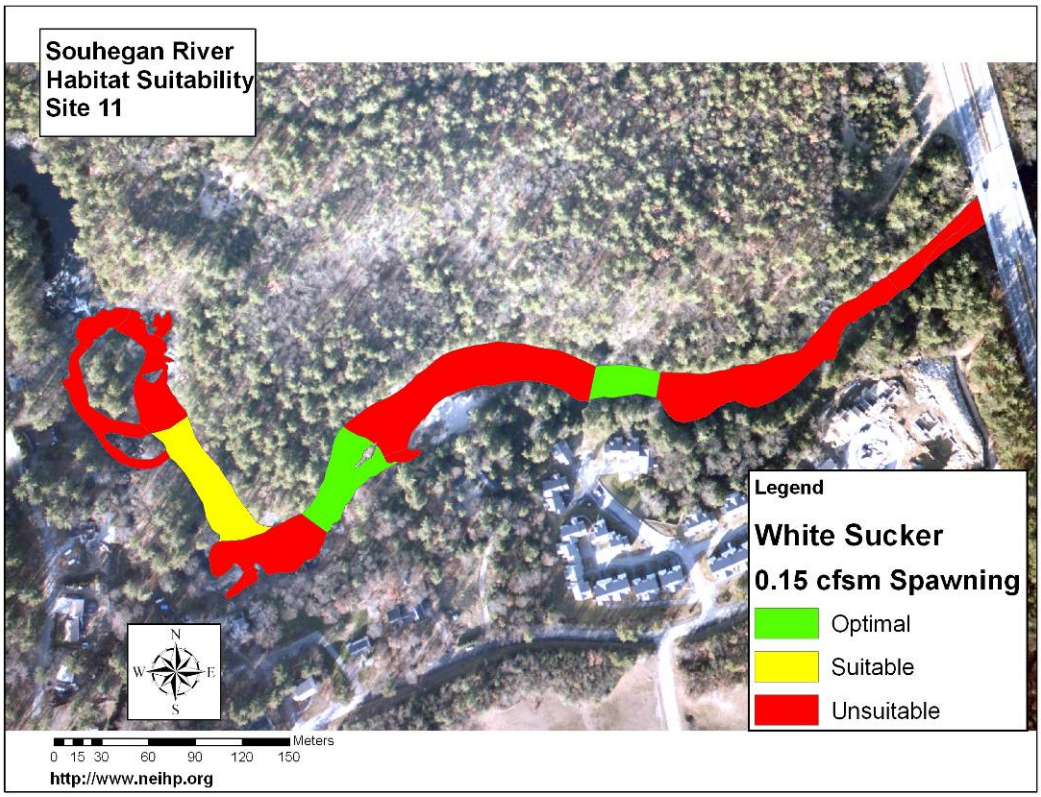
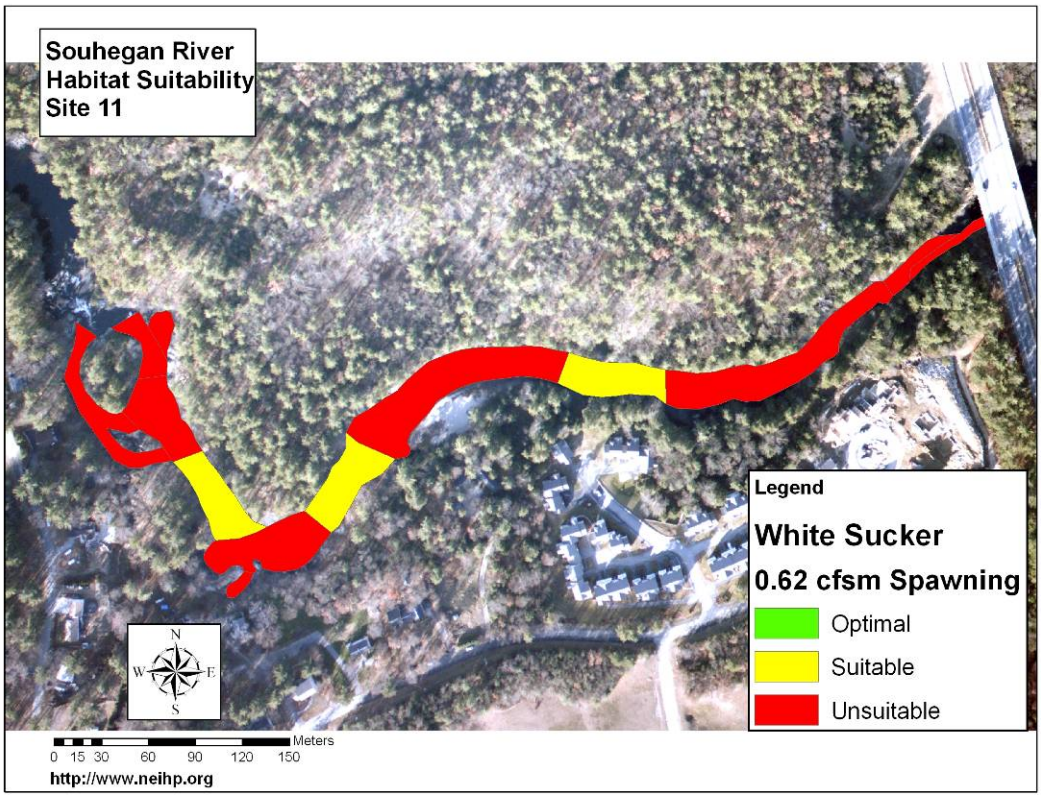
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
White Sucker
0.15 cfsm Spawning
Optimal
Suitable
Unsuitable
N
W
E
S
Meters
0 15 30 60 90 120 150
http://www.neihp.org


Souhegan River
Habitat Suitability
Site 11
Legend
White Sucker
0.62 cfsm Spawning
Optimal
Suitable
Unsuitable
N
W
E
S
Meters
0 15 30 60 90 120 150
http://www.neihp.org