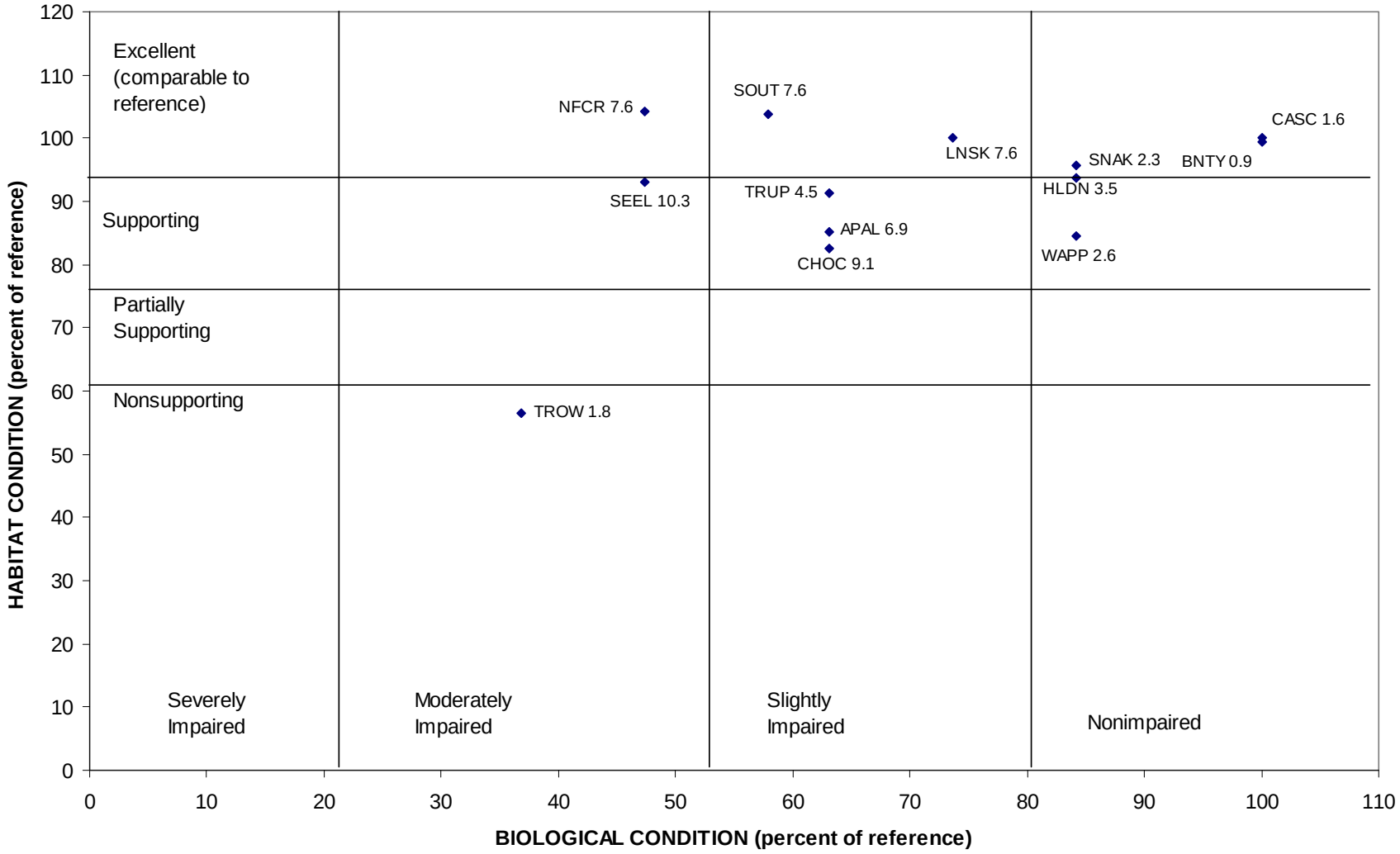
Results for 2007 New York–Pennsylvania Stream Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. In 2007, Cascade Creek (CASC 1.6) was the reference site to which all other Group 1 and 2 New York–Pennsylvania interstate streams were compared. Located near Cascade Valley, N.Y., CASC 1.6 represented the best combination of biological, water quality, and habitat conditions in the Northern Appalachian Plateau and Uplands Ecoregion. New York–Pennsylvania sampling stations consisted of 14 sites located near or on the border of these states. Of these 14 sites, the biological communities of five sites (36 percent) were nonimpaired. Six stream sites (43 percent) were slightly impaired, and three sites (21 percent) were designated as moderately impaired. During the summer sampling quarter of 2007, habitat was not evaluated at Cayuta Creek (CAYT 1.7) due to high flows. Out of the 13 remaining habitat classifications, seven sites (54 percent) were rated excellent, and five sites (38 percent) were rated supporting. One site received a nonsupporting habitat classification in 2007.

The only site to receive a nonsupporting habitat classification was Trowbridge Creek (TROW 1.8), which appears to have a history of dredging. Possibly due to this disruption of habitat, TROW 1.8 received the lowest bioassessment score of its group and was classified as moderately impaired. However, it is interesting to note that TROW 1.8 had the lowest water quality index (WQI) value of all New York Group 1 and 2 streams in the summer of 2007, meaning that excellent water quality is found within this stream. CASC 1.6 served as the reference stream in 2007 with top ratings for biological condition and physical habitat. Water quality is a concern at CASC 1.6, where metals such as aluminum and iron often exceed water quality standards. However, throughout 20 years of interstate stream sampling, metals often have exceeded water quality standards, possibly due to local geology.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.

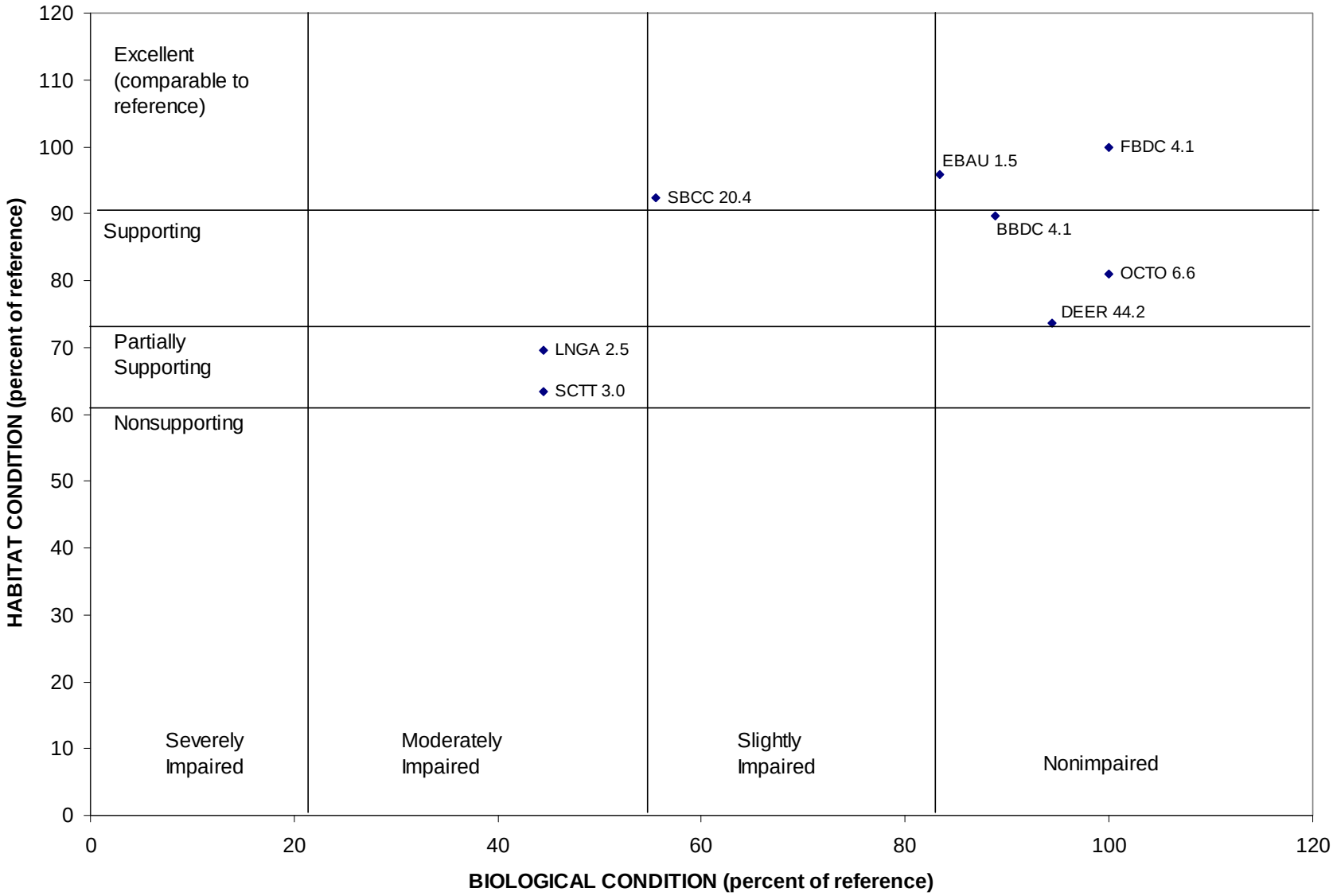

Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
NFCR 7.6
SEEL 10.3
SOUT 7.6
LNSK 7.6
TRUP 4.5
APAL 6.9
CHOC 9.1
CASC 1.6
BNTY 0.9
SNAK 2.3
HLDN 3.5
WAPP 2.6
TROW 1.8
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
0
10
20
30
40
50
60
70
80
90
100
110
120

Results for 2007 Pennsylvania–Maryland Stream Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. In 2007, Falling Branch Deer Creek (FBDC 4.1) was the reference site to which all other Group 1 and 2 Pennsylvania–Maryland interstate streams were compared. Located in Harford County, Md., FBDC 4.1 represented the best combination of biological, water quality, and habitat conditions in the Northern Piedmont Ecoregion (Omernik, 1987). Pennsylvania–Maryland sampling stations consisted of eight sites located on or near the border of these states. Of these eight sites, the biological communities of five sites (63 percent) were designated nonimpaired, using RBP III protocol designations. One stream site (12 percent) was slightly impaired, and two sites (25 percent) were designated moderately impaired. Three (38 percent) of the Pennsylvania–Maryland border sites had excellent habitats, while three more had supporting habitats, and two (25 percent) had partially supporting habitats. During the summer sampling quarter of 2007, macroinvertebrates were not collected and habitat was not evaluated at the Conowingo Creek site (CNWG 4.4) due to access issues.

As noted above, the reference site for this group of streams was Falling Branch Deer Creek (FBDC 4.1). This site had the second best WQI value and the top biological and habitat scores. Six other streams along the Pennsylvania–Maryland border were comparable with FBDC 4.1, having either a nonimpaired biological condition, excellent habitat, or both. Long Arm Creek (LNGA 2.5) and Scott Creek (SCTT 3.0) were two of the worst scoring interstate streams in this group. Both stream sites received a moderately impaired biological condition and a partially supporting habitat rating. LNGA 2.5 suffers from poor habitat due to little flow, as it is located in a backwater area of the Long Arm Reservoir. SCTT 3.0 is downstream of the Delta Borough sewage treatment plant discharge and also has problems with nutrients, siltation, and flow variability.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.

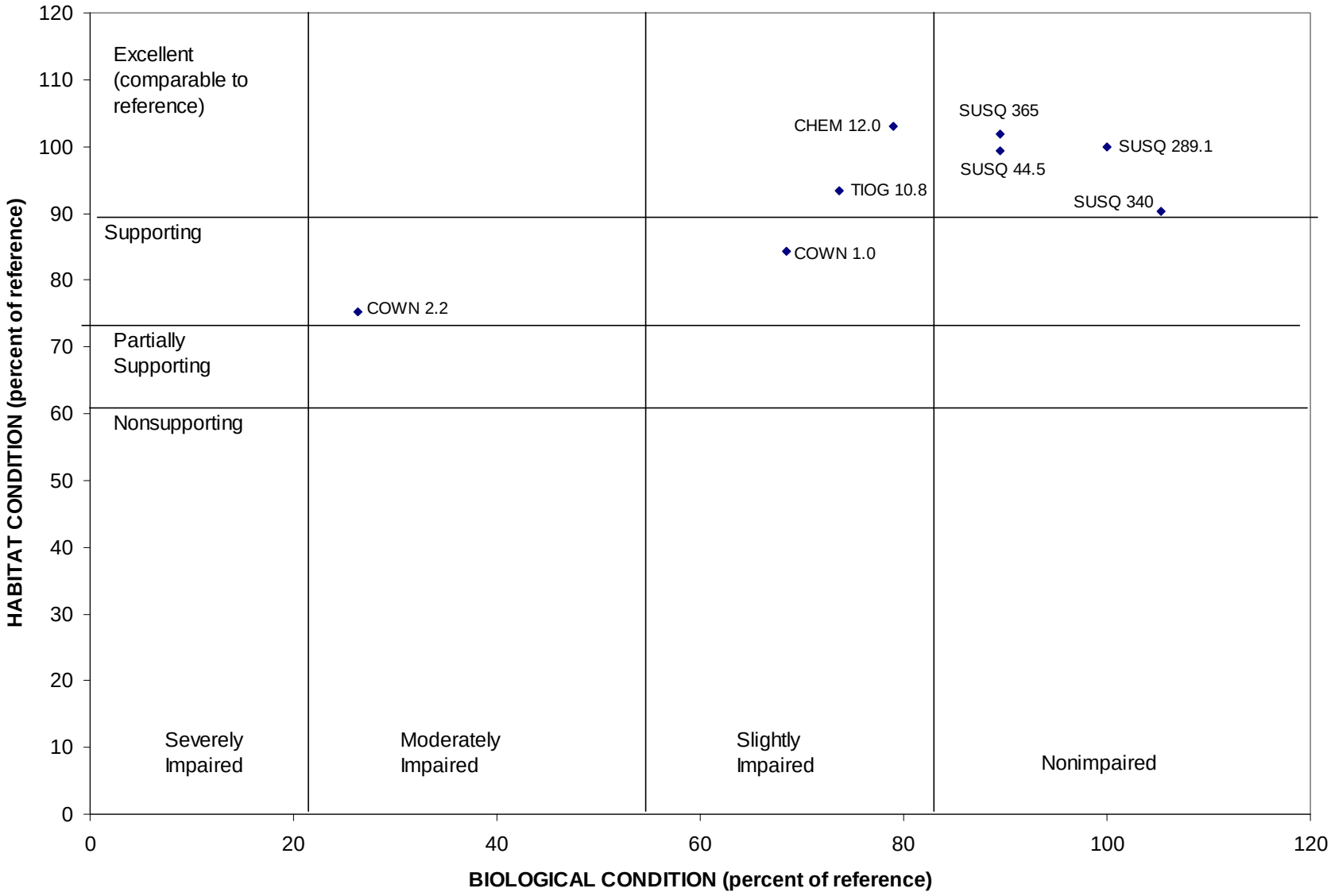

HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
FBDC 4.1
EBAU 1.5
SBCC 20.4
BBDC 4.1
OCTO 6.6
DEER 44.2
LNGA 2.5
SCTT 3.0
0
10
20
30
40
50
60
70
80
90
100
110
120
0
20
40
60
80
100
120

Results for 2007 River Site Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. Specifically, in the large river classification, the Susquehanna, Chemung, Cowanesque, and Tioga Rivers at seven sites on the New York–Pennsylvania border and one site in southern Pennsylvania are examined as a reference group. In 2007, the Susquehanna River in Sayre, Pa., (SUSQ 289.1) was the reference site to which all other large river sites were compared. This site on the Susquehanna River represented the best combination of biological, water quality, and habitat conditions of the eight sites sampled. The Susquehanna River downstream of the Conowingo Dam (SUSQ 10) was not included in this analysis because conditions prevent adequate macroinvertebrate collection and habitat assessment. The biological communities at four river sites (50 percent) were nonimpaired. Three river sites (38 percent) were slightly impaired, and one site (12 percent) was designated as moderately impaired. Physical habitat at six river sites (75 percent) was excellent, while one site (12 percent) was supporting, and the remaining site was partially supporting.

The Susquehanna River at Sayre, Pa., (SUSQ 289.1) did not possess the best biological condition score. This site ranked second to the Susquehanna River at Kirkwood, N.Y., (SUSQ 340.0). However, habitat at SUSQ 289.1 was far better than SUSQ 340. For this reason, SUSQ 289.1 served as the reference site in 2007. The four sites on the Susquehanna River (SUSQ 44.5, SUSQ 289.1, SUSQ 340, SUSQ 365) were designated as having a nonimpaired biological condition and excellent habitat in 2007, which is an indication of relative river health for this large system. The lowest scores for biological condition and physical habitat were both located at the Cowanesque River, directly downstream of the Cowanesque Reservoir (COWN 2.2) in the river's primary recovery zone. This site was designated as having a moderately impaired biological community and partially supporting physical habitat. However, about one mile downstream on the Cowanesque River (COWN 1.0), conditions rebounded to slightly impaired biological and supporting habitat designations.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.

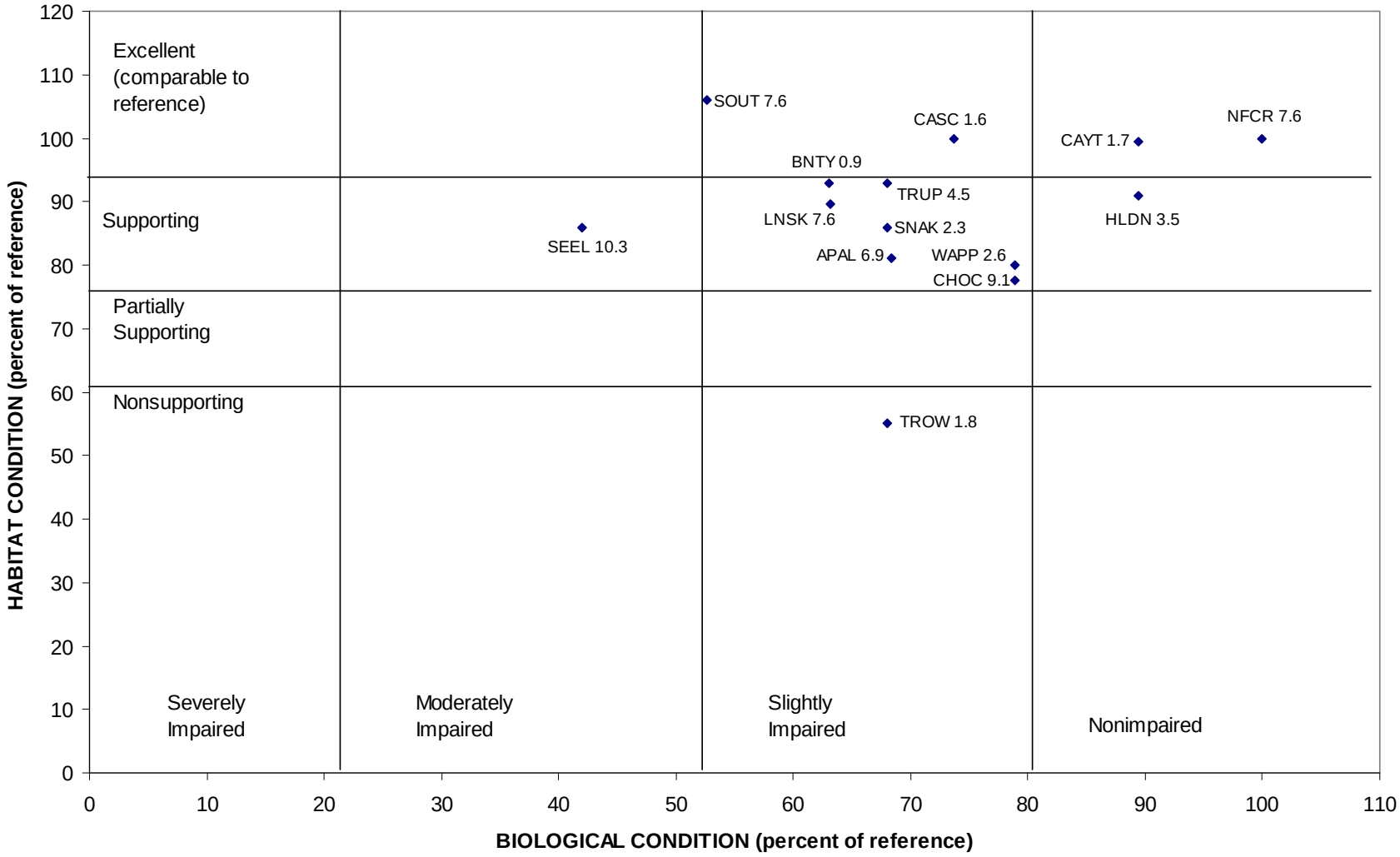

HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
CHEM 12.0
TIOG 10.8
COWN 1.0
COWN 2.2
SUSQ 365
SUSQ 44.5
SUSQ 289.1
SUSQ 340
0
10
20
30
40
50
60
70
80
90
100
110
120
0
20
40
60
80
100
120

Results for 2008 New York–Pennsylvania Stream Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. In 2008, the North Fork Cowanesque River (NFCR 7.6) was the reference site to which all other Group 1 and 2 New York–Pennsylvania interstate streams were compared. Located near North Fork, Pa., NFCR 7.6 represented the best combination of biological, water quality, and habitat conditions in the Northern Appalachian Plateau and Uplands Ecoregion. New York–Pennsylvania sampling stations consisted of 14 sites located near or on the border of these states. Of these 14 sites, the biological communities of three sites (21 percent) were nonimpaired. Ten stream sites (71 percent) were slightly impaired, and one site (7 percent) was designated as moderately impaired. Further, physical habitat at six sites (43 percent) was rated excellent, and seven sites (50 percent) were rated supporting. One site received a nonsupporting habitat classification in 2008.

Trowbridge Creek (TROW 1.8) was the only site that received a nonsupporting habitat classification for the second year in a row. However, TROW 1.8 improved biologically to slightly impaired and continued to possess the best water quality of the group, with the lowest water quality index value. Cascade Creek (CASC 1.6) retained its excellent habitat in 2008, but declined to a slightly impaired biological designation after serving as the reference site in 2007. The only site designated as having a moderately impaired biological condition in 2008 was Seeley Creek (SEEL 10.3). The North Fork Cowanesque River (NFCR 7.6) served as the reference stream in 2008 with top ratings for biological condition and physical habitat. NFCR 7.6 showed major improvement with regard to biological condition compared to 2007, when it received a moderately impaired biological condition.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.

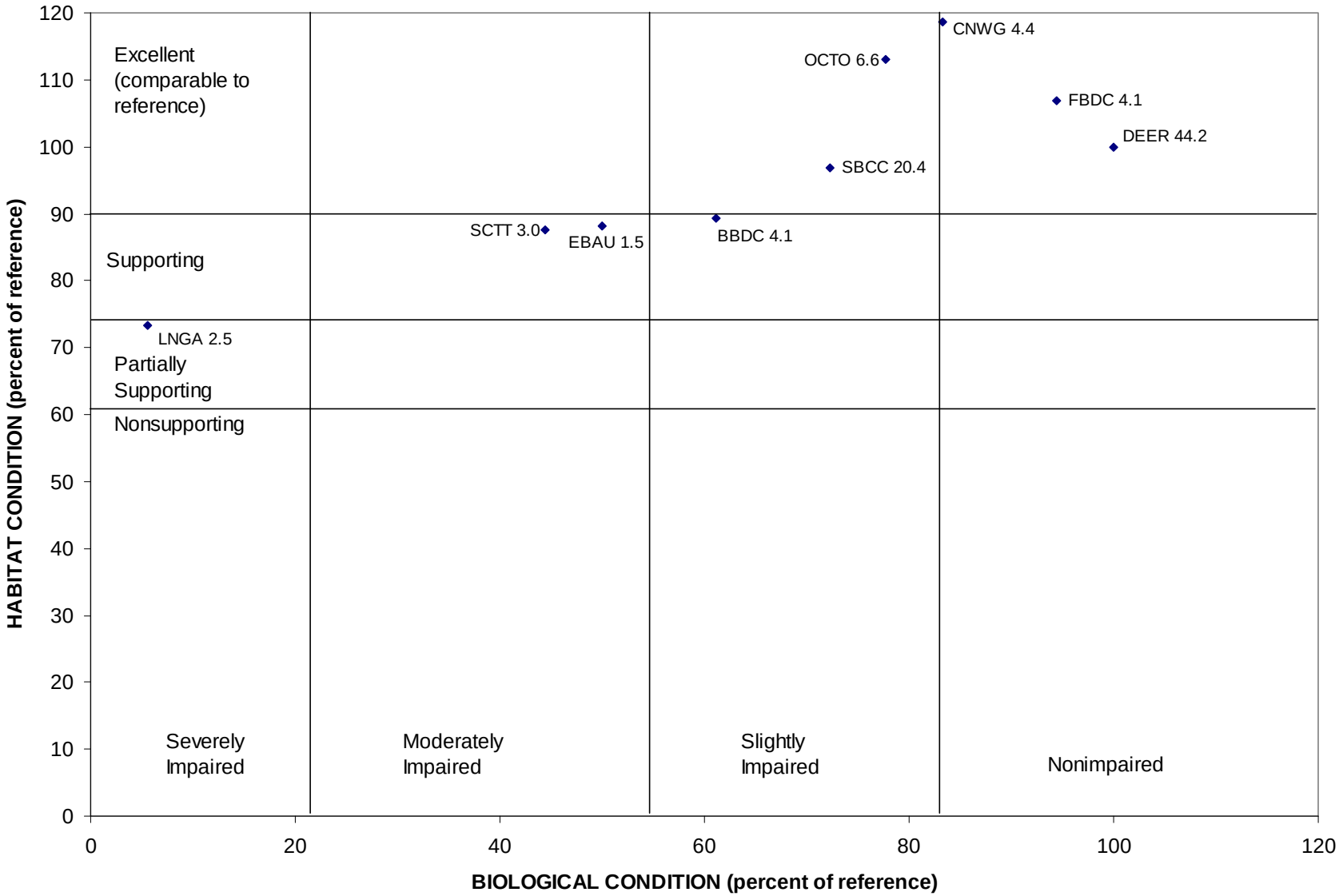

HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
SOUT 7.6
CASC 1.6
NFCR 7.6
CAYT 1.7
BNTY 0.9
TRUP 4.5
LNSK 7.6
HLDN 3.5
SNAK 2.3
SEEL 10.3
APAL 6.9
WAPP 2.6
CHOC 9.1
TROW 1.8
0
10
20
30
40
50
60
70
80
90
100
110
120

Results for 2008 Pennsylvania–Maryland Stream Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. In 2008, Deer Creek (DEER 44.2) was the reference site to which all other Group 1 and 2 Pennsylvania–Maryland interstate streams were compared. Located near Gorsuch Mills, Md., DEER 44.2 represented the best combination of biological, water quality, and habitat conditions in the Northern Piedmont Ecoregion (Omernik, 1987). Pennsylvania–Maryland sampling consisted of nine sites located on or near the border of these states. Of these nine sites, the biological communities of three sites (33 percent) were designated nonimpaired, using RBP III protocol designations. Three stream sites (33 percent) were slightly impaired, two sites (22 percent) were moderately impaired, and one site (11 percent) was designated severely impaired. Five (56 percent) of the Pennsylvania–Maryland border sites had excellent habitat ratings, while three (33 percent) more had supporting habitats, and one (11 percent) had a partially supporting habitat

The reference site for this group of streams was Deer Creek (DEER 44.2). DEER 44.2 had excellent water quality and habitat and the top biological score. Three other stream sites received better scores for physical habitat conditions, but due to the superior biological community at DEER 44.2, this station served as the reference site for 2008. Two additional streams, Conowingo Creek (CNWG 4.4) and Falling Branch Deer Creek (FBDC 4.1) along the Pennsylvania–Maryland border, were very comparable to DEER 44.2, receiving nonimpaired biological and excellent habitat designations. Long Arm Creek (LNGA 2.5) had the worst bioassessment score of any stream, most likely due to the very low number of macroinvertebrates collected. Few individuals were collected due to partially supporting habitat and little flow, as the station is located just upstream of the Long Arm Reservoir. Scott Creek (SCTT 3.0) remained moderately impaired biologically in 2008, but habitat at this station improved to supporting.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.

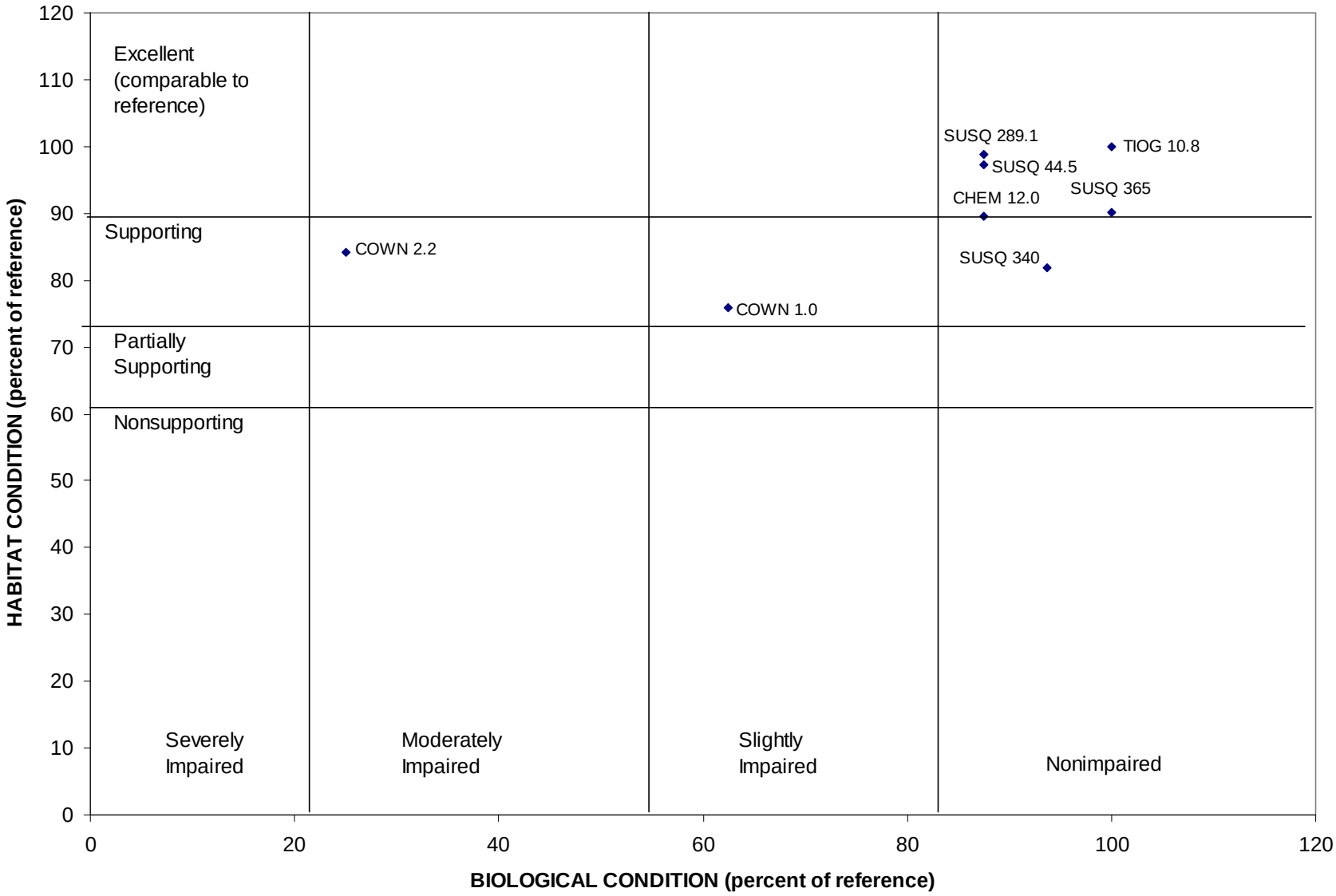

HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
120
110
100
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
CNWG 4.4
OCTO 6.6
FBDC 4.1
DEER 44.2
SBCC 20.4
SCTT 3.0
EBAU 1.5
BBDC 4.1
LNGA 2.5

Results for 2008 River Site Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. In the large river classification, the Susquehanna, Chemung, Cowanesque, and Tioga Rivers at seven sites on the New York–Pennsylvania border and one site in southern Pennsylvania are examined as a reference group. In 2008, the Tioga River in Lindley, N.Y., (TIOG 10.8) was the reference site to which all other large river sites were compared. This site on the Tioga River represented the best combination of biological, water quality, and habitat conditions of the eight sites sampled. The Susquehanna River downstream of the Conowingo Dam (SUSQ 10) was not included in this analysis because conditions at this site prevent adequate macroinvertebrate collection and habitat assessment. The biological communities at six river sites (75 percent) were nonimpaired. One river site (12 percent) was slightly impaired, and one site was designated as moderately impaired. Physical habitat at five river sites (63 percent) was excellent, while three sites (37 percent) were rated supporting.

TIOG 10.8 possessed the highest bioassessment score as well as the highest physical habitat rating. The Susquehanna River at Sayre, Pa., (SUSQ 289.1) maintained its nonimpaired and excellent ratings in biological and habitat conditions, respectively, after serving as the reference site for the large river group in 2007. The Cowanesque River (COWN 2.2) directly downstream from the Cowanesque Reservoir had the worst biological condition in every metric and the lowest combined bioassessment score. However, about one mile downstream on the Cowanesque River (COWN 1.0), significant improvement was seen, as the biological condition was rated slightly impaired, while habitat remained stable with a supporting rating. In 2008, the trend continued with each of the four sites on the Susquehanna River (SUSQ 44.5, SUSQ 289.1, SUSQ 340, SUSQ 365) having nonimpaired biological conditions, indicating that the Susquehanna River is relatively healthy. The Chemung and Tioga River sites (CHEM 12.0 and TIOG 10.8) showed biological improvement over 2007 when they were rated slightly impaired, as they were designated nonimpaired in 2008.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.

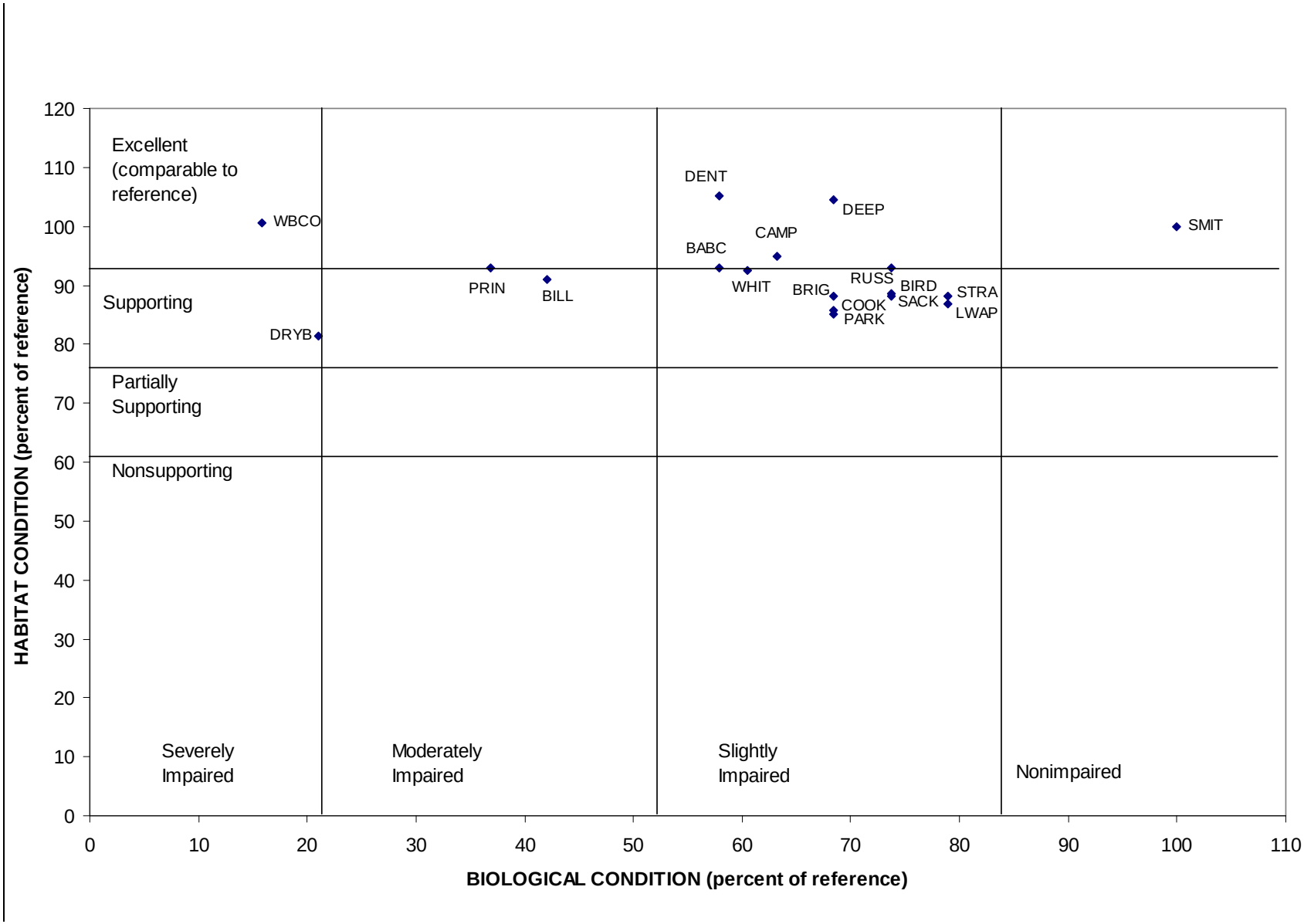

HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
SUSQ 289.1
TIOG 10.8
SUSQ 44.5
SUSQ 365
CHEM 12.0
SUSQ 340
COWN 2.2
COWN 1.0
0
10
20
30
40
50
60
70
80
90
100
110
120
0
20
40
60
80
100
120

Results for 2008 Group 3 Site Assessments

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and physical habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. Specifically, in the Group 3 classification, many smaller streams along the New York–Pennsylvania border are examined. In 2008, an unnamed tributary to Smith Creek (SMIT) in Tioga County, Pa., was the reference site to which all other Group 3 streams were compared. SMIT represented the best combination of biological, field water quality, and habitat conditions of the 18 sites sampled. Biscuit Hollow (BISC), Bulkley Brook (BULK), and Red House Run (REDH) were not sampled in 2008 due to near dry conditions. The only site designated as having a nonimpaired biological condition was the reference site, SMIT, in 2008. Thirteen Group 3 sites (72 percent) were slightly impaired, two sites (11 percent) were moderately impaired, and two sites were designated severely impaired. Physical habitat at six Group 3 sites (33 percent) was excellent, 11 sites (61 percent) were supporting, and one site (6 percent) was rated partially supporting.

An unnamed tributary to Smith Creek (SMIT) possessed the highest biological condition by a wide margin. Although other stations had superior habitat ratings, the biological conditions at SMIT were far better, and thus, SMIT served as the reference stream for this group in 2008. Only Deep Hollow Brook (DEEP) and Denton Creek (DENT) had parameters that exceeded water quality standards. Field water quality samples at both streams exhibited low alkalinity and pH values. The biological condition at DEEP, which was the reference stream from 2005-2007, decreased to slightly impaired. Bill Hess Creek (BILL) and Prince Hollow Run (PRIN) had moderately impaired biological conditions in 2008. Biological conditions at Dry Brook (DRYB) and the White Branch Cowanesque River (WBCO) were severely impaired, as each stream had the worst bioassessment scores of all Group 3 streams. The only partially supporting habitat of all Group 3 streams was found at DRYB, which is located in a subdivision, receiving impacts from mowed lawns in its riparian zones, sediment input, and runoff from nearby roadways.

The chart below summarizes the biological and habitat data for the New York–Pennsylvania interstate streams sites.


HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
WBCO
DRYB
PRIN
BILL
DENT
DEEP
CAMP
BABC
WHIT
BRIG
RUSS
BIRD
SACK
COOK
PARK
STRA
LWAP
SMIT
0
10
20
30
40
50
60
70
80
90
100
110
120