

**DCNR
Bureau of Forestry**

Aquatic Habitat Buffer Guidelines, Effective January 1, 2007

Purpose

Areas around wetlands, vernal ponds, spring seeps, streams, lakes, ponds, and impoundments should be designated as aquatic habitat buffers. These guidelines provide a standard set of operating procedures to be followed when conducting management activities in or near aquatic habitats on State Forest land. Management efforts should focus on providing connectivity, wildlife habitat, and protecting water quality.

General Guidelines Applicable to Aquatic Habitat Buffers

The following guidelines apply to all aquatic habitat buffers:

- A. Earth disturbance activities should be avoided whenever possible.
- B. Snags and cavity trees should be retained as they provide exemplary habitat for bats, woodpeckers, and other cavity nesters.
- C. Dead and downed woody material should be retained. It creates critical microhabitat for many species and provides large reservoirs of organic matter needed for nutrient cycling.
- D. If possible and where appropriate, aquatic habitat buffers should be linked to provide connectivity for wildlife.

Inner and Outer Management Zones

For each aquatic habitat buffer, an “inner” and “outer” zone is specified. The following describes the purpose, management, restrictions, and permitted activities for the two zones:

Inner Zone:

The inner zone functions as a core area of protection that allows minimal human disturbance.

1. Tree cutting is only permitted for the protection of property or human safety.

Outer Zone:

The outer zone functions as a transition area. The goal of this zone is to maintain a diverse community of tree, shrub, and herbaceous plants and vertical stratification.

1. Silvicultural activity is permitted in the outer zone. Entry by motorized equipment should be limited.
2. Prescriptions should focus on selection treatments where appropriate.
3. Harvests should consider the prescribed treatments in adjacent stands and employ a gradual or feathered transition area (i.e., vertical and horizontal stratification) from the outermost limit of the aquatic habitat buffer to the inner zone.

Waiver Process

Considering the variability of conditions and circumstances across the State Forest, deviations might be necessary and/or beneficial to any of the aquatic habitat buffer guidelines. Requests for waivers will be reviewed per the following process:

1. If the activity is part of a silvicultural treatment (including District Forester timber sales), submit the request as part of the timber sale proposal. The Silviculture Section will then route the request to the Ecological Services Section and Assistant State Forester for Resource Planning and Stewardship for a one-week review. Comments will be compiled by the Silviculture Section and documented in the Timber Sale file. The Assistant State Forester for Resource Planning and Stewardship will make the final decision.
2. If the activity is not part of a silvicultural treatment, a standard Environmental Review should be submitted to the Planning Section.
3. Exceptions to this review process include regular road, trail, and infrastructure maintenance.

Guidelines for Specific Aquatic Habitat Buffer Designations

The following guidelines apply for specific water body designations. In cases where multiple designations exist, guidelines for the most restrictive designation will apply.

The guidelines are organized according to the following outline:

- A. Streamside Forests
 - Wilderness Trout Streams and Wild Rivers
 - Exceptional Value (EV) Streams and Scenic Rivers
 - High Quality (HQ) and All Other Perennial Streams
 - Intermittent or Ephemeral Streams
- B. Lakes, Ponds, and Impoundments
- C. Vernal Ponds
- D. Spring Seeps
- E. Wetlands

A. Streamside Forests:

The aquatic habitat buffer begins at the top edge of the bank and applies to both sides of the stream. The widths of most aquatic habitat buffers do not vary with slope unless otherwise specified; however, management activities are not advisable on slopes exceeding 40%. The following guidelines are listed in decreasing order of restrictiveness for various stream designations.

Table 1. Minimum Aquatic Habitat Buffer for Wilderness Trout Streams and Wild Rivers*

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
200	0	200

* Wild River management plans supersede these guidelines.

Table 2. Minimum Aquatic Habitat Buffers for Exceptional Value (EV) Streams and Scenic Rivers†

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
135	0	135

† Scenic River management plans supersede these guidelines.

Table 3. Minimum Aquatic Habitat Buffers for High Quality (HQ) Streams and All Other Perennial Streams

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
30	105	135

Table 4. Minimum Aquatic Habitat Buffers for Intermittent or Ephemeral Streams

Intermittent streams are referred to as zero order streams with definable bed and banks. Water does not flow through the channel all of the time, but aquatic invertebrates and some vertebrates can survive in the moist substrate. Ephemeral streams only occasionally have water flowing.

Slope of Land Above Stream (%)	Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
0-10	0	40	40
11-20	0	50	50
21-30	0	60	60
31-40	0	70	70
40+	Activity may not be advisable due to erosion potential. Extreme care must be taken to prevent movement of soil.		

B. Lakes, Ponds, or Impoundments:

The aquatic habitat buffer for lakes, ponds, and impoundments starts at the edge of the water as it would exist during median capacity levels.

Table 5: Minimum Aquatic Habitat Buffers for Lakes, Ponds, or Impoundments ‡

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
30	105	135

‡ Individual lake management plans supersede these guidelines.

C. Vernal Ponds:

A vernal pond is a small, temporary body of water in a depression that is fed by surface runoff, lacks surface outflow, and is maintained by a high water table (does not persist year-round). Vernal ponds are also referred to as ephemeral or fluctuating pools.

Table 6. Minimum Aquatic Habitat Buffers for Vernal Ponds

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
100	100	200

Additional Guidelines for Vernal Ponds:

1. Restrict harvest operations within outer zone to **November through January**.
2. When the vernal ponds occur as groups in the landscape, the aquatic habitat buffer will begin around the edge of the entire vernal pond grouping.
3. Shading should be maintained and soil and leaf litter disturbance should be minimized throughout the aquatic habitat buffer.
4. Ruts created within the outer zone must be graded or raked to the original contour.
5. Shrub and herbaceous vegetation should be encouraged in the aquatic habitat buffer. They provide important food sources for wildlife and their presence helps to minimize invasion by non-native and invasive plant species.

D. Spring Seeps:

A spring seep is a permanent or intermittent discharge of water that emerges from the ground and flows across the soil surface without defined bed and banks. The limits of the seep are demarked by the extent of surface water, water-stained leaves, or other signs of hydrology (e.g., oxidized root channels).

Table 7. Minimum Aquatic Habitat Buffer for Spring Seeps

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
30	70	100

Additional Guidelines for Spring Seeps:

1. Avoid soil and leaf litter disturbance within the aquatic habitat buffer.
2. Limit harvest activity to dry or frozen conditions when possible.
3. Ruts created within the outer zone must be graded or raked to the original contour.
4. Fell trees away from seeps and leave tops in wetland if they fall into standing water.
5. Encourage herbaceous vegetation around and below seeps and retain all valuable food producing small tree and shrub species in the vicinity of seeps, especially those seeps that remain open through the winter. Establish wildlife food shrubs and coniferous cover near seeps if needed (consult with the Ecological Services Section for list of plant species).

E. Wetlands:

Wetlands are legally defined under Section 404 of the Federal Clean Water Act and Chapter 105 regulations issued pursuant to the Pennsylvania Dam Safety and Encroachment Act as: “areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, bogs, and similar areas.” Wetlands are typically characterized by hydrophytic vegetation, hydric soils, and the presence of water at or near the surface for a portion of the year.

Table 8. Minimum Aquatic Habitat Buffers for Wetlands

Wetland buffer guidelines have not been finalized and will be distributed as an addendum once finalized.

Width of Inner Zone (Ft.)	Width of Outer Zone (Ft.)	Total Width of Aquatic Habitat Buffer (Ft.)
To be determined	To be determined	To be determined

Additional Guidelines for Wetlands:

1. All wetlands will be protected or enhanced.
2. Fell trees away from wetlands. Leave tops in wetlands if trees fall into standing water.
3. Wetlands will be inventoried and evaluated according to the Landscape Examination procedures.
4. Proposed activities in wetlands will undergo an Environmental Review, as detailed in the Overview Section of the State Forest Resource Management Plan, prior to implementation.
5. Wetlands may be created or developed in suitable areas. An Environmental Review must be completed. Consult the Ecological Services Section. Other sources of information include the PA Game Commission, PA Fish and Boat Commission, PA DEP Bureau of Watershed Management, and the USDA Natural Resource Conservation Service.

Additional Guidelines for Aquatic Habitat Buffers

1. Fords are prohibited on Exceptional Value (EV), High Quality (HQ), and Wilderness Trout Streams.
2. Portable sawmill sets and debarking and chipping operations are not permitted within:
 - a. 300 feet plus 10 feet for each percent slope of HQ waters
 - b. ¼ mile of EV waters and Wilderness trout streams
3. New public use roads should be kept at least ¼ mile away from streams, unless topography or other physical features are an issue.
 - a. Administrative roads within ¼ mile of streams should be gated to prevent public access by motor vehicles. Exceptions include administrative roads leading to leased camp sites, rights-of-way to private interior holdings, and gated roads open during hunting season.
 - b. Parallel roads and trails should be located at least 200 feet plus four feet for every one percent of slope away from the stream bank.
4. Well drilling sites must be located 300 feet from EV, HQ, and Wilderness Trout Streams and 200 feet from all other streams or water bodies. Refer to the *Oil and Gas Guidelines* for specific details.
5. Strip-mining will not be permitted within one-quarter mile of any waterbody.
6. Aquatic habitat buffers should be monitored for the presence of non-native invasive plant and animal species. Whenever possible, attempts should be made to control the invasive species and to restore native species in the aquatic habitat buffer (Consult the Ecological Services Section for assistance).