

RESULTS

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 2005-2006 are South Creek, Susquehanna River 365, Big Branch Deer Creek, and Deep Hollow Brook. Sites located on the New York-Pennsylvania border were compared to South Creek at Fassett, Pa. South Creek represented the best combination of biological, water quality, and habitat conditions in the Northern Appalachian Plateau and Uplands Ecoregion. River sites in New York, Pennsylvania, and Maryland were all compared to the conditions at the Susquehanna River at river mile 365. SUSQ 365 represented the best combination of conditions of the seven river sites sampled.

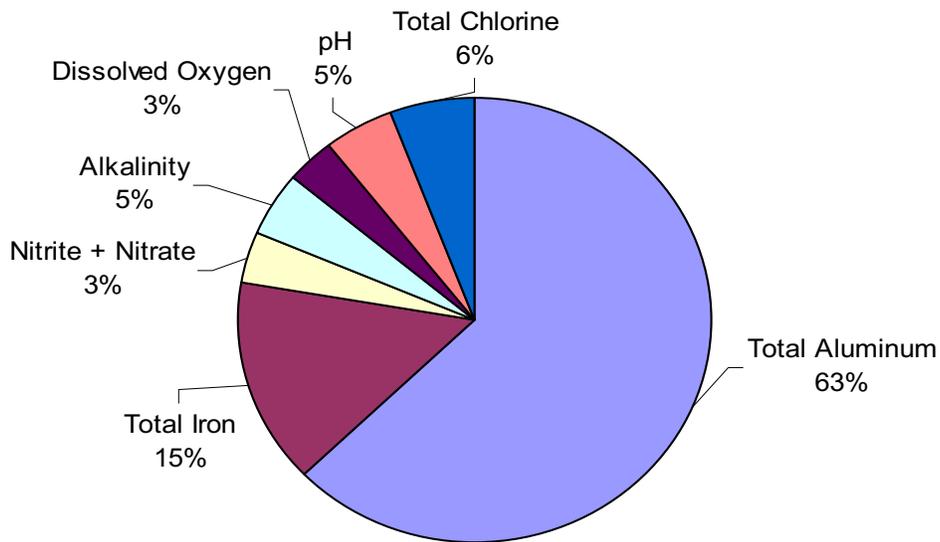
Big Branch Deer Creek (BBDC 4.1) near Fawn Grove, Pa., served as the reference site for sampling stations located on the Pennsylvania-Maryland border. BBDC 4.1 had the best combination of biological, water quality, and habitat conditions in the Northern Piedmont Ecoregion (Omernik, 1987). Deep Hollow 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. This was the second consecutive year that DEEP represented the best of the Group 3 sites.

Water Quality

During fiscal year 2006, water quality in approximately 20 percent of the Group 1 and Group 2 interstate streams continued to meet designated use classes and water quality standards. Twenty-two out of the 28 sites had parameters exceeding water quality standards, with 17 of those having more than one violation. The parameter that most frequently exceeded water quality standards was total aluminum. Eighty-six out the 607 possible observations (based on the number of applicable water quality standards of each state) exceeded water quality standards.

Water Quality Standard Summary

Parameter	Standard	Standard Value	Number of Observations	Number Exceeding Standards
Alkalinity	Pa. aquatic life	20 mg/l	77	4
Total Iron	N.Y. aquatic (chronic)	300 µg/l	54	13
	Pa. aquatic life	1500 µg/l	89	0
Total Aluminum	N.Y. aquatic (chronic)	100 µg/l	54	54
Total Chlorine	N.Y. aquatic (acute)	0.019 mg/l	4	2
	Md. aquatic life	0.019 mg/l	4	3
Nitrite plus Nitrate	Pa. public water supply	10 mg/l	89	3
Dissolved Oxygen	Pa. aquatic life	5.0 mg/l	89	3
pH	N.Y. general	6.5-8.5	77	4



Parameters Exceeding Water Quality Standards

Macroinvertebrates

Nineteen (43 percent) of the 44 interstate streams sites at which macroinvertebrate samples were collected contained nonimpaired biological communities. Biological conditions at another 16 sites (36 percent) were slightly impaired, while nine sites (21 percent) were moderately impaired. No sites were designated severely impaired. Nine sites (SUSQ 10.0, SUSQ 44.5, CASC 1.6, TROW 1.8, LSNK 7.6, WAPP 2.6, HLDN 3.5, NFCR 7.6, SCTT 3.0) were not sampled using RBP III techniques due to either dry conditions or deep waters and, thus, were not averaged into the final scores.

Habitat Assessment

Twenty one (48 percent) sites had excellent habitats. Twenty two (50 percent) had supporting habitats, and one site (2 percent) was designated as having a partially supporting habitats.

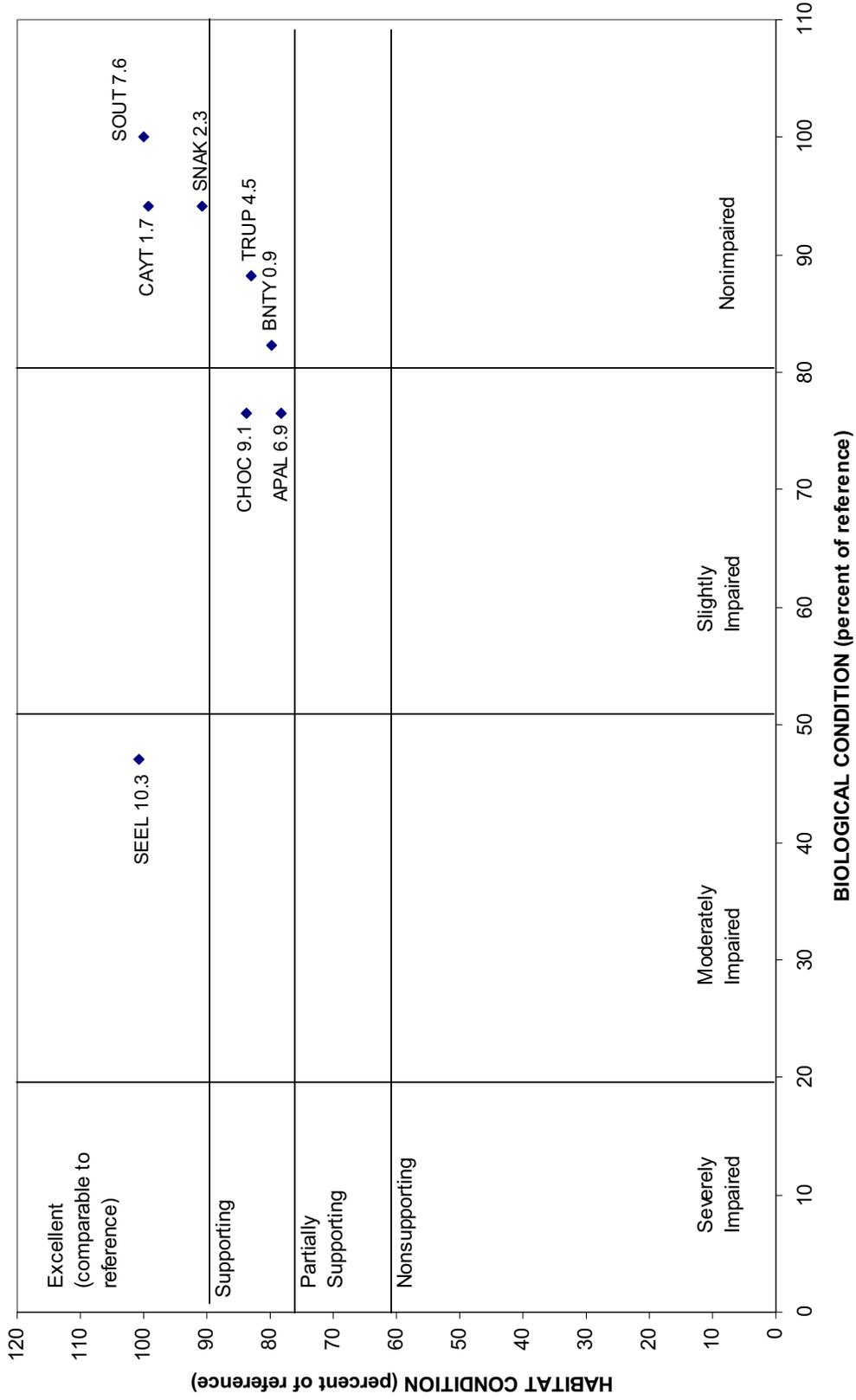
Results for New York-Pennsylvania Streams

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 2005-2006 are South Creek, Susquehanna River 365, Big Branch Deer Creek, and Deep Hollow Brook. Sites located on the New York-Pennsylvania border were compared to South Creek at Fassett, Pa. South Creek 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, six of these streams were dry so no macroinvertebrate or habitat assessment could be completed. Of the remaining eight sites, the biological community of four (50 percent) of these streams was nonimpaired. Three stream sites were slightly impaired (37.5 percent) and one site (12.5 percent) was designated as moderately impaired. Four of the New York-Pennsylvania sites had excellent habitats (50 percent), while the other four sites (50 percent) had supporting habitats. No sites had partially supporting or nonsupporting habitat. The most common habitat concern among the New York-Pennsylvania streams is lack of riparian buffer zone along the stream banks.

The reference site for the New York-Pennsylvania border streams was South Creek at Fassett, Pa. 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 South Creek. The macroinvertebrate community at South Creek showed high rankings for taxonomic richness, Shannon Diversity Index, Hilsenhoff Biotic Index, percent Ephemeroptera, percent Chironomidae, and percent dominant taxa. In the habitat assessment for SOUT 7.8, condition of banks and vegetative protective cover were rated as optimal.

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



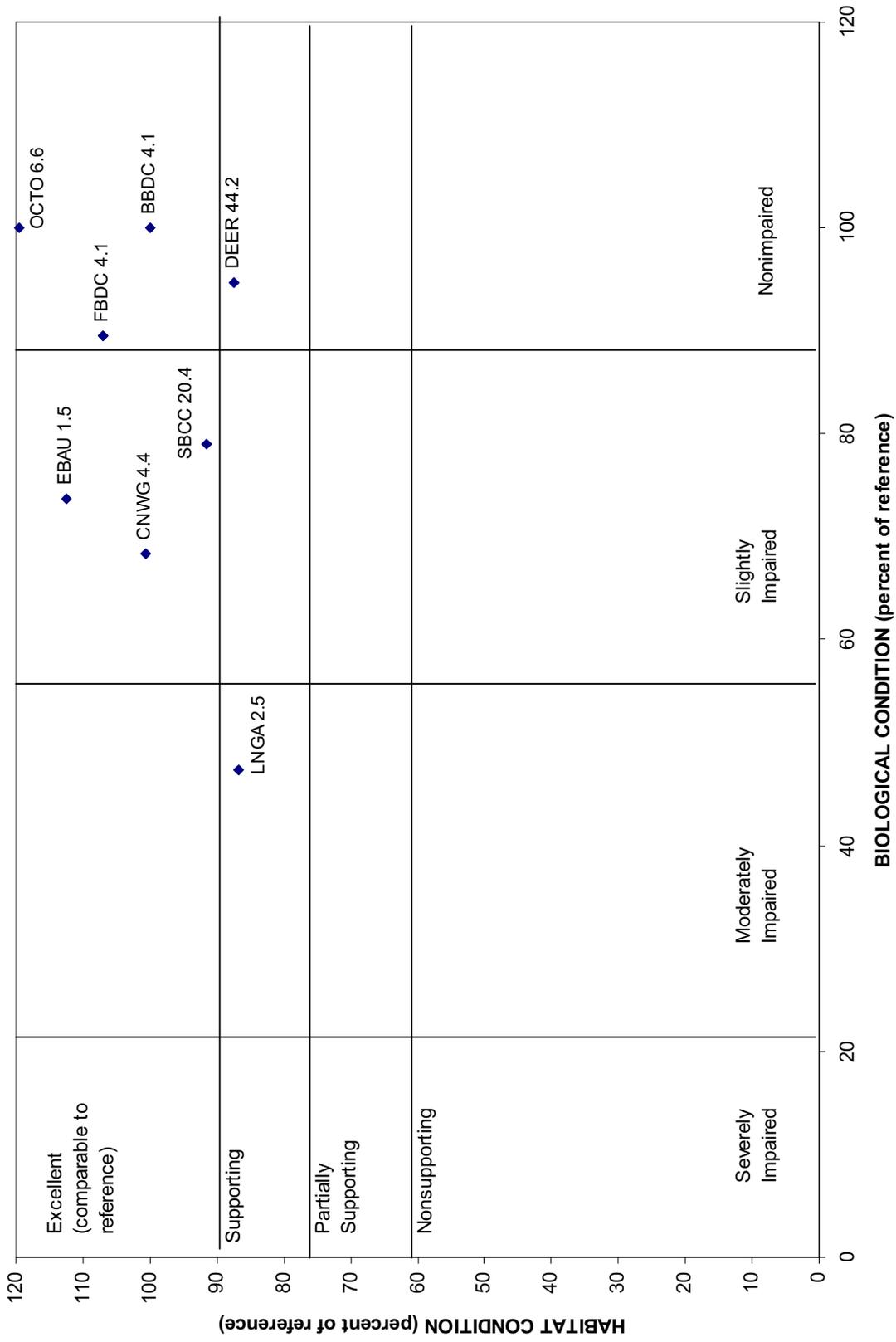
Results for Pennsylvania-Maryland Streams

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 2005-2006 are South Creek, Susquehanna River 365, Big Branch Deer Creek, and Deep Hollow Brook. Big Branch Deer Creek (BBDC 4.1) near Fawn Grove, Pa., served as the reference site for sampling stations located on the Pennsylvania-Maryland border. BBDC 4.1 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-06, eight of these sites were sampled; Scott Creek was dry during the sampling event so no data was collected. Four streams (50 percent) were designated nonimpaired, using RBP III protocol designations. Three sites (37.5 percent) were slightly impaired and one site (12.5 percent) was moderately impaired. No sites were ranked as severely impaired. Six (75 percent) of the Pennsylvania-Maryland border sites had excellent habitats, while two sites (25 percent) had supporting habitats. No sites were designated as having partially supporting or nonsupporting physical habitat. 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 Big Branch Deer Creek at Fawn Grove, Pa. 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 Big Branch Deer Creek. The macroinvertebrate community at Big Branch Deer Creek showed high rankings for Hilsenhoff Biotic Index, EPT Index, and percent Chironomidae. In the habitat assessment for BBDC 4.5, instream cover, channel flow status, condition of banks, and vegetative protective cover were all rated as optimal.

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



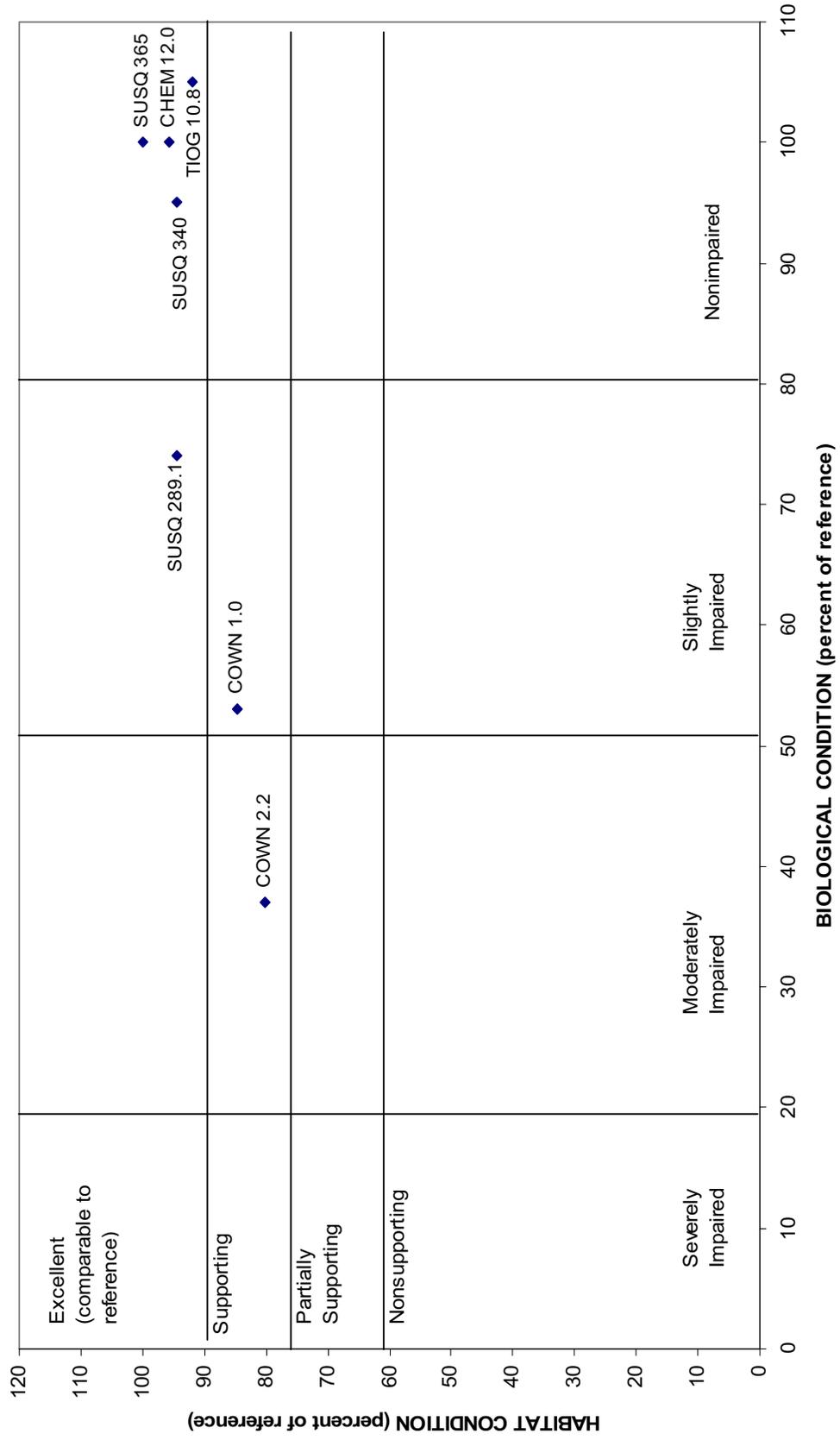
Results for River Sites

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 2005-2006 are South Creek, Susquehanna River 365, Big Branch 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 365. SUSQ 365 represented the best combination of conditions of the seven river sites sampled.

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 fiscal year 2006, 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. The habitat at five (71 percent) of the river sites was excellent and the other two sites (29 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 Susquehanna River 365. 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 Susquehanna River 365. The macroinvertebrate community at SUSQ 365 was at the top of all river sites in scores for taxonomic richness, Shannon Diversity Index, Hilsenhoff Biotic Index, EPT Index, and percent dominant taxa. In the habitat assessment for SUSQ 365, frequency of riffles, velocity/depth regimes, and vegetative protective cover were all rated as optimal.

The chart below summarizes the biological and habitat data for the river sites.



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 2005-2006 are South Creek, Susquehanna River 365, Big Branch Deer Creek, and Deep Hollow Brook. Sites located on the New York-Pennsylvania border were compared to South Creek at Fassett, PA. 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. This was the second consecutive year that DEEP represented the best of the Group 3 sites.

Group 3 sampling stations consisted of 21 sites on small streams located along the New York-Pennsylvania border. Seven of the 21 sites sampled (33 percent) had nonimpaired biological conditions. Nine sites (43 percent) were slightly impaired, and five sites (24 percent) were moderately impaired. Six (29 percent) of the Group 3 sites had excellent habitat scores. Fourteen sites (67 percent) had supporting habitat conditions, while one site (4 percent) was 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. The rankings for the other Group 3 sites are compared to the conditions at Deep Hollow Brook. The macroinvertebrate community at DEEP showed highest rankings for taxonomic richness, Shannon Diversity Index, and EPT Index. In the habitat assessment for Deep Hollow Brook, epifaunal substrate, instream, cover, 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.

