Assessing Suitability for U.S. Wild and Scenic River Designation

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Abstract

Under the U.S. *Wild and Scenic Rivers Act*, free-flowing segments of designated rivers with "outstandingly remarkable values" (ORVs) can receive federal support and protection from inappropriate federal actions. A stakeholder consortium is assessing the Deerfield River and its tributaries in Massachusetts and Vermont for Wild and Scenic status following the National Park Service's reconnaissance survey model. This model includes identification of those ORVs (e.g., recreation, scenic, historic and cultural, geologic, and natural resource) and assessment of eligibility wild and scenic designation. It will also include a free-flowing river analysis, to identify hydroelectric, flood control, and other dams and impoundments, community support, and an environmental assessment. This model is applicable in other settings, in the U.S. and elsewhere, to assess rivers for special treatment of any kind.

This analysis will examine management and stewardship opportunities and the potential benefits and suitability of listing in comparison with other common practices in Massachusetts and Vermont. Those include fee and less-than-fee land preservation efforts, zoning, on-site sewage, stormwater and other local regulatory approaches, stormwater and flood mitigation efforts, and other such approaches.

Introduction

The U.S. Wild and Scenic Rivers Act (16 USC Ch. 28: Wild and Scenic Rivers) protects selected rivers and river segments with "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values…in free-flowing condition…" Designated rivers and river segments must be free-flowing but designated river segments may be both upstream and downstream of dams and their impoundments, excluding the impounded areas. This approach could potentially provide lessons to classification schemes used in other areas, such as the European Union's The Water Framework Directive (European Environmental Agency 2021).

Wild and scenic river designation provides tangible benefits. Federal agencies, for rivers under their control, or local partnerships with federal support prepare a management plan for a designated river. The Act requires that Federal agencies pay attention to those management plans in their actions, with a prohibition on approving new federally licensed hydropower and other impoundments or water resources projects (i.e. transmission lines, diversions, channelization projects) within designated river segments. Federal "partnership river" funds can help fund river improvement projects and river management actions. Partnership rivers have received federal funding averaging $220,000 per year for river stewardship projects.

While less tangible, designation is equally important in attracting tourism and other investments, fostering local economic development and acting as a stamp of approval.

Designated rivers are often pristine, in Alaska, western wilderness areas, and in undeveloped areas all over the country. In the western United States, they are often running through lands controlled by federal agencies. In the eastern U.S., designated rivers more commonly run through private or state-owned lands. There are also numerous designations of rivers running through urban, suburban, and rural working-lands, such as the Taunton River in Massachusetts. Congress usually designates wild and scenic rivers, but there is an option for states to nominate a state-administered wild and scenic river for approval by the Secretary of the Interior without going through Congress, under Section 2aii of the Act.

Congressional sponsors sometimes customize designations to ensure that hydroelectric and urban features are vested and not effected by designation. For example, the designation of the Housatonic River in Connecticut, specifically requires that the designation "shall not impact or alter the existing terms of permitting, licensing, or operation of" named hydroelectric facilities (16 USC Ch. 28 §1274).

The current wild and scenic feasibility study of the Deerfield River Watershed in Massachusetts and Vermont will help set the stage for a potential inclusion of some of the Deerfield River main stem segments and its tributaries in the National Wild and Scenic Rivers System.

Background and Literature Review

Deerfield River Wild and Scenic River Study Act of 2023 (S. 608) would designate the Deerfield River Watershed for study as a potential addition to the National Wild and Scenic Rivers System. That actual funding is not included in the legislation but is provided through the National Park Service budget. The legislation's accompanying report summarizes the opportunities (U.S. Senate 2024).

The U.S Senate passed the Study Act by unanimous consent at the end of the 118th Congress (2023-2024), sending the Act to the U.S. House, where it died without a vote at end of the session. There was no formal opposition and the failure to pass was about inertia, since most legislation introduced in Congress fails to receive a full vote.

There are numerous precedent wild and scenic river studies that follow the National Park Service's format. Some of the most recent studies in New England include the Nashua River in New Hampshire, the Wood-Pawcatuck Watershed in Connecticut and Rhode Island, the York River in Maine (2013c), and Upper Missisquoi and Trout Rivers in Vermont (National Park Service 2013a, 2013b, 2013c, and 2014 respectively).

With Wild and Scenic Act funding uncertain, the Deerfield River Watershed Association and the Connecticut River Conservancy obtained funding from the Massachusetts Woodlands Partnership to undertake a Wild and Scenic Rivers feasibility study and stewardship plan for the Massachusetts portion of the watershed. They are also shortlisted to receive funding from the National Park Service to undertake a Reconnaissance Study of the Deerfield River as a preliminary wild and scenic river feasibility study of the full watershed in Vermont and Massachusetts. That funding is in limbo as the new Trump administration reconsiders all federal funding. The authors were hired to coordinate the study as part of this partnership

The Deerfield River Watershed is 665 square miles, with ten hydroelectric facilities on the Deerfield River main stem, 589 miles of perennial rivers, and is in or in 36 towns (Deerfield

River Watershed Association 2024). Data gathering can be complex, especially for analysis of information collected by small communities who may not archive that information on-line.

The Deerfield River has significant sections that are not free flowing. As early as 1935, it was one of the most developed rivers in the United States for hydroelectric production (Botts, 1935). Wild and scenic designation is still possible for those sections of the river that are free flowing.

The headwaters and upper reaches of the watershed and sub-watersheds have a rich aquatic biodiversity (Cole 2012) and scenic values, among the most consistent criteria for wild and scenic eligibility. The Deerfield River and other major waterways served as highway and fishing and hunting grounds, with relatively archaeological sites remaining, and early European-descent settlements (Franklin Regional Council of Governments-FRCOG and Berkshire Regional Planning Commission 2002 and FRCOG and Pioneer Valley Planning Commission 2009). Although relatively few archaeological sites remain, this history and the later are part of the resources of the area.

Past data indicates that much of the Deerfield River and its tributaries are eligible for wild and scenic designation. The USDA Forest Service evaluation of the upper Deerfield River in the Green Mountain National Forest found that 13.2 miles (headwaters to Searsburg Reservoir) are eligible for wild and scenic designation (USDA Forest Service 2004 and U.S. Senate 2024). The National Rivers Inventory (National Park Service 2024) shows numerous free-flowing river segments with "outstandingly remarkable values," the minimum requirement for wild and scenic designation in the study area.

Table 1. Existing Federal analysis of potential wild and scenic designations

River	Segment	Outstandingly Remarkable	Source
Deerfield River VT	Headwaters to Harriman Reservoir (19 miles)	Other	NPS 2024
Green River VT	Headwaters to VT/MA line (15 miles)	Other	NPS 2024
Bog Brook MA	Headwaters at Bog Pond to Cold River (1 mile)	Other	NPS 2024
Cold River MA	Headwaters to Deerfield River (14 miles)	Other	NPS 2024
Deerfield River MA	Headwaters to Searsburg Reservoir (13.2 miles)	Hydrologic, Wildlife	USDA 2004
Deerfield River MA	Fife Brook to south of Charlemont (11 miles)	Fish, Historic	NPS 2024
Deerfield River MA	Schneck Brook to Stillwater Bridge (6 miles)	Fish, Other	NPS 2024
Gulf Brook MA	Headwaters to Cold River (4 miles)	Other	NPS 2024
South River MA	Conway to Deerfield River (6 miles)	Wildlife	NPS 2024

Significant work has been completed to identify the challenges and opportunities to improve the environmental health in the watershed (e.g., Franklin Regional Council of Governments 2017) and conduct geomorphological studies to identify shifting river channels and fluvial erosion, including outside of identified floodway and floodplains (e.g., Field 2013 and 2015).

Method and Data

The current and potential feasibility study grant funds ($75,000 Woodlands Partnership awarded and $25,000 National Park Service potential) are only a fraction of the Congressional Budget Office's estimate of the up to $500,000 cost of a federally funded study (U.S. Senate 2024). As a result, the Deerfield River study is resource limited, with awarded funding only for

Massachusetts, and it will not include as much detail as a traditional National Park Service coordinated study.

Fortunately, there are a few resources that allow the process to work. First, the Deerfield River Watershed Association the Connecticut River Conservancy have been committed to this process for many years, collecting original watershed water quality data and compiling work by others. Second, the regional planning agencies (RPAs) in the watershed, conservation organizations, some of the local towns, and other agencies have completed numerous studies and provided technical assistance to the regions' towns, all of which informs this work. Third, both Massachusetts and Vermont have robust GIS and remote sensing databases, with analysis further developed by regional planning agencies. Finally, the project advisory steering committee can share their great depth of local knowledge. The study uses low budget methods, building on the rich collection of existing studies, collecting only the minimum data necessary for analysis and using surrogate data when direct measures are not available.

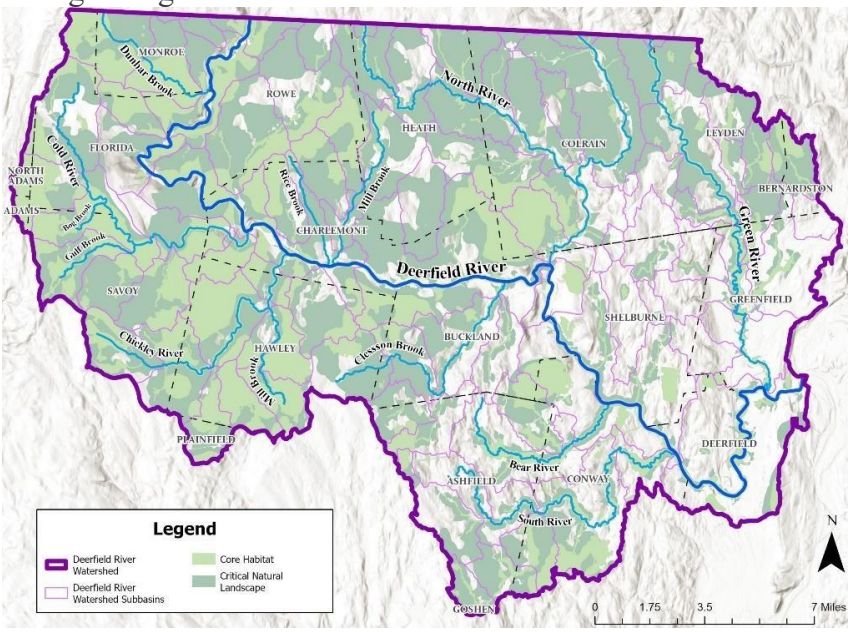

Figure 1. Core Habitat and Critical Natural Landscape

Mapping resources allows an overview of areas of interest using existing no-cost data. Figure 1 shows BioMap Core Habitat and Critical Natural Landscape within the Massachusetts Deerfield River Watershed (source: MassGIS data). Remote sensing can allow access to areas that are difficult or impossible to reach. Figure 2 shows a low elevation oblique photo nuclear casks stored near the Deerfield River behind the security perimeter (source EagleView Technology Corporation accessed with a MassDOT license). These resources provide information that is easier to collect remotely than through site visits.

Figure 2. Nuclear storage casks near the Deerfield River

The study must consider both the resources available within the potential future wild and scenic river segments and an initial management plan. Future wild and scenic funding can help improve the local and regional management capacity, but that requires understanding opportunities and constraints. Analysing zoning can help provide an understanding of current management practices and sometimes administrative capacity. Table 2 shows how zoning from Massachusetts Deerfield River watershed communities addresses traditional inundation flooding hazards, typically done using FEMA's Flood Insurance Rate Maps (FIRM), floodway hazards (typically done using FEMA's Flood Boundary and Floodway Map (FBFM), and any regulatory protection from all flooding hazards, fluvial erosion and river channel evolution.

Table 2. Massachusetts watershed zoning identifying flooding and fluvial erosion

Town and reference	Basis of flood/erosion protection
Adams (2023)	1983 FIRM 1% storm and FBFM
Ashfield (2023)	1985 FIRM 1% storm
Bernardston (2022)	1980 FIRM 1% storm and FBFM
Buckland (2024)	1980 FIRM 1% storm and FBFM
Charlemont (2020)	1980 FIRM 1% storm and FBFM
Colrain (2018)	1980 FIRM 1% storm and FBFM
Conway (2022)	1980 FIRM 1% storm and FBFM
Deerfield (2023)	1980 FIRM 1% storm and FBFM
Florida (2016)	Zoning does not identify flood or erosion hazards
Goshen (2019)	Zoning does not identify flood or erosion hazards
Greenfield (2021)	1980 FIRM 1% storm and FBFM
Hawley (2012)	1985 FIRM 1% storm and "best available floodway data"
Health (2021)	1979 as amended FIRM 1% storm and FBFM
Leyden (2023)	1975 FHBA 1% storm
Monroe	No zoning
N.Adams (2024)	1981 FIRM 1% storm and FBFM
Plainfield (2016)	Zoning does not identify flood or erosion hazards
Rowe (2019)	Zoning does not identify flood or erosion hazards

Savoy (2018)	Zoning does not identify flood or erosion hazards
Shelburne (2022)	1980 FIRM 1% storm and FBFM

Results

Many segments of the Deerfield River and its tributaries are eligible for wild and scenic designation. Given the many segments dedicated to hydroelectric and flood control dams and their impoundments and some segments that are more heavily urbanized with lower water quality, many stretches are not eligible for listing. Designations can be up and downstream of excluded stretches, and often are on other wild and scenic rivers.

Given the amount of information that is readily available, even with a budget significantly smaller than many traditional fully funded studies, it is possible to complete the study and document some river segments that are eligible for wild and scenic designation. Some aspects of the work, such as documenting river segments with more limited information, conducting the most aggressive community engagement campaign, and taking the environmental assessment to a Finding of No Significant Impact (FONSI) could be limited.

None of the zoning regulations in Massachusetts communities within the Deerfield River watershed identify flood inundation and floodway hazards beyond what is depicted on outdated FEMA mapping. Because FEMA work is based on historical analysis, their mapping does not address increased current and future flooding hazards or fluvial erosion and river channel migration anticipated with climate change. Franklin Regional Council of Governments, however, has sponsored several geomorphic assessments (2017 and Field 2013 and 2015) and planning infrastructure assessments (FRCOG 2017). Additional geomorphic assessments have been sponsored by individual communities using Massachusetts Municipal Vulnerability Preparedness program funding (e.g., MVP 2024).

Vermont towns were not included in the zoning assessment. Those communities are already subject to Vermont's Fluvial Erosion and River Corridors efforts which identifies, using geomorphic assessments, and protects against erosion and changing river channels (Vermont N.D.). That is, however, a work in progress not always reflected in zoning and land use maps.

Discussions and Conclusion

Wild and scenic designation can attract visitors and investment simply by providing attention to outstanding wild and scenic river values. It provides additional protection against new dams and river altering actions. Designation, when funding is authorized for Partnership Rivers, can also provide funding and resources to address some of the challenges.

There are significant opportunities for the improved management that can come from creating a watershed management plan, from regional cooperation and from more resources. River management issues such as improved zoning, stream channel erosion and migration, recreational overuse, riverfront trash and debris, non-point pollution, invasive plant and animal invasions, and lower water quality can all benefit from a shared management plan and new resources.

The benefits from wild and scenic designation are clear. Local concerns about federal intervention or a centralized planning and management approach can be addressed by education and engaging communities and regional organizations in a wild and scenic river management committee, which will lead efforts to protect the river after designation. The impact on dams large and small can be addressed, either by simply excluding the dam and impounded river sections or with more specific language in any future Congressional wild and scenic legislation. These issues can be effectively addressed through regional cooperation and public engagement.

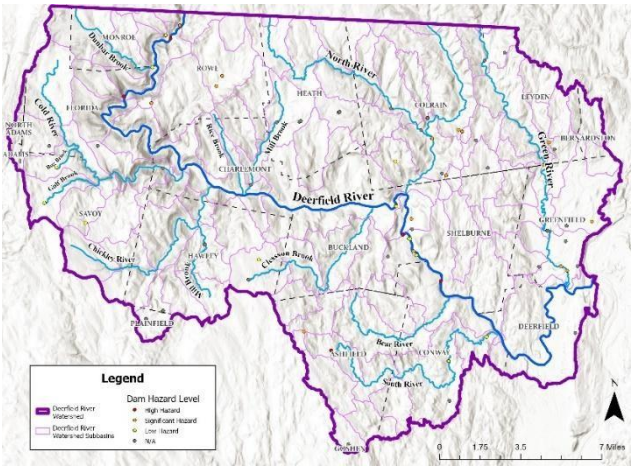

Figure 3. Dams large and small dominate the Massachusetts Deerfield River watershed

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