

The purpose of this survey was to assess the popular black bass fishery and update our statewide fisheries database. The ~374 acre Burden Lake consists of three basins: first, second, and third lakes divided by two public causeways but hydraulically connected via a small steel/concrete bridge between 1st/2nd lakes and a large steel culvert between 2nd/3rd lakes. Our fisheries records indicate Burden Lake has only been sampled four times since 1999 with most of the effort coming in 2008 via gill netting the larger/deeper third lake. Very little data exists in our fisheries database for the smaller/shallower first and second lakes. Thanks to some very helpful lake association members, we were able to utilize gravel ramps in all but first lake to launch/retrieve our large SR-16H electro-fishing vessel (eboat).

The bulk of this survey effort consisted of night shocking the lake shorelines during the hot dry spell in July 19-21, 2016. We completed four shocking runs over two nights in third lake (7/19-20), and two shocking runs on the third night in second lake (7/21). First lake was boated on 7/20-21 but not shocked in the survey due to limited eboat access. Total eboat on-time was 2.64 hours, with almost three-quarters of the effort focused on third lake. Additionally, we snorkeled two sites in third lake on July 20-21 for about one hour of total observation time. Both first and second lakes were too turbid to snorkel.

Overall

A total of 17 fish species comprising 1251 individual fish were recorded in the survey, which currently excludes first lake. About one half of these fishes were captured and processed (measured/weighed) in the survey with the other half bulked as ‘observed’ fish. Bulk fish are not handled but recorded to species, counted, and often categorized by relative age: YY—young of year, IM—immature, or AD—adult. The only species that was a challenge to ID was YY pickerel, which look very much like YY northern pike. Nearly all fishes captured were returned alive back into the lake after processing minus a few voucher specimens kept for identification such as IM/YY pickerel.

Fishes found in the survey included: American eel, northern pike, chain pickerel, golden shiner, brown bullhead, banded killifish, white perch, rock bass, redbreast sunfish, pumpkinseed, bluegill, smallmouth and largemouth bass, black crappie, tessellated darter, yellow perch, and one common carp. Only four of these species were observed and not collected for processing on the eboat: carp, killifish, crappie, and darter. Some species like white perch and black crappie plus larger northern pike and smallmouth bass prefer deeper water in the summer months and thus, as expected, were largely absent from the survey in third lake, but some were found in second lake.

Third Lake

We completed a water chemistry profile of third lake around 6:00pm on July 20, 2016. Over a depth of 33 feet in the deep basin of the lake, water temperatures ranged from 79.5 down to 55.6 °F, while dissolved oxygen was high and ranged between 7.2 - 8.1 mg/l until around 25 feet of water. That day the thermocline was somewhere in the 20-25 feet of water range. Water conductivity at the lake’s surface was 270 µmho/cm³, which is adequate for effective boat shocking. Water clarity was very good in third lake. The secchi depth recorded impressive water clarity down to 18 feet on July 19.

A total of 16 species comprising 967 individual fish were recorded (412 captured) in third lake on July 19-21, 2016. Bluegill, largemouth bass, and brown bullhead dominated the survey accounting for approximately (~) 23, 18, and 16 % of the catch, respectively. Chain pickerel (>12%), Pumpkinseed (~11%), and yellow perch (10%) were the next most abundant species captured in third lake. All other species collected were found in low numbers (<4% abundance).

About 50% of the bluegill and almost 75% of the pumpkinseed collected were considered desirable size ($\geq 165\text{mm}$ or 6.5" TL or total length), while most all the rock bass and very few redbreast sunfish (both uncommon) were of the same desirable size. Almost 40% of all the largemouth bass and brown bullhead collected were of legal ($\geq 305\text{mm}$ or 12" TL) and desirable ($\geq 254\text{mm}$ or 10" TL) sizes, compared to only 12% of the chain pickerel and 17% of the yellow perch of legal ($\geq 380\text{mm}$ or 15" TL) and desirable ($\geq 200\text{mm}$ or 8" TL) sizes, respectively. Additionally, only one of two feral northern pike collected were of legal size ($\geq 460\text{mm}$ or 18" TL) in third lake.

CPUE—catch per unit effort is another metric that reflects fish abundance over sampling time. Catch rates showed only half of the 12 species (all sizes) were captured at a rate of >10 fish per hour (/ h). Bluegill topped the list with almost (90 / h), followed by largemouth bass (~68 / h), brown bullhead (59 / h), chain pickerel (46 / h), pumpkinseed (~41 / h), and yellow perch (38 / h) in third lake, respectively. CPUE was much lower for all other species captured.

Second Lake

We completed a water chemistry profile of second lake around 6:30pm on July 21, 2016. Over a depth of 8 feet in the old streambed of the lake, water temperatures ranged from 83.3 down to 76.9 °F, with high dissolved oxygen (7.4-9.0 mg/l) until around 6 feet of water, decreasing thereafter from 6.0 to 3.9 mg/l in 7 and 8 feet of water, respectively. Water conductivity at the lake's surface was 280 $\mu\text{mho}/\text{cm}^3$ and a secchi disk reading of 4.5 feet revealed second lake to be much more turbid and mixed versus third lake.

A total of 14 fishes comprising 284 individual fish were recorded (236 captured) in second lake on July 21, 2016. Largemouth bass and bluegill dominated the survey accounting for approximately 28 and 18 % of all individuals captured, respectively. Yellow perch (>14%) and Pumpkinseed (>10%) were the next most abundant species captured in second lake. All other species were found in low numbers (<9% abundance).

Just over 50% of the largemouth bass captured in second lake were of legal size ($\geq 305\text{mm}$ or 12" TL), compared to only 35% of the less common smallmouth bass. About 60% of the bluegill and some 67% of the pumpkinseed collected were considered desirable size ($\geq 165\text{mm}$ or 6.5" TL). Likewise, almost 73% of the yellow perch and nearly 82% of the less common white perch caught in second lake were of desirable size ($\geq 200\text{mm}$ or 8" TL). Surprisingly, we observed very few esocids (pickerel/pike) in second lake during our survey. One large Northern pike was observed but not captured.

Results for second lake show 8 of 12 species (all sizes) were captured at a rate of >10 fish per hour with largemouth bass topping the list at ~73 / h. Bluegill was well-behind at ~47 / h, followed by yellow perch (36 / h), pumpkinseed (26 / h), and smallmouth bass (~22 / h), respectively. CPUE was < 20 fish / h for all other species captured.

Snorkeling

During the bright warm days on July 20-21, we snorkeled two sites in third lake totaling about 1.1 hours of underwater (u/w) observation time. We observed typical nearshore/lakebed habitat, and identified/counted fishes as they swam about. Electro-fishing often selects for larger fishes and thus we would have missed the additional species (crappie, darter, killifish) without our snorkeling effort. We also found and removed a number of solid waste items from the lakebed including cans, bottles, plastics, fishing line, etc. There is much trash u/w in front of the old hotel ruins on the east shore and around Blueberry Island. Snorkeling is a great way to explore the u/w world with minimal gear and disturbance to aquatic systems. We saw a few crayfish at Blueberry Island and some freshwater mussel shells and live snails off the old hotel location.

Comments

American eel were found in both second and third lakes as suspected, but presence of the species was not documented in previous surveys of the lake. Most eel we observed were of the larger silver phase, suggesting an older population common to headwater lakes. It was a nice surprise to see a lack of common carp in the survey. Carp can be very disruptive to native fishes and their habitat. Northern pike is another non-native fish found in Burden Lake, likely established via illegal introductions by rouge anglers. Although pike are a common sportfish to the north, they are considered invasive species in many lakes where they can negatively compete for food and space native chain pickerel (and other predators). It is both illegal and unwise to transport and release live fishes between waters in NYS without a permit from DEC.

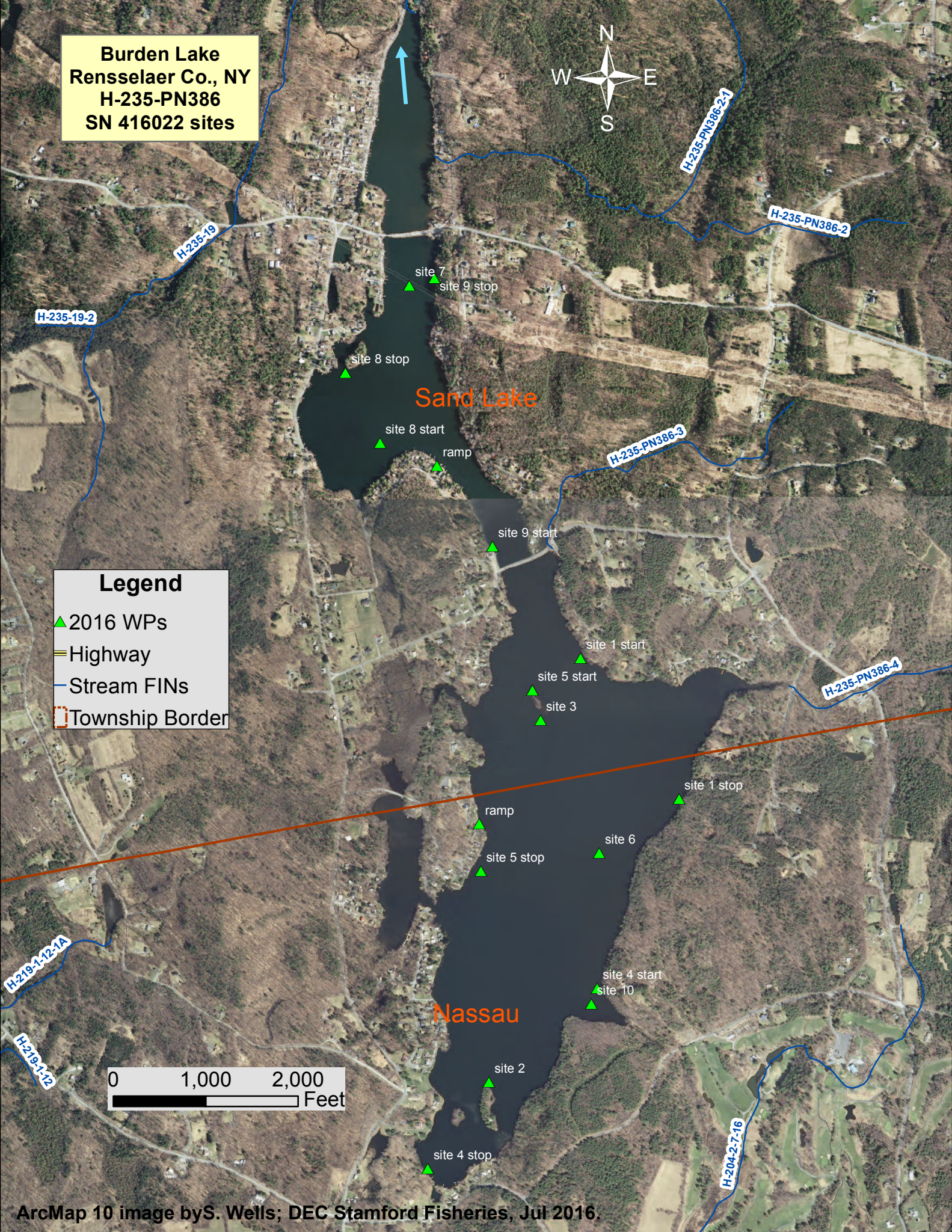
Black bass are a primary sportfish for anglers in Burden Lake. As expected, we caught many nice adults in various habitats along with numerous juveniles. Ten largemouth bass were >400mm TL (~ 16") in the survey; five each in both second and third lakes. Second lake produced one nice largemouth at 461mm/1644g (18.1"/3.6 lbs.) and one nice smallmouth at 450mm/1084 g (17.7"/2.4 lbs.). In third lake, one site produced two largemouth >500 mm (~19.7"), including the largest bass of the survey: a monster 540mm/2953g (21.3"/6.5 lbs.) largemouth. Most of these larger black bass are likely female that have spawned many times.

Lastly, it appears both lakes harbor a variety of freshwater invertebrates like native mussels, snails, crayfish, and bryozoans (see images). Numerous turtles (mostly common musk, some painted) were observed in the survey, especially in third lake. Very few open lesions (secondary infections) were found on fish captured in the survey. These findings indicate good water quality exists in both second and third lakes. Most all fish captured appeared to be healthy, showing no external evidence of negative impacts from long-term exposure to herbicide/algaecide treatments.

Burden Lake - summer 2016 fish survey (July 19-22) images

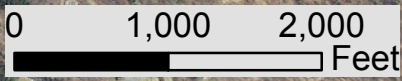
<https://goo.gl/photos/6RMUR8Bi55MiYvjE7>

Burden Lake
Rensselaer Co., NY
H-235-PN386
SN 416022 sites



Legend

- ▲ 2016 WPs
- == Highway
- Stream FINs
- ▭ Township Border

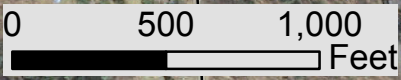
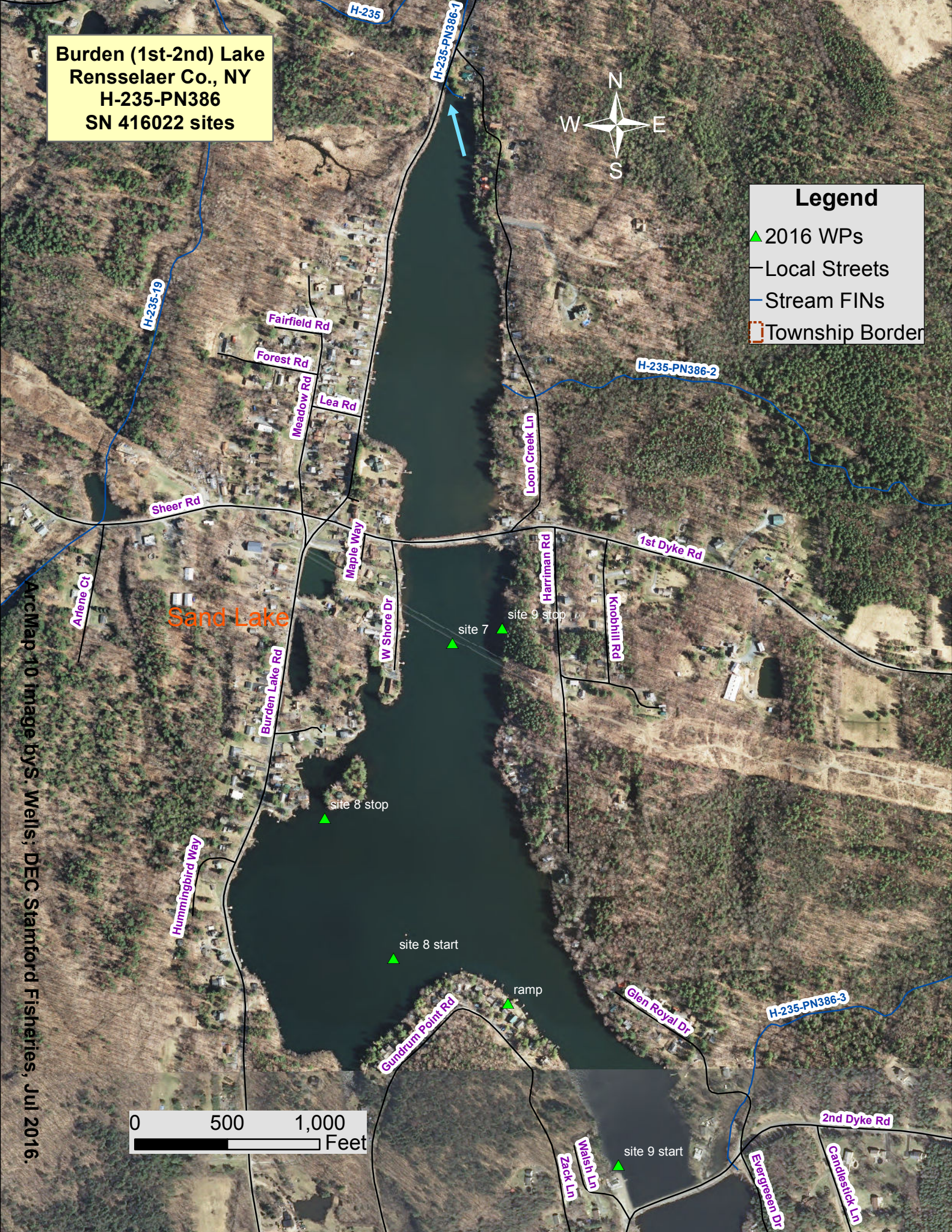


Burden (1st-2nd) Lake
Rensselaer Co., NY
H-235-PN386
SN 416022 sites



Legend

- ▲ 2016 WPs
- Local Streets
- Stream FINs
- ▭ Township Border



ArcMap 10 Image by S. Wells; DEC Stamford Fisheries, Jul 2016.

Burden (3rd) Lake
Rensselaer Co., NY
H-235-PN386
SN 416022 sites



Sand Lake

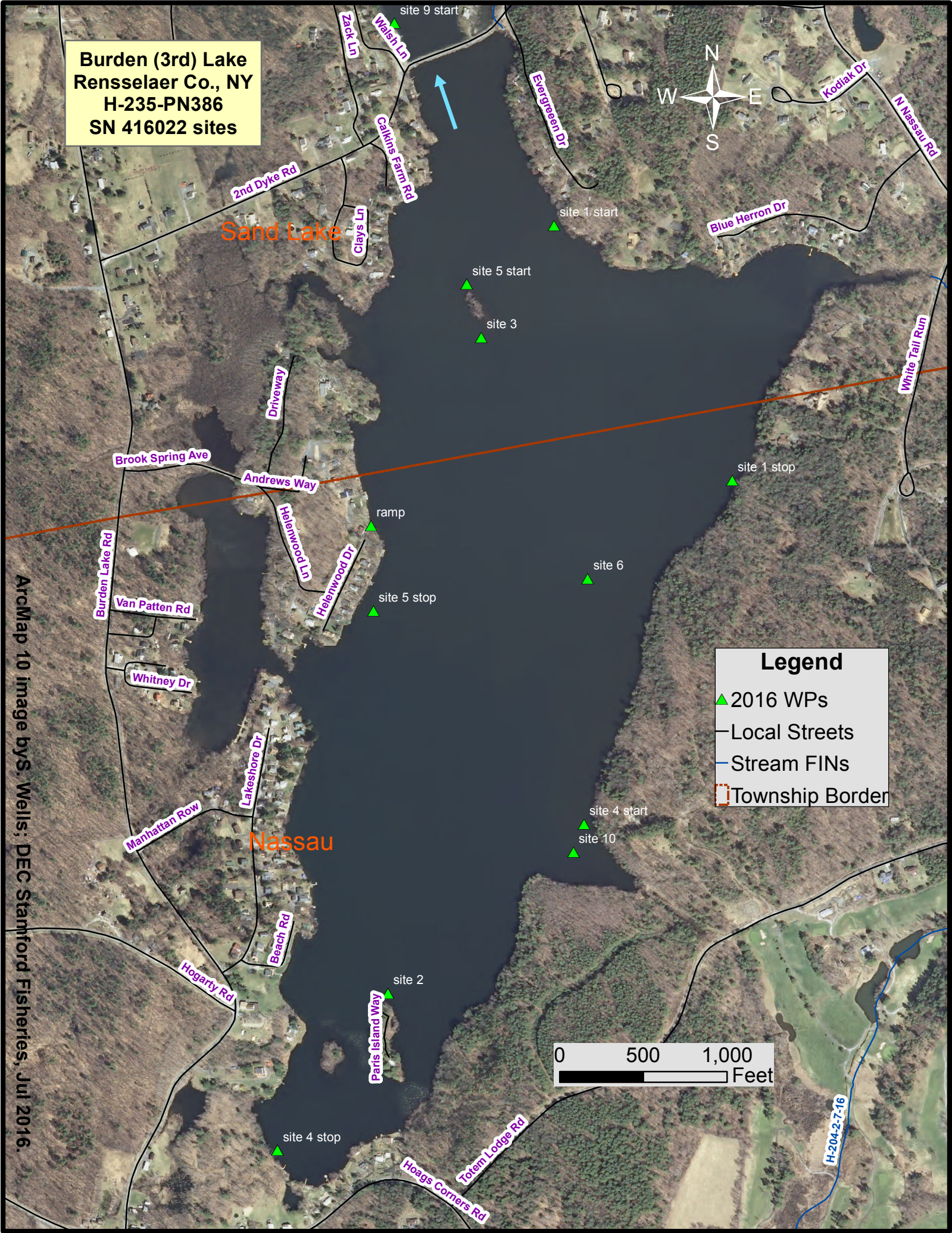
Nassau

Legend

- ▲ 2016 WPs
- Local Streets
- Stream FINs
- ▭ Township Border



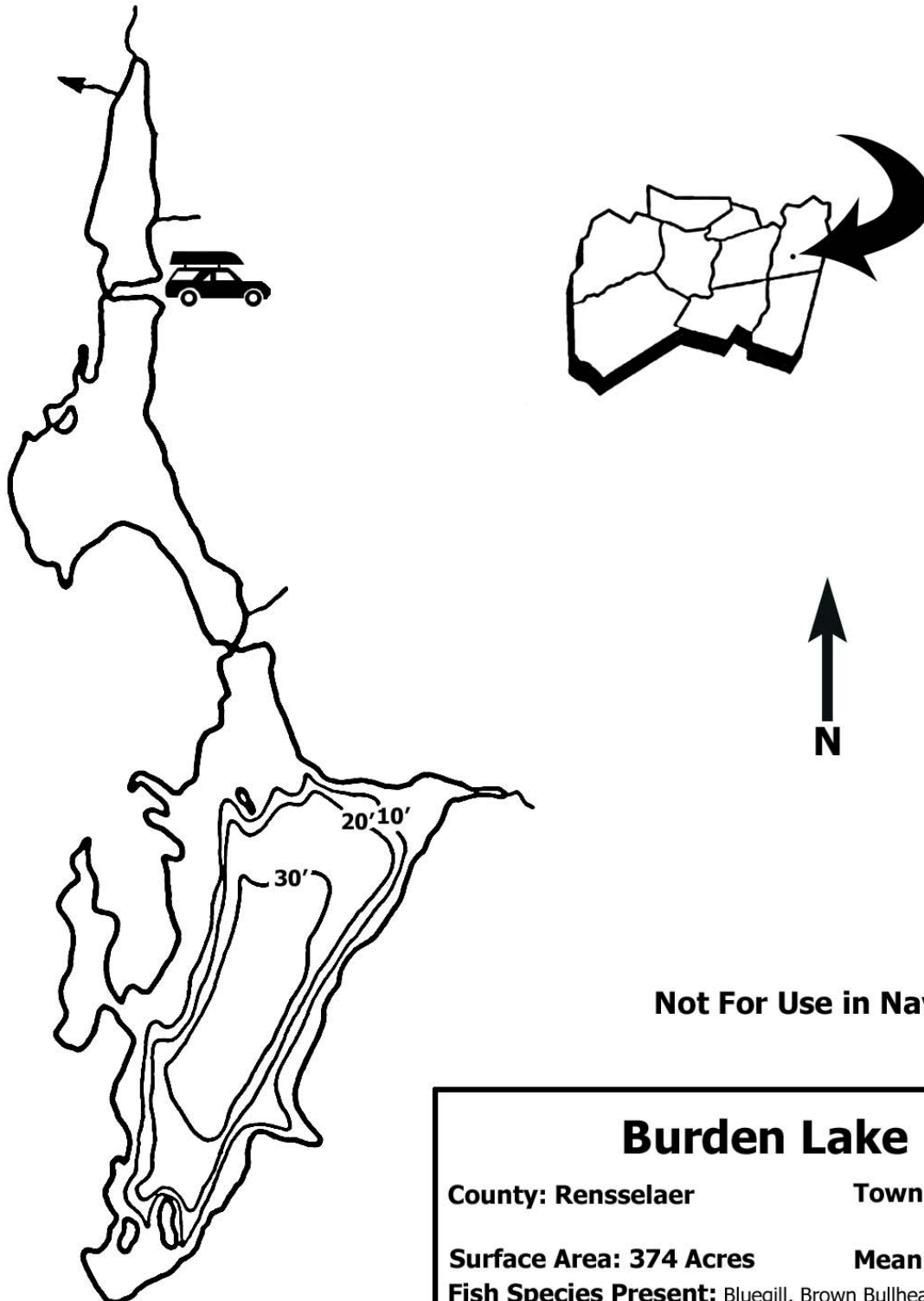
ArcMap 10 image bys. Wells; DEC Stamford Fisheries, Jul 2016.





Region 4

Burden Lake



Not For Use in Navigation

Burden Lake

County: Rensselaer

Town: Sand Lake,
Nassau

Surface Area: 374 Acres

Mean Depth: 10ft

Fish Species Present: Bluegill, Brown Bullhead, Black Crappie,
Largemouth Bass, Chain Pickerel, Pumpkinseed, Rock Bass, White Perch,
Yellow Perch, Walleye

Scale: 0  1500 ft

