

irrigation water rights holders. By diverting the flow into the penstock, Parowan actually benefits some irrigators, because the diverted flow would otherwise pass downstream of the diversion dam and seep into the canyon alluvium where the water would have to be pumped to be utilized.

Parowan also possesses a state water right (#75-5) to pump 1.047 cfs from the project forebay well to be used for power generation at the project.⁹ Parowan's right to the well water is for non-consumptive use, and Parowan utilizes the water to increase penstock flow and also to keep the project forebay, desilting pond, and penstock from freezing during the winter.

Parowan states that it generally operates the project run-of-river, but occasionally utilizes the 19.9 acre-foot desilting pond for peaking purposes. Parowan proposes to continue operating the project in this fashion, which they term Arun-of-the-river with a minor peaking capability component." No federal or state agency or Indian tribe has filed recommendations related to project operation.

There is no indication that Parowan's mode of project operation in any way affects downstream water rights holders or aquatic resources. Parowan returns up to 24 cfs of diverted creek water to an irrigation canal after they use it for project generation, so there is no consumption of the diverted water. Because Parowan Creek drains into a closed basin where all the flow is either diverted by irrigators or lost to evaporation or seepage, there are no fisheries resources downstream of the project powerhouse affected by the project operation.

Project Flow Releases

By letter to the applicant dated May 17, 2001 (see appendix E-1 of the license application), the FWS inquired if the project had the flexibility to provide flows that follow a more natural hydrograph. The natural hydrograph for the project area shows annual high flows occurring in the months of April through May and lower down to no flow (freezing conditions in December) the remainder of the year (figure 1). Parowan Reservoir Company largely regulates the inflow that comes into the immediate area of the project intake. The regulation of the inflow is done to

ensure that irrigation needs downstream of the project are met throughout the growing season and not for meeting hydroelectric operational needs.

Parowan Reservoir Company stores flows at its Yankee Meadows Reservoir and then releases the flows more evenly throughout the course of the year, thereby flattening the annual hydrograph (figure 1). The project has minor storage capacity, and therefore, is incapable of re-regulating Parowan Reservoir Company's shaping of the river flows. By flattening the natural hydrograph, Parowan Reservoir Company causes monthly average inflows to the project in most years to never exceed 10 cfs, so there is very little flow during the months of April through June relative to natural conditions from which to work.¹⁰ Therefore, we conclude that the project has no capacity to provide a flow regime that follows a more natural hydrograph.

Water Quality

Parowan proposes no new construction or land-disturbance at the project that would lead to water quality problems,¹¹ and there is no evidence to suggest that current project operation and maintenance adversely affect water quality. No federal or state agency or Indian tribe has filed recommendations related to water quality, and ODEQ's Section 401 WQC for the project has no water quality conditions.

Unavoidable Adverse Impacts

None.

2. Terrestrial Resources

Affected Environment

Vegetation

The project area is wooded with a mixture of riparian vegetation. In general, a narrow band of riparian vegetation gives way to drier pinyon-juniper and sagebrush plant communities. The riparian and upland

vegetation along the creek is a mixture of large narrowleaf cottonwoods, sandbar willows, box elder, a few river birch and maples, pines, Gambel oaks, skunkbrush, Mountain juniper, and sagebrush. The presence of both riparian species and more upland-drier species creates good wildlife habitat with varied structure and streamside shading.

Green vegetation on both sides of the creek, above and below the diversion during low flow periods when the majority of the flow is diverted into the penstock signals the presence of sub-surface water flowing through the alluvium. Add to this, the flow from small springs and several smaller tributary canyons below the diversion, and the result is, the stream is seldom, if ever, completely without water and there is no evidence to suggest the riparian community will be affected by the continued operation and maintenance of the project.

Wildlife

The habitat along the penstock and in the vicinity of the diversion supports many different animals including: cottontail rabbit, ground squirrels, chipmunks, woodrat, western harvest mouse, porcupine, and deer mouse and a variety of birds, both neotropical migrants and residents such as the grosbeak, towhee, bunting, warbler and thrush.

Environmental Impacts and Recommendations

Parowan does not propose any ground-disturbing activities that would disturb or remove important riparian vegetation. Given there are no proposed changes to project structures or operations, riparian vegetation along the project area would likely remain the same.

In its letter filed July 1, 2003, the FWS makes the following Section 10(j) recommendation:

The licensee shall monitor for noxious and undesirable plant species in any areas of surface disturbance caused by project related activities, including maintenance activities. If noxious and undesirable plant species are located, they shall be removed or treated with appropriate herbicide applications until destroyed. Surface disturbance shall include any activity resulting in vegetation clearing or breaking of the soil surface.

FWS says the above condition is needed because noxious and undesirable plant species alter plant communities, generally resulting in a decline of native plant species which provide food and cover for wildlife. FWS says controlling noxious and

⁹Parowan states that they use the forbay well for irrigation as well as power generation, and therefore, that the well is not considered part of the project. However, we note that the water right for the well provides for the use of the well for power generation by Parowan. Water is pumped from the well to be used, at least in part, for the generation of electricity at the project.

¹⁰When we say "from which to work," we envision a situation where we establish a relatively high bypassed reach minimum flow in April, May, and June, and a lower or no minimum flow requirement the remainder of the year so as to mimic the natural hydrograph.

¹¹However, we note that on page 4 of the license application, Parowan states that it will at some point need to install a direct bypass line around the project desilting pond to allow the pond to be drained for cleaning. Parowan states that they are not certain whether they will seek authorization for this modification as part of this relicensing proceeding or through a separate proceeding, presumably through amendment of any license issued for the project. Due to Parowan's uncertainty, we do not recognize the modification as part of their formal proposal for this relicensing proceeding, and therefore, we do not discuss the water quality-related effects of this action in this EA.