



December 9, 2013

***Via Facsimile and Certified Mail/Return Receipt Requested***

Ronald W. Thompson  
General Manager

Barbara Hjelle  
Associate General Manager

Corey Cram  
Associate General Manager

Julie Breckenridge  
Water Conservation Coordinator

Ed Bowler, Howard Bracken, Jim Ence,  
Thomas Hirschi, Dennis Iverson, Jim  
Lemmon, Dan McArthur  
Board Members  
Washington County Water Conservancy  
District  
533 E Waterworks Drive  
St. George, UT 84770  
(435) 673-4971

Cc: Sally Jewell, Secretary  
U.S. Department of the Interior  
1849 C Street NW  
Washington, D.C. 20240  
Fax: (202) 208-6956

Noreen Walsh  
Deputy Director  
Mountain-Prairie Region  
U.S. Fish and Wildlife Service  
134 Union Blvd.  
Lakewood, CO 80228  
Fax: (303) 236-8295

**RE: Notice of Intent to Sue for Violations of the Endangered Species Act regarding withdrawals of water from the Virgin River that are Causing Take of Endangered Species: Woundfin and Virgin River Chub.**

Dear General Manager, Associate General Managers, Water Conservation Coordinator, Board Members, Interior Secretary, and Fish and Wildlife Service Deputy Director for the Mountain-Prairie Region,

This letter serves as official notice by the Center for Biological Diversity and Utah Rivers Council of their intent to sue the Washington County Water Conservancy District (“Water District”), for violations of the Endangered Species Act (“ESA”),<sup>1</sup> in connection with water withdrawals from the Virgin River and Quail Creek that are causing take of the federally endangered woundfin (*Plagopterus argentissimus*) and Virgin River chub (*Gila seminuda*). This

---

<sup>1</sup> 16 U.S.C. §§ 1531-1544.

letter is being provided to you pursuant to the notice requirement of the ESA's citizen suit provision.<sup>2</sup>

In direct contravention of the ESA, the Water District annually diverts much of the flow of the Virgin River causing "take," including death, harm, and harassment of endangered woundfin and Virgin River chub. Utilizing the "Quail Creek Diversion," the Water District diverts water from the Virgin River for municipal use by the city of St. George, Utah, which has one of the highest per capita water use rates in the West.<sup>3</sup> This diversion occurs directly upstream from the last surviving population of the woundfin and one of the only populations of the Virgin River chub, and leads to take of both fish species and reduced survival through reduced flows and related increased water temperatures.<sup>4</sup> In response to altered habitat conditions related to the Quail Creek diversion, both species have declined in the last decade and are precariously close to extinction.

The Center for Biological Diversity ("Center") is a national, non-profit conservation organization supported by more than 500,000 members and online activists. Utah Rivers Council ("Council") is a grassroots non-profit organization dedicated to the conservation and stewardship of Utah's rivers, sustainable clean water sources and natural ecosystems for both Utah's people & wildlife. The Center and its members, and the Council and its members all have a long-standing interest in the health of the Virgin River and both of these highly-endangered fish.

## **I. THE ENDANGERED SPECIES ACT**

Congress enacted the ESA in 1973 to provide "a program for the conservation of ... endangered species and threatened species" and "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."<sup>5</sup> As the first step in the protection of these species, section 4 of the ESA<sup>6</sup> requires the Secretary to list species as "endangered" or "threatened" when they meet the statutory listing criteria. An "endangered" species is one "in danger of extinction throughout all or a significant portion of its range," and a "threatened" species is "likely to become endangered in the near future throughout all or a significant portion of its range."<sup>7</sup>

Once a species is listed, the ESA provides a variety of procedural and substantive protections to ensure not only the species' continued survival, but also its ultimate recovery. "Congress has spoken in the plainest words, making it clear that endangered species are to be accorded the highest priorities."<sup>8</sup>

---

<sup>2</sup> 16 U.S.C. § 1540(g).

<sup>3</sup> Report: 90 by 20 a call to Action for the Colorado River available at [www.90by20.org](http://www.90by20.org).

<sup>4</sup> See U.S. Department of the Interior Fish and Wildlife Service, Final Biological Opinion for Washington County Flood Related Repairs for Federal Emergency Management Agency Declaration 1955-DR-UT, September 16, 2011 (hereafter "2011 Biological Opinion").

<sup>5</sup> 16 U.S.C. § 1531(b).

<sup>6</sup> *Id.* § 1533.

<sup>7</sup> *Id.* § 1532(6) & (20).

<sup>8</sup> *TVA v. Hill*, 437 U.S. 153, 155 (1978).

Section 9 of the ESA prohibits any “person” from “taking” or causing take of any member of an endangered species.<sup>9</sup> The term “take” is defined broadly, and includes to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” or cause another to do so.<sup>10</sup> The FWS has further defined “harass” to include “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, including breeding, feeding, or sheltering.”<sup>11</sup> In addition, “harm” is defined to “include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”<sup>12</sup>

The ESA’s legislative history supports “the broadest possible” reading of the prohibition against take.<sup>13</sup> “Take” includes direct as well as indirect harm and need not be purposeful.<sup>14</sup> The take prohibition applies to any “person,”<sup>15</sup> including state, county or municipal agencies and/or officials in their official capacity.<sup>16</sup> The ESA further makes it unlawful for any person, including agencies and/or officials, to “cause to be committed” the take of a species.<sup>17</sup>

The ESA authorizes private enforcement of the take prohibition through a broad citizen suit provision. “[A]ny person may commence a civil suit on his own behalf to enjoin any person, including . . . any . . . governmental instrumentality or agency . . . who is alleged to be in violation of any provision of [the ESA] . . . .”<sup>18</sup> A plaintiff may seek to enjoin both present activities that constitute an ongoing take and future activities that are reasonably likely to result in take.<sup>19</sup> The ESA’s citizen suit provision also provides for the award of costs of litigation, including reasonable attorney and expert witness fees.<sup>20</sup>

Section 10 and section 7 of the ESA provide the only means for ensuring compliance with the prohibitions in section 9 of the Act. Section 10 is applicable to the activities of non-federal entities such as the Water District. The primary mechanism for avoiding liability under section 9 is to apply for and receive an incidental take permit (ITP).<sup>21</sup> In exchange for permission to “take” a listed species pursuant to an ITP, the permit applicant must commit to implement a plan

---

<sup>9</sup> 16 U.S.C. § 1538(a).

<sup>10</sup> *Id.* § 1532(19).

<sup>11</sup> 50 C.F.R. § 17.3.

<sup>12</sup> *Id.*

<sup>13</sup> *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 704-05 (1995).

<sup>14</sup> *Id.* at 704; *see also National Wildlife Federation v. Burlington Northern Railroad*, 23 F.3d 1508, 1512 (9th Cir. 1994).

<sup>15</sup> 16 U.S.C. § 1538(a)(1).

<sup>16</sup> *Id.* § 1532(13)

<sup>17</sup> *Id.* § 1538(g).

<sup>18</sup> *Id.* § 1540(g).

<sup>19</sup> *National Wildlife Fed’n v. Burlington Northern Railroad*, 23 F.3d 1508, 1511 (9th Cir. 1994).

<sup>20</sup> 16 U.S.C. § 1540(g)(4).

<sup>21</sup> *Id.* § 1539(a)(1)(B).

that “conserv[es]” – *i.e.*, facilitates the recovery of – the species.<sup>22</sup> This plan is called a Habitat Conservation Plan (HCP) and it must delineate “the impact which will likely result from such taking” and the “steps the applicant will take to minimize and mitigate such impacts . . . .”<sup>23</sup> Section 7 applies to the activities of federal agencies and requires them to consult with the USFWS to ensure listed species will not be jeopardized by the activity and their critical habitat will not be adversely modified.<sup>24</sup>

## II. THE WOUNDFIN AND VIRGIN RIVER CHUB

### A. Woundfin

Named for the spines on its sharply-pointed fins, the woundfin is the only surviving species in its genus and is thus highly unique. It is one of the most specialized minnows in the world, with adaptations for living in swift, shallow, sandy desert streams. It lacks scales, has leathery skin and very small eyes, and is shaped like a small torpedo. Woundfin generally are found in stream reaches with sand or sand and gravel substrates and water depths “between 0.15 and 0.43 meters” or “0.5 and 1.4 feet.”<sup>25</sup>



Utah Division of Wildlife Resources Photo

Woundfin once occurred across the lower Colorado Basin, including in the Virgin, Moapa, Gila, Salt and Colorado Rivers. The woundfin was listed as an endangered species in 1970,<sup>26</sup> and today, it is restricted solely to the Virgin River from Pah Tempe Springs to Lake Mead, where it is considered “critically imperiled” with “precariously low” abundance.<sup>27</sup> It was functionally extirpated from the river in 2007 and now only survives through hatchery planting with natural

---

<sup>22</sup> *Id.* §§ 1539(a)(1)(B), (a)(2)(A); *see also Sierra Club v. U.S. Fish and Wildlife Serv.*, 245 F.3d 434, 441-42 (5th Cir. 2001) (“[c]onservation’ is a much broader concept than mere survival” because the “ESA’s definition of ‘conservation’ *speaks to the recovery of a threatened or endangered species*” (emphasis added)).

<sup>23</sup> 16 U.S.C. § 1539(a)(2)(A).

<sup>24</sup> *Id.* § 1536(a)(2).

<sup>25</sup> 65 Fed. Reg. 4140, 4141 (Jan.26, 2000).

<sup>26</sup> 35 Fed. Reg. 16,047 (Oct. 13, 1970).

<sup>27</sup> FWS, Final Biological Opinion for Washington County Flood Related Repairs for Federal Emergency Management Agency (FEMA) Declaration 1955-DR-UT (Sept. 16, 2011) (hereafter “2011 FEMA Biological Opinion”) at 15 and 19.

recruitment largely precluded by “unfavorable habitat conditions” related to high temperatures, low flows, and other factors.<sup>28</sup>

## **B. Virgin River Chub**

The Virgin River chub is the top native predator in the Virgin River and can grow to be 16 inches long. It is a fast, streamlined fish with a sloped forehead, humped back and thin, rounded tail; it eats small fish, insects and bits of plants.



Chub were once so abundant that they were a food source for Native Americans and early pioneers. It historically occurred throughout the Virgin and Moapa Rivers, but today can only be found in the Virgin River from Pah Tempe Springs to the Mesquite Diversion and in portions of the Moapa River.

The Virgin River chub was listed as endangered in 1982.<sup>29</sup> The primary threats to chub are water removal, impoundments, sedimentation, pollution, stream channel alteration, disease, and competition or predation by non-native species.<sup>30</sup> When listed, the USFWS concluded that “[a]ny activity affecting the quantity or quality of water in the Virgin River will affect all individuals of the subspecies.”<sup>31</sup>

As the USFWS has noted, “Virgin River chub occupy deep holes and habitats that are often logistically difficult to sample, catch rates can be erratic and sampling can be difficult to standardize.”<sup>32</sup> Research has documented that on the “mainstem Virgin River, successful spawning years for the chub typically coincide with those of the woundfin.”<sup>33</sup>

## **C. Virgin River Fish**

In 2000, the U.S. Fish and Wildlife Service designated 87.5 miles of the Virgin River as critical habitat for both species. The critical habitat begins at LaVerkin Creek, near the Quail Creek diversion and extends downstream to near the river’s terminus at Lake Mead. The portion of the Virgin River below the Quail Creek Diversion is thus critical to the survival of these two very rare fish species, both of which have undergone severe declines in recent years.

---

<sup>28</sup> *Id.* at 20.

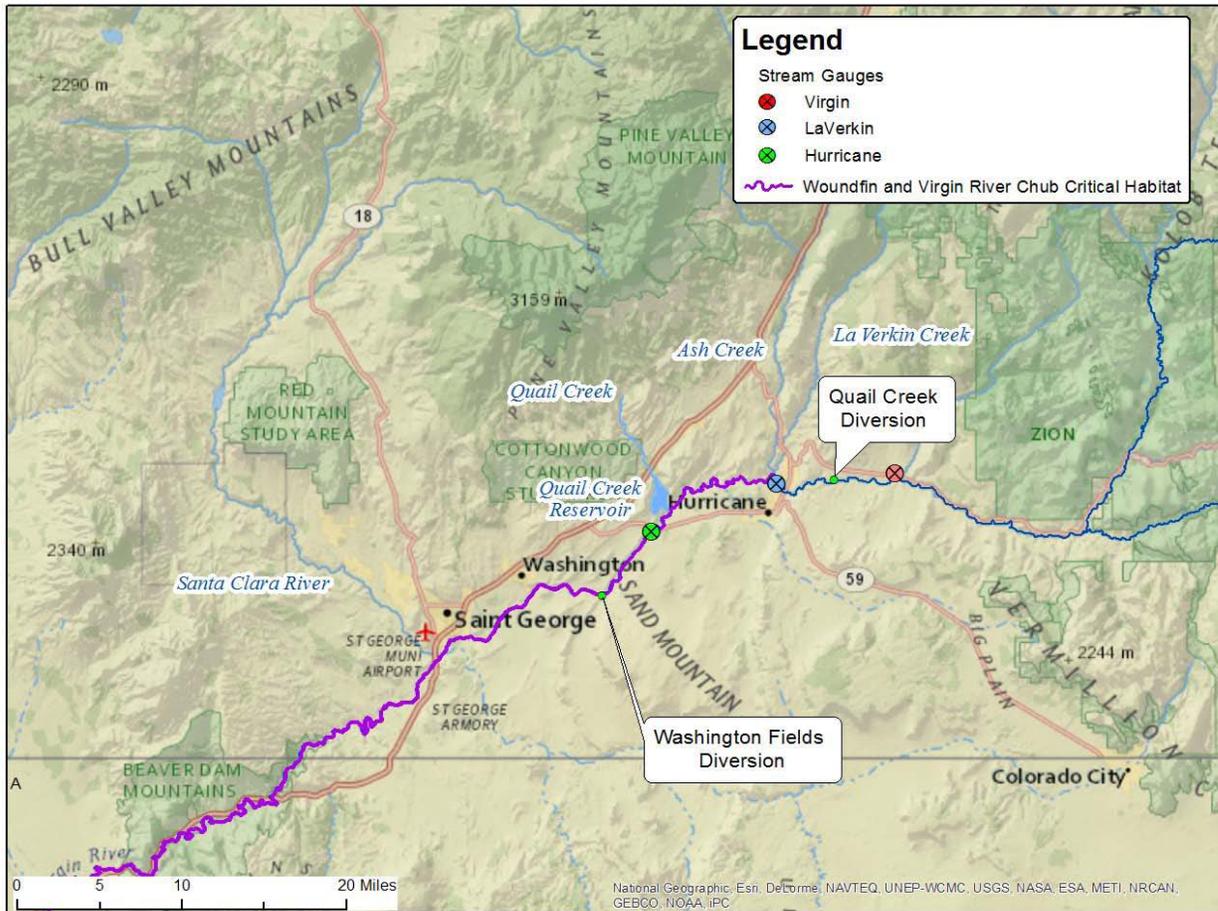
<sup>29</sup> 54 Fed. Reg. 35,305 (Aug. 24, 1989).

<sup>30</sup> 54 Fed. Reg. at 35,306.

<sup>31</sup> 51 Fed. Reg. 22,949, 22,952 (June 24, 1996)

<sup>32</sup> 65 Fed. Reg. at 4148.

<sup>33</sup> FWS, Virgin River EA at 3-13.



Both fish spawn between April 1 and July 31<sup>34</sup> and thus, are dependent upon spring flows. In 1979, Deacon found that “at about 100 cfs it is clear that reproductive success falls off dramatically.”<sup>35</sup> In 1984, spawning, fry development, and recruitment were found to be most successful when mean stream flows ranged between 200 cfs and 800 cfs.<sup>36</sup>

The greatest threats to survival of both species are: low flows and related high temperatures and other habitat diminishments and losses, diminished water quality (due to sediment and the addition of other pollutants from return flows from agriculture and other diversions, as well as the inflows from the Pah Tempe Springs, which are not diluted when flows are low), and competition from non-native fish (such as red shiner).<sup>37</sup>

<sup>34</sup> FWS, 2011 FEMA Biological Opinion at 11.

<sup>35</sup> Deacon, J. E. *Endangered and Threatened Fishes of the West*. 1979:47-48 (hereafter Deacon, (1979)).

<sup>36</sup> Deacon, J.E. & T. Hardy, *Streamflow Requirements of Woundfin 1984*: 55 (hereafter Deacon & Hardy (1984)).

<sup>37</sup> Hardy, T. et al., *An Assessment of Potential Limiting Factors of Native Fish Species in the Virgin River between Pah Tempe and the Washington Fields Diversion*. 2003. (hereafter Hardy, et al. (2003)).

Low flows and related increased water temperatures in particular cause harm and can lead to mortality of woundfin and Virgin River chub. At 28 degrees Celsius (called the “behavioral thermal maximum” or “BTM”), both fish species experience behavioral changes including seeking out cooler water refuges.<sup>38</sup> For the woundfin, at  $39.47 \pm .21$  degrees Celsius (called the “critical thermal maximum” or “CTM”) the fish experience loss of equilibrium, physiological limitations, and subsequent mortality.<sup>39</sup> For the Virgin River chub, at  $36.41 \pm .66$  degrees Celsius or CTM the fish species experience loss of equilibrium, physiological limitations, and subsequent mortality.<sup>40</sup>

### **III. HISTORY OF THE QUAIL CREEK DIVERSION AND ITS RAMIFICATIONS FOR WOUNDFIN AND VIRGIN RIVER CHUB**

Like most rivers, the flow of the Virgin River increases during spring snowmelt and storms and decreases in late summer and fall. Historic data from the river once the North and East forks merge indicates that using a 50 percent probability level or “near-average conditions” the Virgin River typically had a daily flow of between 147 and 310 cfs between February and May, 85 to 104 cfs between June and September, and 104 to 130 cfs between October and January.<sup>41</sup>

The Virgin River flows through Washington County, Utah, which is “among the fastest growing counties in the United States with an annual growth rate of up to 6.6%.”<sup>42</sup> The fastest growing urban area in Washington County is the city of St. George.<sup>43</sup> As a result of this urban growth, water has become a critical resource in the County.

After the confluence of the East and North forks of the Virgin River, from Timpoweap Canyon to the Washington Fields diversion the Virgin River provides important habitat for woundfin and Virgin River chub.<sup>44</sup> The primary barrier to native fish passage upstream in this area is Pah Tempe (or LaVerkin) hot springs, which also contributes warm, saline water to the system.<sup>45</sup> Downstream, the Washington Fields diversion normally serves as a barrier to non-native fish

---

<sup>38</sup> Rehm, et al., *Virgin River Basin 2004-2005 Temperature and Flow Monitoring*. 2006 (hereafter Rehm (2006)); FWS, 2011 FEMA Biological Opinion at 17.

<sup>39</sup> Deacon, J. E.; Schumann, P. B.; and Stuenkel, E. L. *Thermal tolerances and preferences of fishes of the Virgin River system (Utah, Arizona, Nevada)*. 1987. Publications (WR). Paper 38 (hereafter Deacon, et al. (1987)); Williams, C. and J. Deacon, *Recommendations for a Comprehensive Virgin River Watershed and Native Fishes Conservation Program* (1998) (hereafter Williams & Deacon (1998)); *see also* FWS, 2011 FEMA Biological Opinion at 17 (using 31 degrees Celsius as the CTM).

<sup>40</sup> Williams & Deacon (1998); Hardy, T. et al. (2003); *see also* FWS, 2011 FEMA Biological Opinion at 17 (using 31 degrees Celsius as the CTM).

<sup>41</sup> FWS, *Virgin River Program EA* at 3-4, Table 3-3 (using data from the gage at Virgin, Utah supplemented by other data).

<sup>42</sup> FWS, *Virgin River Program EA* at 3-17.

<sup>43</sup> *Id.*

<sup>44</sup> Deacon & Williams (1998).

<sup>45</sup> FWS, *Virgin River Fishes 5-Year Review Summary and Evaluation* (March, 2008) (hereafter “Five-Year Review”) at 17.

passage upstream. As a result, the Virgin River from the Washington Fields diversion to Pah Tempe is largely unoccupied by red shiner or other non-native fish.

In 1985, the Water District completed the Quail Creek Diversion and Reservoir with the purpose of capturing spring and fall high flows from the Virgin River and Quail creek, and storing water for municipal use by the City of St. George.<sup>46</sup> The Virgin River diversions for this project occur before the river reaches the town of Hurricane and before Ash Creek flows into the Virgin River. The pipeline associated with the Quail Creek diversion can divert up to 125 cfs.<sup>47</sup> The Quail Creek Diversion has “the capacity to periodically dry dam the Virgin River.”<sup>48</sup>

Because construction of the project required a right of way by the Bureau of Land Management and issuance of a 404 permit by the Army Corps of Engineers under the Clean Water Act, the U.S. Fish and Wildlife Service (USFWS) completed a biological opinion for construction of the project in 1982 that analyzed the likely impacts of the project on the woundfin, but not the chub because it was not yet a listed species. In its opinion, the USFWS described the stretch of the Virgin River impacted by the Quail Creek project – *i.e.*, between LaVerkin Springs and the Washington Fields Diversion – as “the least disturbed habitat throughout the range of the woundfin” and described the habitat as “characterized by deeply incised canyons with the river channel narrowly confined. The gradient is steep (5 m/km) and rock and gravel riffles are frequently interspersed between sandy bottom runs and infrequent pools.”<sup>49</sup>

The biological opinion assumed that “[a] minimum of 86 cubic feet per second (cfs) will always bypass this diversion structure (unless natural flows are less than the bypass will be the natural flow) to satisfy downstream water rights.”<sup>50</sup> The opinion further assumed that “water from the Virgin River will be conveyed to the proposed reservoir only during periods of high flow.”<sup>51</sup>

The minimum flow of 86 cfs (or natural flow) was used as a primary assumption in an analysis by Dr. James Deacon and Thomas Hardy of the University of Nevada, Las Vegas, which formed the basis of the biological opinion’s conclusion that the Quail Creek diversion would not jeopardize the woundfin’s existence.<sup>52</sup> Based upon these assumptions, the USFWS concluded that the “PQCRP (Proposed Quail Creek Reservoir Project) would not result in any significant negative impacts to the woundfin or its habitat” from “flow depletions” or alteration of “the

---

<sup>46</sup> FWS, Biological Opinion – Quail Creek Reservoir (December, 1982) (hereafter “1982 Biological Opinion”) at 3.

<sup>47</sup> FWS, Five-Year Review at 32.

<sup>48</sup> *Id.*

<sup>49</sup> FWS, 1982 Biological Opinion at 9; Virgin River Program EA at 1-11 (the biological opinion “was based on the understanding that a minimum flow of either 86 cubic feet per second (cfs) or the natural low flow, whichever was lowest, would be maintained in the reach above Washington Fields diversion.”).

<sup>50</sup> FWS, 1982 Biological Opinion at 1.

<sup>51</sup> *Id.* at 3.

<sup>52</sup> Hardy, T.B. and J.E. Deacon. 1982. Impact analysis of the proposed Quail Creek Reservoir on Plagopterus argentissimus (woundfin) in the Virgin River. Unpublished biological assessment done for the Washington County Water Conservancy District (hereafter Hardy & Deacon (1982)).

temperature regime or any other water quality characteristics in the Virgin River,” and therefore that construction of the reservoir was not likely to jeopardize the continued existence of the woundfin.<sup>53</sup> The biological opinion did not estimate the amount of take of the woundfin that was likely to occur from construction or operation of the project, and did not include an incidental take statement documenting the amount of take either federal agency or the Water District could incidentally cause of the endangered fish.

Considerable information has come to light, since 1985, demonstrating that the assumptions made in the 1982 biological opinion (regarding minimal flows and the flow regime) are not being implemented on the ground, and as a result, the Quail Creek Reservoir and related diversions have caused and continue to cause substantial harm to the woundfin and Virgin River chub. Since 1985, the Water District has not always allowed 86 cfs to bypass the Quail Creek diversion. Often the 12 mile stretch of the Virgin River between the Quail Creek diversion and the mouth of Quail Creek (which provides water from the reservoir) is left with very little water during portions of the year. Both species have severely declined since 1985 in substantial part due to operation of the Quail Creek Reservoir and diversions.<sup>54</sup> The Quail Creek Reservoir and diversions have left substantially less water in the river than was assumed by the biologists who prepared the biological opinion and concluded that it would not jeopardize the fish.

Annual surveys of Virgin River fish conducted since 1976 show sharp declines in woundfin and Virgin River chub.<sup>55</sup> Indeed, between 1996 and 2000, woundfin were not observed at the Ash Creek station due to extreme low flow in the river and related high summer temperatures.<sup>56</sup>

The most comprehensive analysis of woundfin population trends conducted to date was prepared by Holden, et al. in 2001.<sup>57</sup> The study found “highly significant, negative relationships between woundfin abundance and year in both fall and spring samples” and documented particularly severe declines in woundfin abundance at Ash Creek, which is the first survey station below the Quail Creek diversion. This finding is significant because unlike other stations that are located downstream, the Ash Creek station has not been impacted by invasion of the non-native red shiner or rotenone treatments to control this species. Holden et al. (2001) thus attributed the decline of woundfin directly to low flows resulting from a combination of drought and the Quail Creek diversion, stating:

“Both Hurricane Bridge and Ash Creek showed a decline in woundfin abundance after 1985, despite the fact that red shiner, rotenone treatments, and heavy irrigation withdrawals did not effect [sic] these areas. The major impacts to these areas are most likely from climatic events such as drought or the new operations of Quail Creek.”

---

<sup>53</sup> FWS, 1982 Biological Opinion at 10-11.

<sup>54</sup> FWS, Five-Year Review at 33-34; *see* graph below.

<sup>55</sup> Holden, P.B., M.E. Golden, and S.J. Zucker. 2001. An Evaluation of Changes in Woundfin (*Plagopterus argentissimus*) Populations in the Virgin River, Utah, Arizona, and Nevada, 1976-1999 PR-735-1, BIO-WEST, Inc. (hereafter Holden, et al. (2001)); FWS, 2011 FEMA BiOp.

<sup>56</sup> FWS, Five-Year Review at 18.

<sup>57</sup> Holden, et al. (2001).

Holden et al. (2001) further documented that flows less than 100 cfs are harmful to the species, stating:

“These results strongly suggest that flows of less than 100 cfs are not good for woundfin in all reaches of the Virgin River and that flows less than 50 cfs are especially poor. We do not know if flows below 100 cfs or 50 cfs lead to declining populations, but the suggestion from this analysis is that low flows (i.e., < 100 cfs) may not be the type of flows that would lead to recovery of an endangered species.”

The situation for woundfin has only declined further since Holden et al. (2001) conducted their analysis.

Virgin River chub are similarly impacted by the alterations to the flow regime from the Quail Creek Reservoir and related diversions. A natural hydrograph is important for completion of their life cycle.<sup>58</sup> Pools and lentic (or still) waters are also important habitat features for chub as are water depth and velocity.<sup>59</sup>

In response to deteriorating populations of woundfin and Virgin River chub and seeking to defer ESA listing of the Virgin spinedace, since 1995 the Water District and its partners have participated in the Virgin Spinedace Conservation Agreement and Strategy. The Agreement specifies a minimum flow bypassing the Quail Creek diversion of only 3 cfs to maintain spinedace populations.<sup>60</sup> This minimum flow has not been sufficient to sustain woundfin and chub populations, which have continued to decline so far that in 2003, release of hatchery bred woundfin became necessary, as did release of hatchery raised Virgin River chub into the Virgin River a few years later.<sup>61</sup>

The Water District and partners have also worked to create and implement the Virgin River Resource Management and Recovery Program. The goals of the Virgin River program are to balance recovery, conservation, enhancement, and protection of native species in the river with the need to enhance human water supplies.<sup>62</sup> Despite the Spinedace Agreement and the Virgin River program, Virgin River chub declined “by over 90 percent between 2006 and 2007” and woundfin were “functionally extirpated” from the river in 2007 due to storms, water quality, and flow issues.<sup>63</sup>

In 2008, the FWS completed a five-year review of both species, and concluded that based on “preliminary sampling results” wild woundfin were “functionally extirpated” from their critical

---

<sup>58</sup> Williams & Deacon (1998: 4).

<sup>59</sup> Hardy, et al. (2003: 26-27).

<sup>60</sup> FWS, Virgin River Program EA at xv.

<sup>61</sup> FWS, Five-Year Review at 18; FWS, 2011 FEMA BiOp at 20. While the fish that have been released in this segment of the Virgin River are hatchery bred, they are not covered by a 10j rule and therefore, the prohibitions of section 9 of the Endangered Species Act still apply to them.

<sup>62</sup> Virgin River Program Website, Virgin River Program Overview (last visited 1/7/2013) (available at: <http://www.virginriverprogram.org/program-overview/>).

<sup>63</sup> FWS, 2011 FEMA BiOp at 19.

habitat as of 2007.<sup>64</sup> This was due to storm events; “continued drought with summer temperatures exceeding behavioral thermal maximum and critical thermal maximum; runoff from burned portions of the drainage; and the input of sediment from behind the Quail Creek Diversion Dam.”<sup>65</sup>

In its review, the FWS further points to diversion of water as a major limiting factor for the woundfin, stating that “[t]he primary threats to the Virgin River fish in this portion of the river are largely due to long standing water development projects that continue to cause significant flow reductions.”<sup>66</sup> In the stretch of river between Pah Tempe Springs and the Washington Fields diversion, the primary water project is the Quail Creek project. However, there are also likely to be increasing withdrawals of water from Ash Creek, which are further contributing to low flows and high temperatures in this segment of the Virgin River.

In 2011, the FWS again consulted on projects pertaining to the Virgin River finding that the “woundfin is critically imperiled in the Virgin River” and that “both [woundfin and chub] species are still significantly impacted by poor water quality and lack of water quantity.”<sup>67</sup> Indeed, after discussing various conservation efforts for the woundfin and Virgin River chub, the FWS documented sampling data that shows that both species have declined significantly:

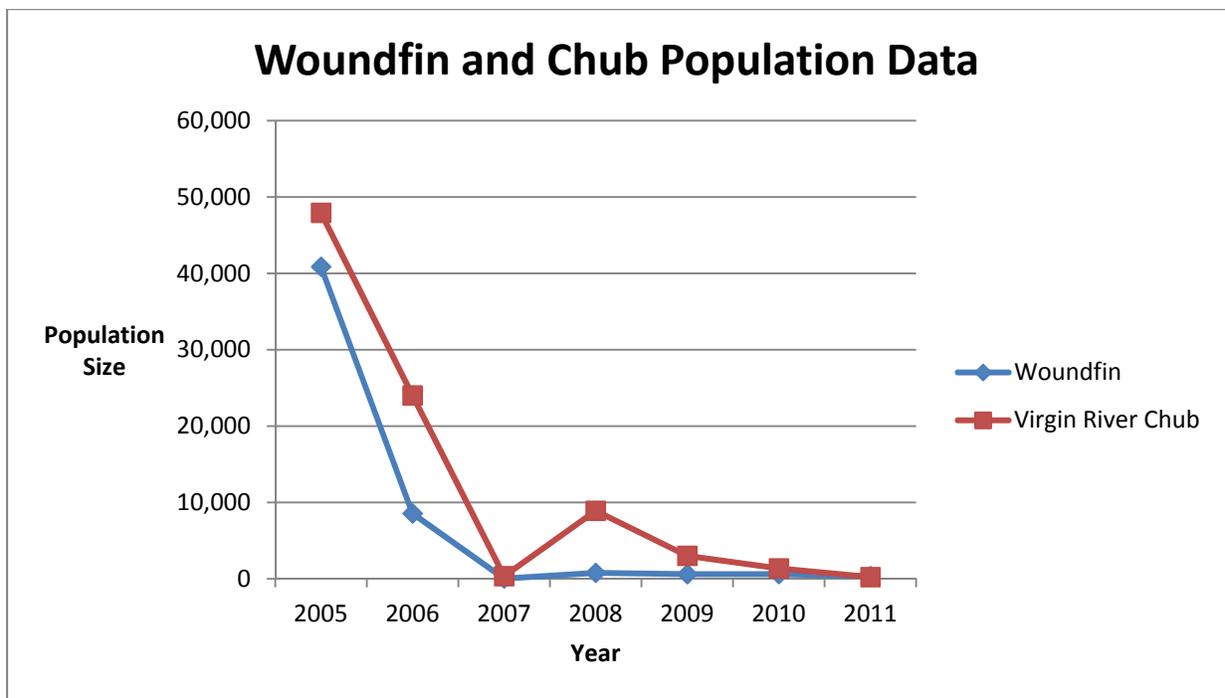


Chart was created from Data in Table 3. Total number of wound fin and Virgin River chub collected in spring and fall sampling in the Virgin River-Utah, Pah Tempe Hot Springs to Washington Fields Diversion.<sup>68</sup>

<sup>64</sup> FWS, Five-Year Review at 15.

<sup>65</sup> *Id.*; FWS 2011 FEMA BiOp at 19.

<sup>66</sup> *Id.* at 20.

<sup>67</sup> FWS, 2011 FEMA Biological Opinion at 19, 22.

<sup>68</sup> *Id.* at 20.

The woundfin and Virgin River chub have thus undergone severe declines following the operation of the Quail Creek Diversion and Reservoir in 1985. These declines in the river reach between the Quail Creek Diversion and the Washington Fields Diversion are attributed in large part to the Quail Creek Diversion and resulting temperature and flow impacts to the fish.

Several mechanisms are available for ensuring sufficient water remains in the Virgin River. In 2009-10, the Water District, as part of the Virgin River program, constructed a pumpback system to provide water to the Virgin River during summer months when low flows occur.<sup>69</sup> The pumpback system can provide up to “28 cfs in the reach of river extending from Pah Tempe Hot Springs to Washington Fields diversion.”<sup>70</sup> However, the system does not actually pump water back into the Virgin River. Rather, it “delivers stored water from Sand Hollow Reservoir to Hurricane, Utah irrigators, thus off-setting the irrigation demand from the river during warm summer months.”<sup>71</sup>

#### **IV. VIOLATIONS OF THE ENDANGERED SPECIES ACT: THE WATER DISTRICT IS CAUSING TAKE OF ENDANGERED WOUNDFIN AND VIRGIN RIVER CHUB**

By diverting water from the Virgin River and Quail Creek, the Washington County Water Conservancy District is causing take of endangered woundfin and Virgin River chub.

##### **A. Take From Temperature.**

The Water District’s water diversions are causing the Virgin River to exceed the critical thermal maximum and behavioral thermal maximum for these two endangered fish species and resulting in take of both fish.<sup>72</sup> The woundfin are thus being taken and will continue to be taken through death, injury, harm and harassment each time the Virgin River reaches or exceeds the woundfin’s critical thermal maximum of 39 degrees Celsius. Additionally, the fish are being taken and will continue to be taken through injury, harm, and harassment each time the Virgin River reaches or exceeds its behavioral thermal maximum of 28 degrees Celsius.

Likewise, Virgin River chub are taken and will continue to be taken through death, injury, harm and harassment each time the Virgin River reaches or exceeds its critical thermal maximum of 36 degrees Celsius. Additionally, chub are taken through injury, harm, and harassment each time the Virgin River reaches or exceeds the chub’s behavioral thermal maximum of 28 degrees Celsius.

As a result, the Water District’s diversion of water at the Quail Creek diversion is “taking” endangered fish within the meaning of the Endangered Species Act and its implementing

---

<sup>69</sup> FWS, 2011 FEMA Biological Opinion at 17.

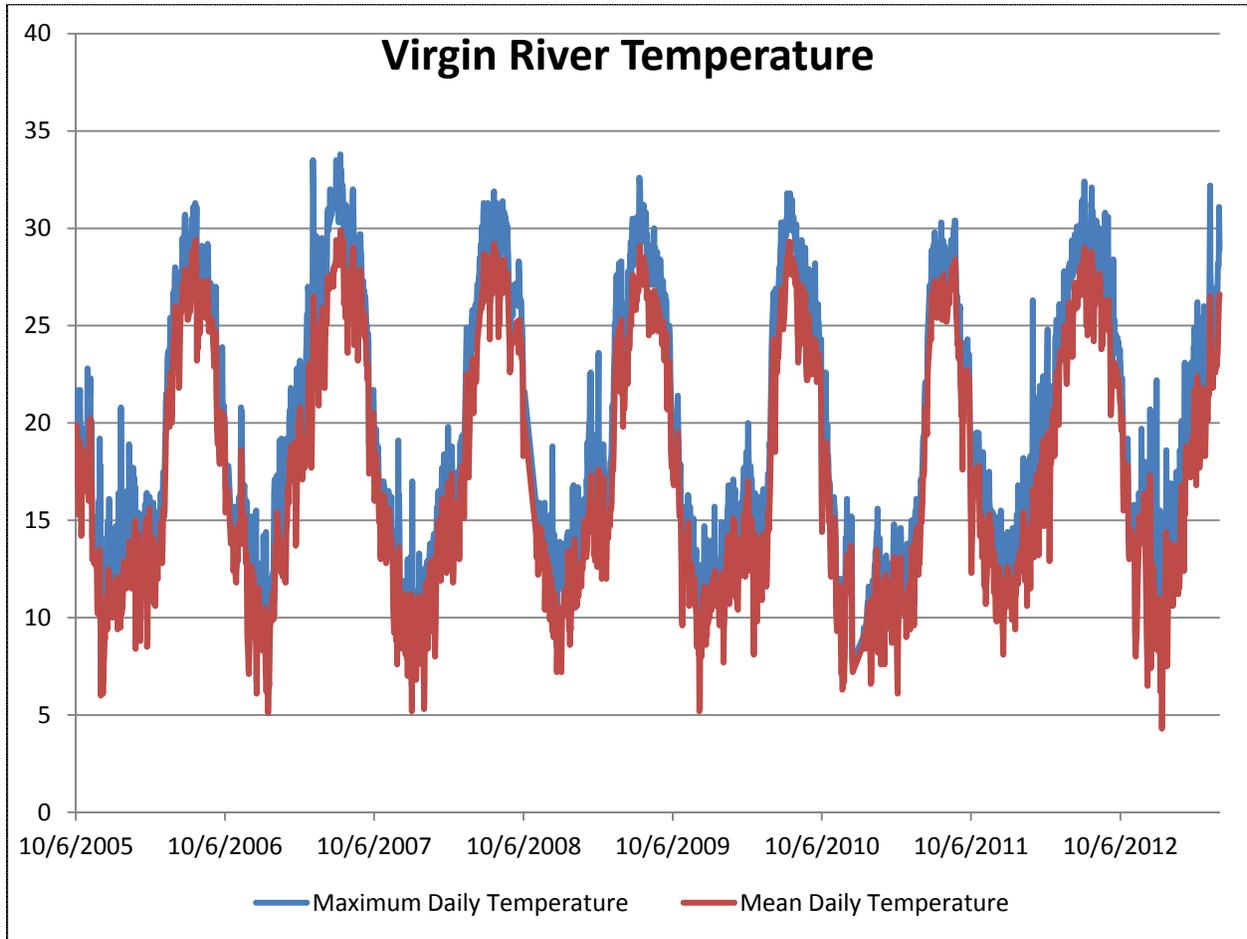
<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> FWS, Five-Year Review at 45 (“Throughout designated critical habitat critical thermal maximum and behavioral thermal maximum for woundfin have been and continue to be exceeded for varying periods of time in most years.”)

regulations due to water temperatures at or exceeding the critical and behavioral thermal maximums for each fish.

USGS temperature data from 2005 to June, 2013 at the Virgin River –LaVerkin Creek sampling station (just south of the Water District diversion from the Virgin) shows that the Virgin River routinely exceeds the behavioral thermal maximums for woundfin and chub, and on occasion approaches the critical thermal maximums. Appendix 1 (compilation of USGS temperature data).



### **B. Take From Low Spring Flows and Minimal/Nonexistent Summer Flows.**

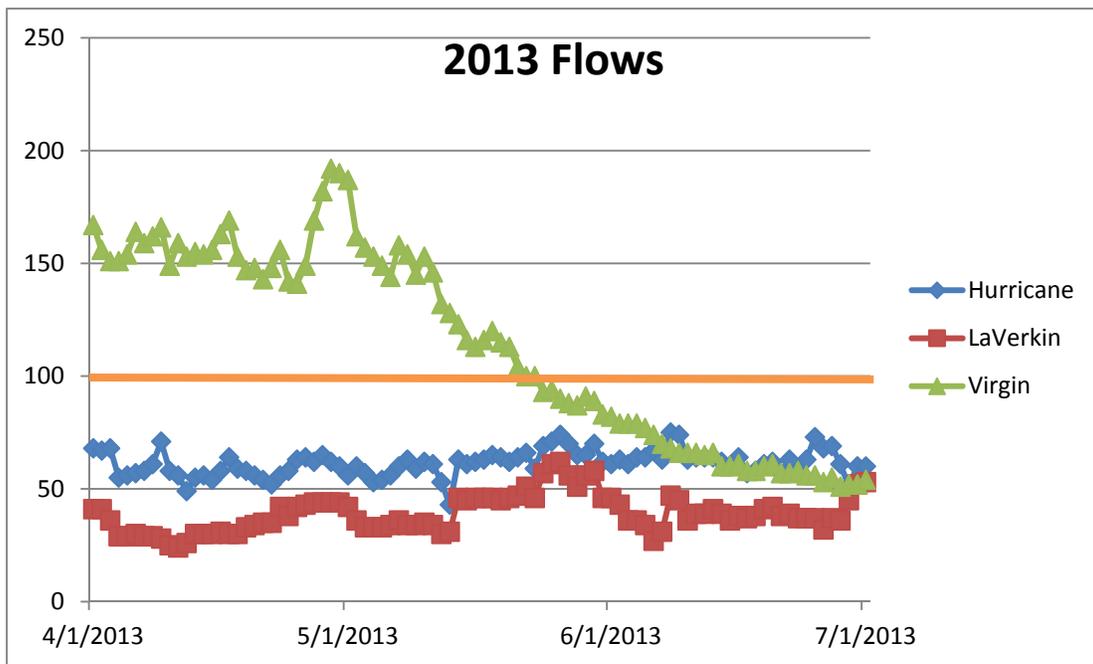
The Water District’s diversions are also causing take of woundfin due to reduced flow of the Virgin River during the breeding season (April- June) and dewatering of the river. Scientific research on woundfin documents that “flows of less than 100 cfs are not good for woundfin in all reaches of the Virgin River and that flows less than 50 cfs are especially poor.”<sup>73</sup> Spawning success dramatically falls off at 100 cfs and the best recruitment conditions occur between 200 cfs and 800 cfs.<sup>74</sup> Based on USGS flow data, the Virgin River between the Quail Creek

<sup>73</sup> Holden et al. (2001); Deacon & Hardy (1982).

<sup>74</sup> Deacon (1979); Deacon & Hardy (1984).

diversion and the Washington Fields diversion is failing to provide sufficient flows for endangered fish.

Each instance in which the Virgin River contains less than 100 cfs between April and June, woundfin are taken. Additionally, in each instance that the Quail Creek Diversion removes all or substantially all the water from the Virgin River woundfin and Virgin River chub are taken. Appendix 2 contains a series of charts illustrating the flow of the Virgin River at different USGS sampling stations in the relevant area. Below is an example of this information from 2013. In the charts the red and blue lines represent the Virgin River after the Water District's diversion for the Quail Creek Reservoir:



Data available at: [http://waterdata.usgs.gov/ut/nwis/measurements/?site\\_no=09406100&agency\\_cd=USGS&amp;](http://waterdata.usgs.gov/ut/nwis/measurements/?site_no=09406100&agency_cd=USGS&amp;)

The data from the downstream (red and blue) stations clearly show that the Quail Creek diversion is markedly lowering flows during critical breeding and recruitment periods. These reductions lower the river flow to the point that it harms the fish.

The Water District has the means to remedy these legal violations. The Water District holds water rights that provide it access to water and as a participant in the Virgin River Program the Water District has a host of technical and other resources at its disposal. For example, as contemplated in the 1982 Biological Opinion, the Water District could not divert water from the Virgin River at the Quail Creek diversion when flows are below 100 cfs.

In sum, diversion of water from the Virgin River and Quail Creek into the Quail Creek Reservoir is causing take of both woundfin and Virgin River chub through decreased flow and increased temperature in direct violation of the Endangered Species Act.

## CONCLUSION

The Water District has violated and continues to violate section 9 of the ESA. Pursuant to the citizen suit provision of the ESA,<sup>75</sup> the Center for Biological Diversity and Utah River Council are providing you with 60 days notice of our intention to commence a civil action in U.S. District Court challenging the Water District's practice of diverting water to the Quail Creek Reservoir, resulting in increased temperatures in the Virgin River and reduced flows including those well below 100 cfs.

Unless the Water District remedies the legal violations discussed in this letter within 60 days, we will bring legal action and seek an injunction against any and all activities responsible for the take of woundfin and Virgin River chub. If you have any questions about this notice, please do not hesitate to contact us.

Sincerely,



David Noah Greenwald  
Endangered Species Program Director  
Center for Biological Diversity

Zach Frankel  
Executive Director  
Utah Rivers Council

---

<sup>75</sup> 16 U.S.C. §§ 1540(g)(1)(A), (2)(A).