Why Remove Peterson Dam from the Lamoille River?

Rod Wentworth, Vermont Department of Fish and Wildlife August 11, 2004

On January 7, 2003, a settlement agreement was reached concerning the relicensing of the four most downstream hydropower dams on the Lamoille River, owned by Central Vermont Public Service Corporation. The original license expired in 1987, but renewal has been delayed due to various legal disputes, the collection of additional scientific information, and negotiations aimed at achieving an outcome acceptable to all involved. That outcome was finally reached, with the Vermont Agency of Natural Resources, Central Vermont Public Service Corporation, Trout Unlimited, Vermont Natural Resources Council, the Town of Milton, and the Vermont Department of Public Service agreeing to significant changes at all four dams.

The settlement addresses long standing issues associated with river flow manipulation, downstream fish passage and reservoir water level management. While three of the dams will continue to produce power for the entire term of a new 30-year license, the fourth and most downstream dam (Peterson) will produce power for the next twenty years and then be removed.

Why is it important to fish and wildlife resources to remove this dam? I want to tell you my opinion. Vermont has more than 1,200 dams within its borders, and about 62 of these are active hydropower dams. Because of its location, Peterson dam has far-reaching effects on many species of fish and other aquatic life within the Lake Champlain ecosystem that can only be corrected by removal. It is a unique situation.

Lake Champlain is a magnificent treasure that supports a large array of aquatic species. Sometimes called the sixth great lake, 81 of Vermont's 91 fish species are found there. And, a good number of these rely on both the lake and its tributary rivers for different parts of their life cycles, such as spawning, juvenile rearing and feeding. Notable among them are walleye, salmon, lake sturgeon and a host of lesser known species including suckers, bass, minnows, pike, perch and others.

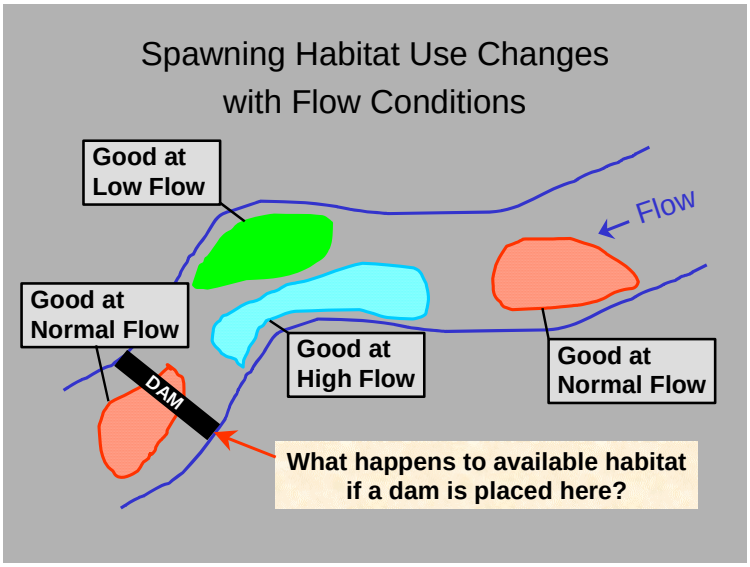
The connection between Lake Champlain and its tributaries is vital to this group of species. While they use the slow lake-like lower river reaches, they also rely on the rocky habitat with swifter current that is found where the river gradient is steeper. Unfortunately, most of the larger Vermont tributaries to Lake Champlain are blocked by dams, and very little of this rocky habitat remains.

Now lets focus in on the Lamoille River. Historically, the Lamoille River supported a diverse abundance of fish species, as well as other aquatic life such as insects and mussels, that thrived in its clean water and high quality habitat. Salmon, once abundant in Lake Champlain and its tributaries, were completely eliminated over 100 years ago by the construction of dams that prevented them from reaching spawning and rearing habitat. Long ago, the Lamoille River was probably Vermont s #1 salmon producer, providing both spawning habitat for adult fish and nursery habitat where juvenile fish could grow for one or two years before moving out to the lake.

Walleye too were abundant, and entered the lower river in great numbers during their spring spawning run. During this time, it was said that there were so many fish in the river that you could smell them, and fishing boats were at times so numerous that you could practically step from boat to boat and cross the river without getting your feet wet. Anglers still catch walleye in the Lamoille River, but the fish population has declined significantly.

One of the most intriguing fish found in Lake Champlain is the ancient-looking lake sturgeon, which was once numerous but is now an endangered species in Vermont. Historically, spawning runs occurred only on the Vermont side of Lake Champlain, primarily in the Missisquoi and Lamoille Rivers and to a lesser extent, in the Winooski River and Otter Creek. Recent surveys have shown that sturgeon continue to reproduce in all four rivers, although they are few in number.

Construction of Peterson dam in 1948 eliminated most of the historical spawning habitat used by salmon, walleye, sturgeon and other fishes. The dam is the first barrier encountered by fish moving upstream from the lake. While the dam is located 5.6 miles upstream from the river's mouth, the vast majority of this reach is slow, flat water with a sand or silt bottom. Only a short, 350-foot stretch immediately below the dam provides the necessary habitat with a rocky bottom and swift current. We estimate the potential spawning habitat for walleye and sturgeon restored through dam removal will amount to a 12-fold increase over what is now available. Further, availability of multiple spawning locations would ensure that suitable habitat would exist under the wide range of river flows that can occur in the spring. The suitability of the small area of habitat downstream of the dam is very dependent on both flow and lake level, and will be poor in some years. You don't need to be a fisheries scientist to know that this kind of improvement in habitat availability is very likely to result in more fish production.



Dam removal will open up 2.9 miles of river habitat that can be used for salmon spawning and juvenile nursery habitat, without the need for special fish passage devices, which are never 100%

effective. It is difficult to accurately predict how many returning adult salmon run could be produced from this habitat, but we expect it to be in the hundreds each year.

I would be remiss if I didn't mention some of the other aquatic species that will also benefit from removal of Peterson dam and the re-establishment of the river-lake ecological connection. Of the 17 species of freshwater mussels that are native to Vermont, 13 are found in the Lamoille River, 12 occur downstream of Peterson dam, and six of those are threatened or endangered. Some of these species need the gravelly, rocky habitat that I have discussed as also important to a number of fishes but in short supply.

Peterson Dam as seen from downriver, 2000.

While the leading cause of mussel population declines is believed to be habitat loss, an additional threat in the Lake Champlain basin is the invasion of zebra mussels. They attach to, smoother and kill native mussels. The slow water habitat downstream of Peterson dam is likely to become colonized by zebra mussels, as has happened in Otter Creek and Little Otter Creek, putting the native mussel populations at risk. Removal of Peterson dam would restore upriver native mussel habitat that zebra mussels are unlikely to colonize more than sparsely.

Quillback -- a rare species found in parts of the Champlain basin

Numerous fish species move into the Lamoille River from the lake during the spring to spawn or feed. Many of these, such as minnows, suckers, and darters, are rarely if ever pursued by anglers but they all play a role in the ecosystem. For example, many are important prey species for other fish such as pike, walleye and bass. All will benefit from dam removal and the return of the impoundment to a free-flowing condition.

Some anglers have expressed concerns that dam removal will eliminate fishing in the impoundment for fish such as pike, smallmouth bass and walleye. This is a trade-off, but I think this loss will be more than offset by gains in fish populations that support fishing opportunities in both the river and Lake Champlain. The lower Lamoille River plays a vital role for fish that need both lake and river habitats. Its restoration is about more than just a few miles of river, it is also about Lake Champlain and many of its species.

Opportunities to make quantum leaps in restoring Vermont's heritage of aquatic resources are rare. This is one of them.

Why Remove Peterson Dam?

- Dam removal will help species in trouble.
- Dam removal will help restore the walleye fishery.
- Dam removal will help restore the salmon fishery.
- Dam removal will provide habitat that many other fish species will use.
- Dam removal will provide canoeing and kayaking opportunities.
- Dam removal will restore river fishing areas.

A more detailed report, *Ecological Assessment of the Peterson Dam Reach of the Lamoille River*, is available on the Department of Fish and Wildlife web site at http://www.vtfishandwildlife.com/library.cfm?libbase_=Reports_and_Documents