

Compensation as Mitigation for Fish and Wildlife Benefits: The Pigeon River Fund Example

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Abstract: Poor water quality upstream of the Carolina Power and Light Company (CP&L) Walters Hydroelectric Project (WHP) resulted in establishment of a mitigation fund in lieu of immediate water releases as a condition of a new Federal Energy Regulatory Commission (FERC) license. The negotiated agreement between state management agencies and CP&L includes provisions for future instream flow releases, but until that time, CP&L will make annual payments to the Pigeon River Fund (PRF). The PRF will grant money to nonprofit groups and government agencies for projects related to water quality, fish and wildlife habitat improvement, fishery management, and angler access outside the WHP boundaries. We suggest that agencies avoid, minimize, rectify, reduce, or eliminate projects over time before considering monetary compensation as mitigation. The PRF, while having apparent good potential for improving fish and wildlife habitat, made its first grants during 1996 so its future success is unknown.

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Most state fish and wildlife management agencies do not have specific regulatory authority to minimize damage to fish and wildlife habitat from federally permitted development projects. States accomplish this through consultations recommended or required in existing federal legislation, most notably the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667e), the National Environmental Policy Act (42 U.S.C. 4321-4347), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.), and the Federal License of Water Resource Project Act (also known as the Federal Power Act) (16 U.S.C. 791a et seq.) (Bearzi and Wilkerson 1990, Howorth 1991). The mitigation policy of the North Carolina Wildlife Resources Commission (1988) generally used to address negative impacts of development projects is, in priority order, to 1) avoid the impact, 2) minimize the impact, 3) rectify the impact, 4) reduce or eliminate the impact over time, 5) compensate for the impact, or 6) provide mitigation banking. Compensation and mitigation banking are the least desir-

able of these options since both result in net losses of fish and wildlife habitat. Only mitigation banking has received much attention in the literature because this action often results in large tracts of land coming into public ownership or control in exchange for unavoidable losses in fish and wildlife habitat. In many cases, mitigation banks target specific types of habitats such as wetlands (Soileau et al. 1985, Laney et al. 1988, Zagata 1988, Howorth 1991).

Compensation as mitigation for adverse project impacts has been used primarily where resource values can be easily quantified. Agreements based on those values usually require little negotiation and have occurred mainly in cases involving fish loss by entrainment and impingement (Am. Fish Soc. 1990, Hoffman and Clower 1992) and fish passage (U.S. Off. Tech. Assessment 1995). The use of these funds is usually defined in plans cooperatively developed by licensees and management agencies and often are part of the agreements. Some funds, such as the Mussel Mitigation Trust (Marshall et al. 1993), have limited funding (\$400,000) and scope, whereas the Great Lakes Protection Fund (1994) is a large, multi-state endowment fund (\$76.8 million) which addresses issues at the ecosystem level.

In the next 10–15 years there will be many Federal Energy Regulatory Commission (FERC) hydropower project relicensings located in the southeastern United States (FERC, unpubl. data) in which mitigation for lost or damaged fish and wildlife habitat will be necessary. Lamb (1992) has shown that special conditions related to instream flows are included in many FERC licenses. These conditions usually result from negotiations conducted between applicants and management agencies following formal field studies. In some cases, instream flows may not be possible or desirable and agencies may be faced with considering other options to mitigate degradation or loss of fish and wildlife habitat. This paper describes the circumstances and events which led to creation of a mitigation fund in lieu of instream flows as a condition in a new FERC license for the Carolina Power and Light Company (CP&L) Walters Hydroelectric Project (WHP). Also included is a description of the fund's structure.

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Project Description

WHP powerhouse is located in Haywood County, North Carolina, on the Pigeon River just upstream of the Tennessee state line. The Pigeon River and Cataloochee Creek, a major tributary, are impounded about 19 km upstream to form Waterville Lake where water is diverted around the river channel to the powerhouse via an underground tunnel. The lower 14.5 km of the bypassed reach supports a sportfish population dominated by redbreast sunfish (*Lepomis auritus*) and smallmouth bass (*Micropterus dolomieu*). Fish habitat is good in this reach, but is limited because flow

consists of about 28 liters/sec leakage from the Waterville Lake dam and inflow from small tributaries.

Historically, water quality and the associated aquatic community of the Pigeon River and Waterville Lake has been poor (Hess and Tarzwell 1942, N.C. Dep. Nat. Resour. and Community Dev. 1980) because of waste discharges from Champion International Corporation's pulp and paper mill located about 40 km upstream of Waterville Lake at Canton, North Carolina. This mill used up to 90% of stream flow and discharged up to 158,970 m³/day of effluent with elevated water temperatures containing dioxins (N.C. Dep. Human Resour., unpubl. rep.), high levels of tannins (color), high concentrations of dissolved solids, and high chemical and biological oxygen demands. In the early 1990s, Champion began mill modernization to meet new permit conditions for dioxins, color, and chloroform (F. Westall, NCDEHNR testimony to FERC hearing, 1991). Although these changes should lead to improvements of the aquatic community in the Pigeon River downstream, this reach was still rated poor in 1995 (Crutchfield and Tracy 1996). Cataloochee Creek, the major tributary of Waterville Lake, has excellent water quality and supports wild rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) (Bonner 1983). Most of this watershed is contained within the Great Smoky Mountains National Park and Pisgah National Forest.

Settlement Agreement

In 1973, CP&L submitted a license application for its WHP pursuant to Section 15 of the Federal Power Act (16 U.S.C. §807). A competing application was filed by the North Carolina Electric Membership Corporation (NCEMC) in September 1974 and, as a result, a trial-like hearing was scheduled to determine the new licensee. Evidentiary hearings started in April 1991 allowed NCDEHNR, the Tennessee Wildlife Resources Agency, and North Carolina Council of Trout Unlimited to enter testimony related to environmental issues. The NCDEHNR indicated it wanted the successful applicant to enhance fish and wildlife resources in the bypassed reach through the establishment of instream flows. The initial proposal was to obtain water from Waterville Lake only after the water quality in the lake became acceptable. However, testimony by a state water quality expert indicated that even with modernization, the effluent from the Champion pulp mill would continue to impair the health of the aquatic community of Waterville Lake for the foreseeable future. The only source of water acceptable for release to the bypassed reach was from Cataloochee Creek. The NCDEHNR then proposed the licensee construct a diversion structure and 2.4-km pipeline capable of carrying 1,133 liters/sec from Cataloochee Creek to the bypassed reach. Construction costs for this structure were estimated at \$16 million–\$24 million.

The proposed 1,133-liters/sec flow regime was based on the September median flow of Cataloochee Creek, a much smaller basin than that of the Pigeon River upstream of the Waterville Lake dam and the only acceptable alternative if no instream flow study were conducted. Toward the conclusion of the hearing, NCDEHNR indicated that if the licensee did not want to construct the Cataloochee Creek diversion

structure, a formal instream flow study should be completed before the license was issued. This was necessary to establish the instream flow regime as part of the new license should water quality in the lake improve and to serve as a basis for determining the mitigation value of fish and wildlife resources which would be lost without an instream flow. The evidentiary hearings on the environmental issues ended in October 1991, and during 1992 CP&L reached an agreement with NCEMC resulting in withdrawal of its competitive license application. This allowed CP&L to work directly with NCDEHNR and FERC to complete the instream flow study and to negotiate license conditions.

Negotiation meetings for mitigation of the WHP were started in December 1992. Included in the list of mitigation options first considered were making physical changes to habitat within the bypassed reach, improving habitats for other species within the project area, fish stocking, and hatchery options. Because the existing physical habitat within the bypassed reach only lacked additional flow to be effective, structural changes were not necessary. Options related to fish stocking were not considered because the area was being managed for wild fish. The initial mitigation value for lost resources, set at \$20 million, was based on the cost to construct the Cataloochee Creek diversion structure.

In early 1993, the instream flow study was completed and a flow regime of 850 liters/sec during May and June and 566 liters/sec during the remainder of the year was agreed upon. The NCDEHNR also agreed not to ask for releases for the first 10 years of the license period and then would only do so after the aquatic community in the Pigeon River upstream of Waterville Lake met minimum index of biotic integrity criteria (FERC 1994).

Because improved flows in the bypassed reach were not desirable and physical improvements of fish habitat were not necessary, NCDEHNR suggested that enhancing degraded aquatic habitats in other areas of the Pigeon River basin would be a viable mitigation option. This proposal had to be strongly justified by NCDEHNR and CP&L because FERC was reluctant to require mitigation outside a project's boundaries. At that time NCDEHNR proposed establishing a mitigation fund. The objective of the proposal was to provide a method in which fish and wildlife resources could be enhanced outside the project boundaries in lieu of obtaining instream flows in the bypassed reach. Once CP&L agreed to this proposal, the funding scheme was based partly on the value of lost power generation had CP&L been required to initiate instream flows immediately. The NCDEHNR also wanted a substantial initial lump sum payment from CP&L to allow projects to be funded immediately. Following the initial lump sum payment, annual payments would be required until instream flows to the bypassed reach were established or the license expired. This agreement was included in the FERC (1994) license order and created the Pigeon River Fund (PRF).

Pigeon River Fund

The PRF provides a way to improve fish and wildlife habitat outside WHP, but within CP&L's western North Carolina service area. The service area includes all of

the Pigeon River basin and a portion of the French Broad River basin in North Carolina. The FERC (1994) order specified monies in the PRF were to be used for projects that 1) provide direct benefits to surface water quality, 2) improve fish and wildlife habitat in and near surface waters, 3) enhance fishery management capabilities, or 4) improve public access to surface waters. Funds could not be used for litigation except to protect PRF assets.

A Board of Trustees of no more than 11 members was appointed by the NCDEHNR Secretary to oversee the PRF. Employees of North Carolina state government cannot compose a majority membership of the Board and at least 2 members must be employees or designees of CP&L. The FERC order also requires the PRF be administered by a nonprofit, tax-exempt corporation which must report annually to CP&L, NCDEHNR, and FERC. Although not required by FERC, the Board has created a technical advisory committee to review grant proposals.

CP&L was required to make an initial payment of \$1 million to the PRF. It must also make annual payments of \$100,000 for years 1–5 of the license period and \$290,000 from year 6 until an instream flow is required or to the end of the 40-year license. Required contributions will be adjusted based on the Consumer Price Index.

Discussion

We believe that because of the poor water quality upstream of the WHP the trial-like hearing had little impact on the outcome of this relicensing. The absence of a competitive applicant for the new license would have only required organizations to review and comment on a single set of environmental documents. The issues at stake would have remained the same and agency comments would have varied little. We do believe that discussing environmental issues and the presentation of respective positions on these issues by NCDEHNR, CP&L, and NCEMC in the formal atmosphere of a FERC administrative hearing contributed to rapid agreement in principle on solving the environmental issues with relatively little confrontation.

In the case of the WHP, NCDEHNR recognized that obtaining instream flows to the bypassed reach was neither a viable or desirable option. Considering the physical characteristics of the bypassed reach, the condition of the water quality in Waterville Lake, and the difficulty in obtaining water of suitable quality to meet instream flow needs, impacts from the WHP could not be avoided, minimized, or rectified in the short term. Mitigation banking was not considered as an option because of the uniqueness of the Pigeon River bypass and because NCDEHNR did not want to eliminate the possibility of obtaining future instream flows. Since the time when instream flows could be initiated was unknown and making habitat improvements within the bypassed reach without improved flows would be useless, we believed that the best option was to seek a method allowing fish and wildlife habitat improvement elsewhere in the Pigeon River basin. The creation of the PRF and its administration by a nonprofit organization has the potential for making this possible.

Rather than postpone instream flow studies to some unknown future date, we believed that conducting the flow studies during the relicensing and establishing a

mitigation fund for the purpose of enhancing fish and wildlife habitat elsewhere in the basin was a prudent and acceptable alternative. The NCDEHNR may have not obtained any mitigation for fish and wildlife resources until the water quality in the Pigeon River upstream of Waterville Lake improved if they had not used these tactics.

The decision to determine instream flow requirements prior to issuance of the new license rather than waiting until the water quality improved in Waterville Lake was of benefit to both NCDEHNR and CP&L. The results of the instream flow study revealed that flows to significantly improve habitat for smallmouth bass and redbreast sunfish were much lower than would have been expected had the study not been completed. This is because these species prefer low water velocities and parts of the original stream channel had been narrowed due to construction of an interstate highway along the bypassed reach. CP&L benefited from the fact that payments to the PRF, based partly on the instream flow requirements, are lower and there will be less impact to WHP operations if instream flow releases are required.

Negotiations and settlement agreements have resolved many environmental issues related to FERC licensings in the past (Huser 1985, Wilds and Lamb 1985) and the large renewal rate in the Southeast over the next 10–15 years may require agencies to develop creative solutions to unique cases like the WHP. While the viability and effectiveness of administering a mitigation fund through an appointed Board of Trustees and nonprofit corporation is relatively untested, such programs do exist. The Great Lakes Protection Fund (1994) has been endowed by the Great Lakes states with over \$75 million for the specific purpose of obtaining ecosystem recovery for the Great Lakes drainage and appears to be quite successful. The Mussel Mitigation Trust (Marshall et al. 1993), a small fund by comparison, has successfully supported mussel research, but it appears that the failure to include funds for administration may limit overall effectiveness.

Agreeing to compensation as mitigation was not done without careful consideration of the alternatives. We agree with Hoffman and Clower (1992) and Marshall et al. (1993) in their concern that compensation should not replace true mitigation options and it should not be used as a mechanism to “buy” a permit. Hoffman and Clower (1992) further warned that monetary compensation should be considered only after appropriate biological studies are conducted and other mitigation options are exhausted, and compensation should be accepted only for those resource losses which cannot be avoided.

The structure and administration of the PRF has both negative and positive features. The Board of Trustees are political appointees with a wide range of interests that should provide some local ownership in funded projects. Their lack of technical expertise, however, may cause them to broadly interpret the intention of the mitigation agreement and to approve projects that do not have direct benefits to fish and wildlife habitat. As an example, the first Board has included environmental awareness as a goal of the fund and we agree that environmental education is an important issue, but it does not have direct impacts to fish and wildlife habitat. We view using funds to publicize the accomplishments of specific projects as acceptable, but projects whose sole purpose is environmental education would not meet the objectives of the PRF

as outlined in the FERC (1994) order. Administration of the mitigation funds through a local independent nonprofit organization will make fund accounting easier and should keep them more accessible to local organizations.

Although the PRF Board approved its first grants in spring 1996, we are cautiously optimistic that the fund will be successful. We hope our experience with this project will help other agencies considering monetary compensation as part of a mitigation agreement.

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