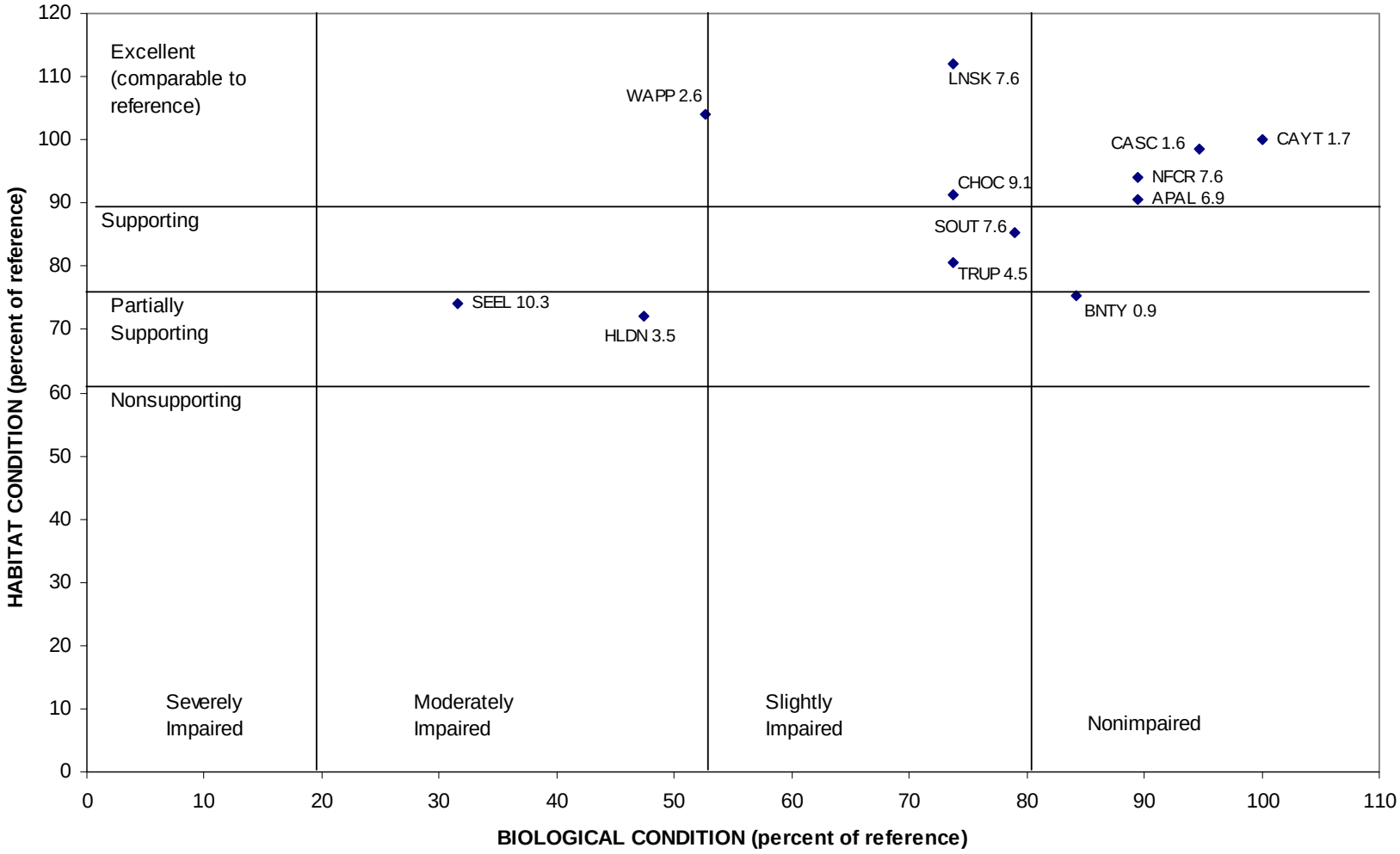
Results for New York-Pennsylvania Streams

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. The reference sites for 2006-2007 are Cayuta Creek (CAYT 1.7), Susquehanna River 340, Deer Creek, and Deep Hollow Brook. Sites located on the New York-Pennsylvania border were compared to Cayuta Creek, Waverly, N.Y. CAYT 1.7 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 New York-Pennsylvania border. During the summer sampling event, two of these streams were not sampled due to dredging at one site and a washed out bridge at the other. At these sites, Trowbridge Creek and Snake Creek, no samples of any kind were taken for FY-07. Of the remaining 12 sites, the biological community of five (42 percent) of these streams was nonimpaired. Four stream sites were slightly impaired (33 percent) and three sites (33 percent) were designated as moderately impaired. Seven of the New York-Pennsylvania sites had excellent habitats (58 percent), while three sites (25 percent) had supporting habitats. The remaining two sites ranked as partially supporting habitat. Seeley Creek and Holden Creek were the two streams that fell into the partially supporting category, due to poor scores for sediment deposition, channel flow status, and conditions of banks. The most common habitat concern among the New York-Pennsylvania streams in general is lack of riparian buffer zone along the stream banks. Water quality in the New York-Pennsylvania sites was generally good, with aluminum standards being exceeded most often. However, throughout the 20 years of interstate stream sampling, aluminum has always been elevated over the 100 μg/l standard in many border streams, and it may be a natural condition resulting from the local geology.

The reference site for the New York-Pennsylvania border streams was Cayuta Creek at Waverly, N.Y. This site had the best combination of water quality, biological community, and physical habitat of all the New York-Pennsylvania sites. The rankings for the other New York-Pennsylvania border sites are compared to the conditions in Cayuta Creek. Water quality in Cayuta Creek was good overall. There were chlorine exceedances, likely due to the proximity of the site to the Waverly, N.Y., treatment plant discharge. The macroinvertebrate community at South Creek showed high rankings for taxonomic richness, EPT Index, percent Ephemeroptera, and percent Chironomidae. In the habitat assessment for CAYT 1.7, epifaunal substrate, instream cover, embeddedness, channel flow status, and frequency of riffles were all rated in the optimal range.

The chart below summarizes the biological and habitat data for the New York-Pennsylvania streams.


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
WAPP 2.6
LNSK 7.6
CASC 1.6
CAYT 1.7
NFCR 7.6
APAL 6.9
CHOC 9.1
SOUT 7.6
TRUP 4.5
SEEL 10.3
HLDN 3.5
BNTY 0.9
0
10
20
30
40
50
60
70
80
90
100
110
120

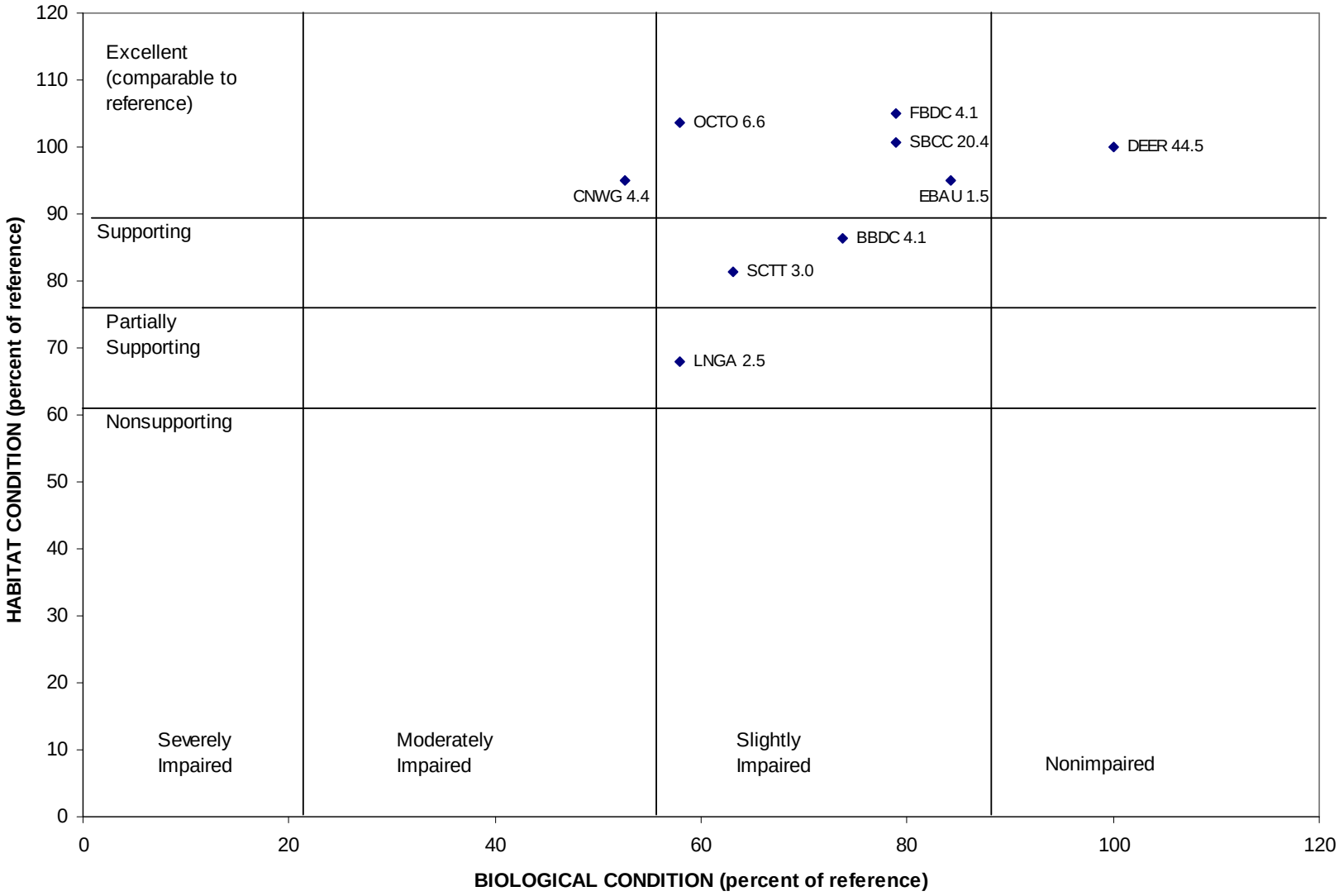
Results for Pennsylvania-Maryland Streams

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. The reference sites for 2006-2007 are Cayuta Creek (CAYT 1.7), Susquehanna River 340, Deer Creek, and Deep Hollow Brook. Deer Creek (DEER 44.2) near Gorsuch Mills, Md., served as the reference site for sampling stations located on the Pennsylvania-Maryland border. DEER 44.2 had the best combination of biological, water quality, and habitat conditions in the Northern Piedmont Ecoregion (Omernik, 1987).

The Pennsylvania-Maryland interstate streams include nine stations located on or near the Pennsylvania-Maryland border. During FY-07, two streams (22 percent) were designated nonimpaired, using RBP III protocol designations. Six sites (67 percent) were slightly impaired, and one site (11 percent) was moderately impaired. No sites were ranked as severely impaired. Six (67 percent) of the Pennsylvania-Maryland border sites had excellent habitats, while two sites (22 percent) had supporting habitats. The remaining site, Long Arm Creek, was designated as having partially supporting habitat conditions. The most common habitat concern at the Pennsylvania-Maryland sites was the lack of a riparian buffer zone.

The reference site for the Pennsylvania-Maryland border streams was Deer Creek at Gorsuch Mills, Md. This site had the best combination of water quality, biological community, and physical habitat of all the Pennsylvania-Maryland sites. The rankings for the other Pennsylvania-Maryland border sites are compared to the conditions at Deer Creek. The macroinvertebrate community at Deer Creek showed highest rankings for taxonomic richness, Shannon Diversity Index, EPT Index, and percent dominant taxa. In the habitat assessment for DEER 44.2, epifaunal substrate, instream cover, and velocity/depth regimes were all rated in the optimal range.

The chart below summarizes the biological and habitat data for the Pennsylvania-Maryland streams.


Excellent (comparable to reference)
Supporting
Partially Supporting
Nonsupporting
Severely Impaired
Moderately Impaired
Slightly Impaired
Nonimpaired
CNWG 4.4
OCTO 6.6
FBDC 4.1
SBCC 20.4
EBAU 1.5
DEER 44.5
BBDC 4.1
SCTT 3.0
LNGA 2.5
HABITAT CONDITION (percent of reference)
BIOLOGICAL CONDITION (percent of reference)
0
10
20
30
40
50
60
70
80
90
100
110
120
0
20
40
60
80
100
120

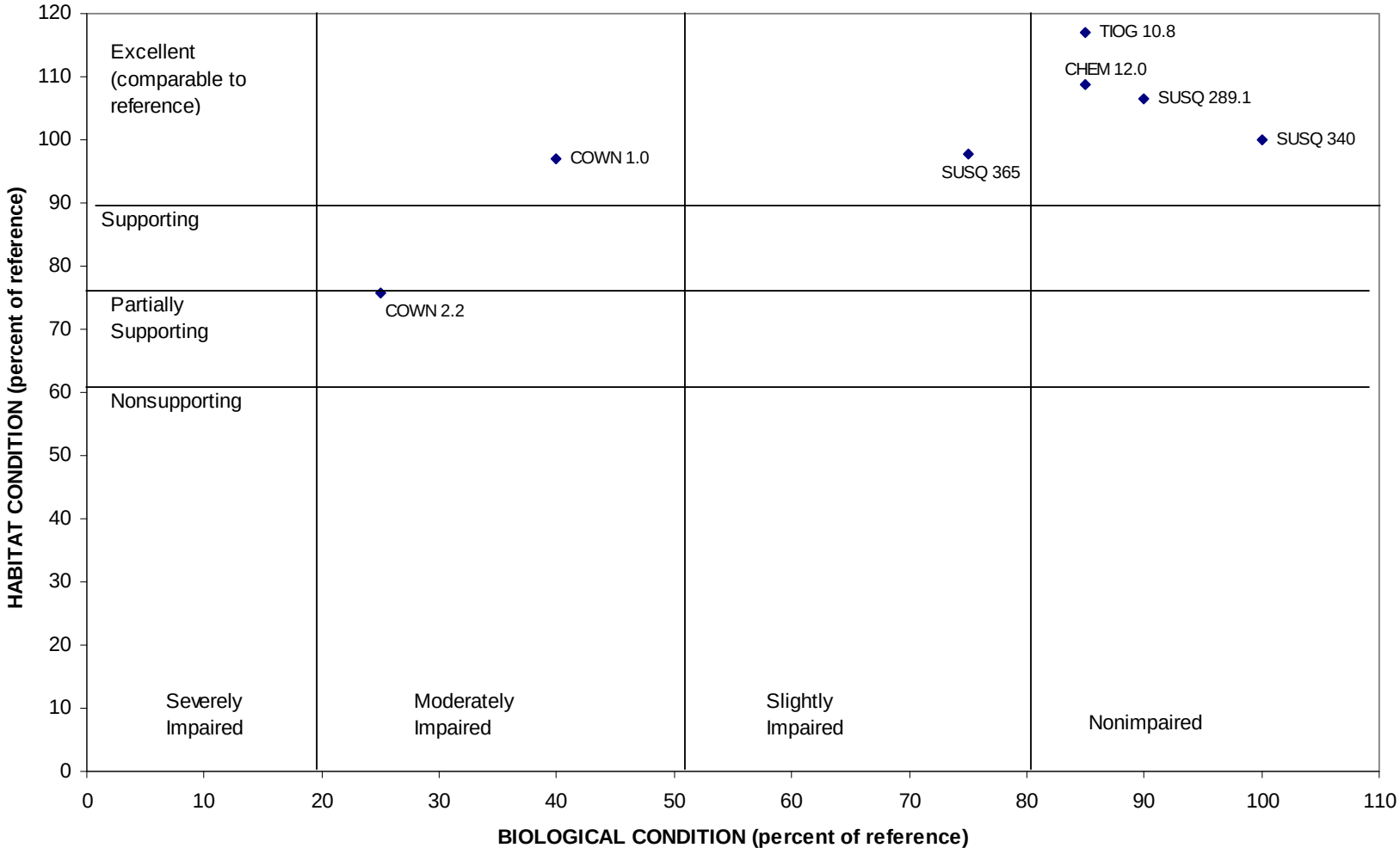
Results for River Sites

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. The reference sites for 2006-2007 are Cayuta Creek (CAYT 1.7), Susquehanna River 340 (SUSQ 340), Deer Creek, and Deep Hollow Brook. River sites in New York, Pennsylvania, and Maryland were all compared to the conditions at the Susquehanna River at river mile 340, which is located in Kirkwood, N.Y. SUSQ 340 represented the best combination of conditions of the seven river sites sampled.

The river sites consisted of nine stations located on the Susquehanna, Chemung, Cowanesque, and Tioga Rivers. Two stations (SUSQ 10.0 and SUSQ 44.5) were not sampled for macroinvertebrates due to deep water and a lack of riffle habitat at the sites. Of the seven river sites that were sampled during FY-07, the biological community at four (57 percent) of these sites was nonimpaired. One site (14 percent) had slightly impaired biological conditions, and two sites (29 percent) were ranked as moderately impaired. Both sites on the Cowanesque River were moderately impaired and accounted for the lowest scores in each of the six biological metrics. The habitat at six (86 percent) of the river sites was excellent, and the other site (14 percent) rated as having supporting habitat. The most common habitat concern along the river sites is lack of riparian buffer.

The reference site for all of the interstate river sites was SUSQ 340. This site had the best combination of water quality, biological conditions, and physical habitat of all the sampled river sites. The rankings for the other river sites are compared to the conditions at SUSQ 340. The macroinvertebrate community at SUSQ 340 was at the top of all river sites in scores for Hilsenhoff Biotic Index, EPT Index, and percent Ephemeroptera. In the habitat assessment for SUSQ 340, epifaunal substrate, instream cover, and channel flow status were all rated in the optimal range.

The chart below summarizes the biological and habitat data for the river 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
TIOG 10.8
CHEM 12.0
SUSQ 289.1
SUSQ 340
COWN 1.0
SUSQ 365
COWN 2.2
0
10
20
30
40
50
60
70
80
90
100
110
120

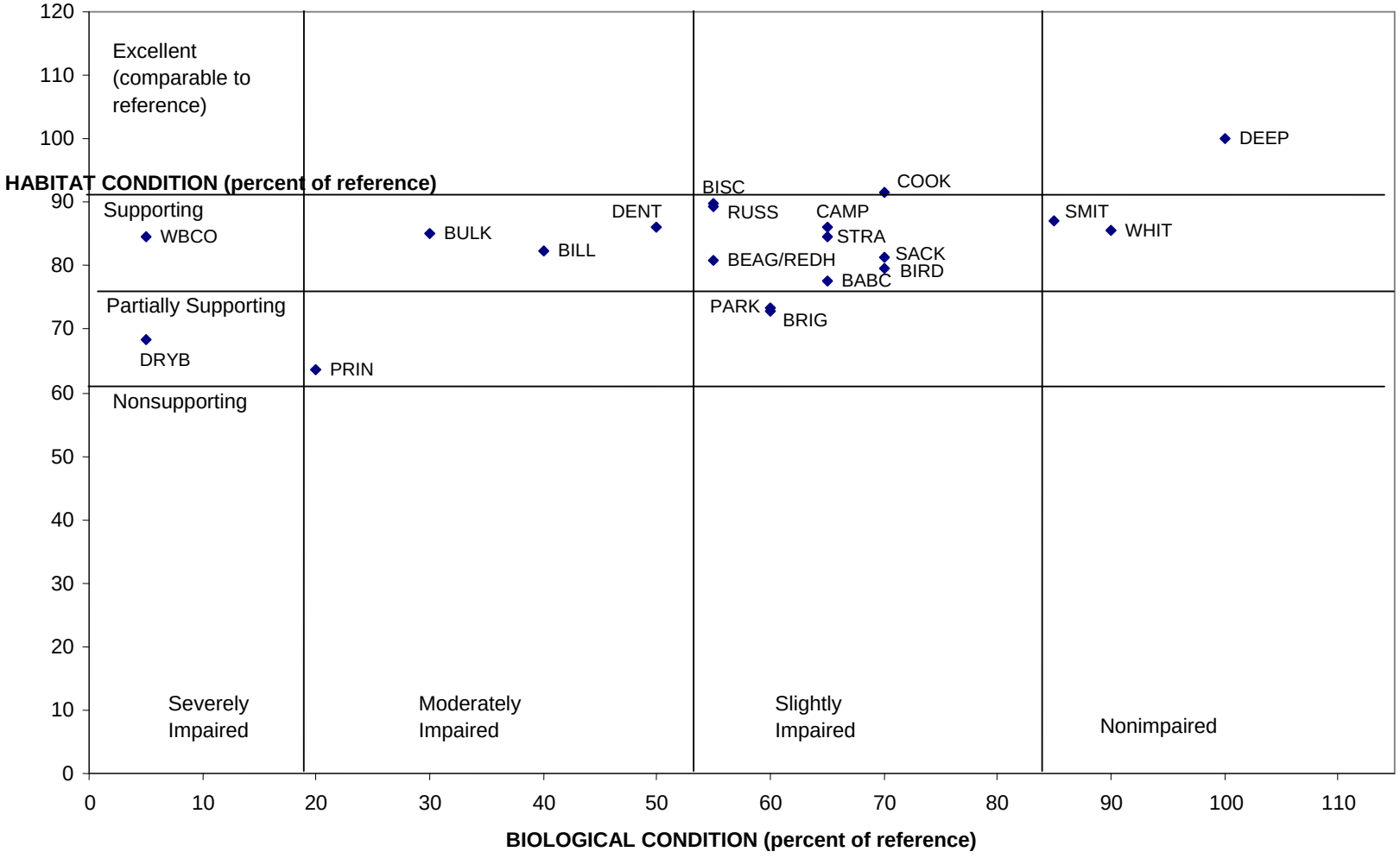
Results for Group 3 Sites

Sites that represent the best available suite of conditions, in terms of biological community, water quality, and habitat for each group of stream sites are designated as reference sites. All other locations within that grouping are compared to the reference site. The reference sites for 2006-2007 are Cayuta Creek, Susquehanna River 340, Deer Creek, and Deep Hollow Brook. Sites located on the New York-Pennsylvania border were compared to Cayuta Creek at Waverly, N.Y. Deep Hollow Brook (DEEP) near Danville, N.Y., served as the reference site for Group 3 sites, as it had the best biological, habitat, and field chemistry conditions of these sites.

Group 3 sampling stations consisted of 20 sites on small streams located along the New York-Pennsylvania border. Little Wappasening Creek is also normally sampled but was dry during 2007 sampling. Three of the 20 sites sampled (15 percent) had nonimpaired biological conditions. Eleven sites (55 percent) were slightly impaired, and four sites (20 percent) were moderately impaired. The remaining two sites (10 percent) were considered severely impaired as they had very poor biological conditions. These sites were Dry Brook and West Branch Cowanesque River. Three (15 percent) of the Group 3 sites had excellent habitat scores. Thirteen sites (65 percent) had supporting habitat conditions, while four sites (20 percent) were designated partially supporting, and no sites were nonsupporting.

The reference site for the Group 3 streams was Deep Hollow Brook at Danville, N.Y. This site had the best combination of biological community and physical habitat of all the Group 3 sites. This was the third consecutive year that DEEP represented the best of the Group 3 sites. The rankings for the other Group 3 sites are compared to the conditions at Deep Hollow Brook. The macroinvertebrate community at DEEP showed the highest scores for taxonomic richness, Shannon Diversity Index, EPT Index, and percent dominant taxa. In the 2007 habitat assessment for Deep Hollow Brook, epifaunal substrate, instream cover, embeddedness, channel alteration, frequency of riffles, vegetative protective cover, and riparian vegetative zone were all rated as optimal.

The chart below summarizes the biological and habitat data for the Group 3 streams.


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
BULK
BILL
DENT
PRIN
BISC
RUSS
CAMP
STRA
COOK
BEAG/REDH
SACK
BIRD
BABC
PARK
BRIG
DEEP
SMIT
WHIT
0
10
20
30
40
50
60
70
80
90
100
110
120