No. 20-2159

IN THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

APPALACHIAN VOICES; WILD VIRGINIA; WEST VIRGINIA RIVERS COALITION; PRESERVE GILES COUNTY; PRESERVE BENT MOUNTAIN, a chapter of Blue Ridge Environmental Defense League; WEST VIRGINIA HIGHLANDS CONSERVANCY; INDIAN CREEK WATERSHED ASSOCIATION; SIERRA CLUB; DEFENDERS OF WILDLIFE; CHESAPEAKE CLIMATE ACTION NETWORK; and CENTER FOR BIOLOGICAL DIVERSITY,

Petitioners,

v.

UNITED STATES DEPARTMENT OF THE INTERIOR; DAVID BERNHARDT, in his official capacity as Secretary of the U.S. Department of the Interior; UNITED STATES FISH AND WILDLIFE SERVICE, an agency of the U.S. Department of Interior; AURELIA SKIPWITH, in her official capacity as Director of the U.S. Fish and Wildlife Service; and CINDY SCHULZ, in her official capacity as Field Supervisor, Virginia Ecological Services, Responsible Official,

Respondents,

and

MOUNTAIN VALLEY PIPELINE, LLC,

Intervenor.

On Petition for Review

PETITIONERS' REPLY BRIEF

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I. FWS Failed to Consider Aggregate Effects

A. FWS Must Consider Aggregate Effects

FWS (at 13-14) appears to disavow its obligation to consider the effects of the action "*along with* the environmental baseline and the predicted cumulative effects to determine the overall effects to the species…." JA1797 (citing 50 C.F.R. §402.02) (emphasis added); *see also* 50 C.F.R. §402.14(g)(4); JA1796 ("The final analysis then looks at whether, given the aggregate effects, the species can be expected to both survive and recover…."); JA1794 ("The conclusion section presents [FWS's] opinion regarding whether the aggregate effects…are likely to jeopardize the continued existence of the species….").

In *Center for Biological Diversity v. U.S. Fish & Wildlife Service*, 807 F.3d 1031 (9th Cir. 2015), which FWS (at 13) claims supports its position, the federal action was not expected to "cause[] even a *de minimus* deterioration in the [species'] pre-action condition." 807 F.3d at 1051. The court concluded that "it makes little sense that a federal action with entirely positive effects on an endangered species would be barred as causing jeopardy merely because cumulative effects…are anticipated to adversely affect that species." *Id*. at 1052. Here, there is no question that the action will "cause[] some additional harm to the species." *Oceana v. Pritzker*, 75 F. Supp. 3d 469, 491 (D.D.C. 2014). *See, e.g.*,

JA0109 (describing project activities that "will harm or kill [candy darters] and alter/degrade [their] habitat"); *see also Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 930 (9th Cir. 2008) ("[W]here baseline conditions already jeopardize a species, an agency may not take action that deepens the jeopardy by causing additional harm.").

FWS (at 13-14) also claims that Petitioners incorrectly cite *Defenders of Wildlife v. Babbitt*, 130 F. Supp. 121 (D.D.C. 2001) (*Defenders I*), for the proposition that FWS must consider aggregate effects. But the court in *Defenders of Wildlife v. Norton*, No. 99-927, 2003 WL 24122459 (D.D.C. Jan. 7, 2003) (*Defenders II*), did not reject this requirement. *See, e.g.*, *id*. at *5 (A biological opinion "must consider other agencies' projects in determining the likely effect of that single agency's action on the endangered species."). Moreover, the *Defenders II* court rejected a biological opinion that had been formulated on remand because of its "cryptic and cursory" conclusion section that consisted of a "brief two paragraphs in which the only reference to the environmental baseline is FWS's statement that '[a]fter reviewing the current status of the [species], the environmental baseline for the action area, the effects of the [action], and the cumulative effects, it is the Service's biological opinion that the [action]…is not likely to jeopardize the continued existence of the [species].'" *Id. at* *6. Here, like

the rejected opinion in *Defenders II*, FWS's conclusion section only cursorily references the environmental baseline, without any actual analysis. JA0165.

B. FWS Failed to Adequately Analyze the Environmental Baseline

A biological opinion must assess, *inter alia*, 1) the status of the species, and 2) the environmental baseline, which in turn requires assessing the species' status within the action area and factors affecting the species' environment in the action area. JA1787, 1789-90. The latter "includes State, tribal, local, and private actions already affecting the species or that will occur contemporaneously with the consultation in progress." JA1790. This analysis "is a subset of the preceding rangewide status discussion." JA1789. Here, the environmental baseline analysis does not meet those core requirements. Pet'rs' Br. 16-21.

1. Roanoke Logperch

For logperch, for example, FWS fails to identify the factors affecting the species in the *action* area. FWS instead includes a cursory list of primary causes of species decline *rangewide,* with no analysis of which of these factors affect the action area, or the extent of such impact. JA0072-73. *Compare id. with* JA1124-28 (biological opinion for gas pipeline in Virginia discussing specific factors affecting habitat within the action area, including "[s]edimentation and contaminant effects from agricultural activities, energy operations, and residential/commercial development [that] have heavily impacted Indian Creek"). *See also* JA0883-90

(environmental baseline analysis in 2013 biological opinion that includes extensive discussion of factors affecting species' environment); Pet'rs' Br. 17 n.1.

Although not addressed in the BiOp, there is no question that there are relevant impacts in the action area. *See, e.g.*, Pet'rs' Br. 18-20; JA1881 ("Roanoke logperch…are vulnerable to proposed federal, state, and local actions within the Roanoke River Basin including, but not limited to issuance of permits for stream alterations, reservoir construction, wastewater facility development, flood control projects, and road and bridge construction."); JA1885 ("Chemical spills remained a threat to Roanoke logperch, especially the Pigg River population…."); JA1276 ("Urbanization threatens the existing population density and abundance in [the Upper Roanoke River] portion of the [logperch] range"); JA1625 ("Fish kills were frequent in the Roanoke River watershed over the 35-y[ear] period of available data….").[1] A table in the "Status of the Species" section indicates that urbanization, agriculture/forestry, and road building "significantly threaten[] the known range" of the Upper Roanoke River population, JA0047, yet the environmental baseline section contains no analysis of their impacts in the action area.

[1] The environmental baseline analysis only briefly mentions that chemical spills are one cause of habitat degradation, JA0073, with no discussion of the impacts of these frequent spills in the Roanoke. *See also* Pet'rs' Br. 19 n.6; *id*. at 22 n.8.

FWS suggests (at 14-18) it can evade the required analysis by pointing to a 2016 population viability analysis ("Roberts (2016)"). Even though the environmental baseline analysis only mentions Roberts (2016) once in passing,[2] FWS now insists that its baseline analysis hinges on the study's discussion of logperch population size and extinction risk.

The study estimated the size of several logperch populations and "used stochastic count-based simulation models to explore extinction risk, [minimum viable population size], and the possible benefits of alternative management strategies…." JA1612. FWS (at 15-16) relies on the study's finding that the Roanoke and Pigg River populations are unlikely to be extirpated by a catastrophe. *But see* JA1626 ("Uncertainty about the [minimum viable population size] for Roanoke logperch clouded our conclusions about the viability of the five real-world populations we examined."). But the study's population and extinction risk estimates are not a substitute for the required analysis of the baseline within the action area, including factors affecting the species' environment.

FWS claims that the result of this study's viability analyses "*reflect* the impacts of past and ongoing stressors in the action area because the action area is

[2] The environmental baseline section cites this study for the proposition that the Roanoke and Pigg River systems "cover a large geographic extent, contain an estimated large population, and run a lower risk of being susceptible to extirpation…." JA0073. *But see* JA1632 (2016 study by same authors noting that the distribution of logperch "comprises seven small, isolated populations").

within the watersheds occupied by those populations." FWS Br. 16-17 (emphasis in original). As an initial matter, FWS fails to explain how relying on a 2016 study would allow the agency to evaluate the impact of "actions which are contemporaneous with the consultation in process." 50 C.F.R. §402.02. And contrary to MVP's claim (at 21) that Petitioners did not identify baseline information that FWS overlooked, Petitioners highlighted several contemporaneous impacts that FWS failed to consider. *See* Pet'rs' Br. 18-20. FWS cannot "[a]dd the effects of the action" to the environmental baseline when it has failed to assess these past and present impacts. 50 C.F.R. §402.14(g)(4).

Under FWS's approach, a future biological opinion for a project that would harm logperch in this same area would not have to consider MVP's impacts because the 2016 study purportedly reflects "past and ongoing stressors," FWS Br. 24, and "likely future stressors," MVP Br. 24. Every biological opinion involving logperch could simply rely on the 2016 study to arrive at a no-jeopardy conclusion.

Moreover, the environmental baseline is not simply an estimate of the size of the population that the affected individuals belong to. *See* JA1789-90 (FWS handbook). Nor does FWS explain how Roberts (2016)—a population viability analysis based on theoretical catastrophe scenarios—encompasses the duty to assess factors affecting the species' environment in the action area.

FWS's failure to assess past and present impacts in the action area is not trivial. As Dr. Angermeier, one of the authors of the population viability analysis, wrote in comments to FWS on this project, "any additional sediment-loading is inherently problematic for persistence of [logperch] populations," JA1359, and "[e]ven incremental impairment of foraging could…threaten population persistence." JA1361.

2. Candy Darter

Similarly, for the candy darter, FWS suggests (at 21-23) that its failure to identify impacts in the action area from past and present human activities in the BiOp can be overlooked because those impacts are discussed in the 2018 Species Status Assessment ("SSA"). But the SSA only highlights the BiOp's failure to consider factors affecting the darter's environment in the action area. For example, the SSA "note[s] that much of the transportation infrastructure (roads and railroads) and commercial and industrial facilities in the region are adjacent to streams and rivers, increasing the risk that a release could affect the aquatic habitat," and that "Stony Creek…provide[s a] relevant example[] of this development pattern…." JA1443. Yet the BiOp fails to consider these factors in the environmental baseline. JA0073-74.

The BiOp also fails to mention that "[t]he lower portions of Stony Creek dry up periodically as a result of water leaking into a local mine." JA1888. This is a

major factor affecting the species' environment in the action area, yet the BiOp does not mention it. *Cf.* JA1126 (biological opinion for gas pipeline explaining in baseline analysis that "[t]here are five underground mines, haul road, and above ground scalp rock disposal areas in the Indian Creek watershed, upstream from the project action area"). Moreover, the SSA does not address contemporaneous activities affecting the action area.

C. FWS Failed to Adequately Analyze Cumulative Effects

As FWS's handbook explains, "[o]ne of the first places to seek cumulative effects information is in documents provided by the action agency such as NEPA analyses for the action." JA1793.[3] But FWS never considered this information. *See* Pet'rs' Br. 26; JA1516-58. Nor did it undertake a similar effort to identify potential future activities, despite having a "much smaller" area to assess than FERC. FWS Br. 27. Instead, FWS limited its inquiry to the narrow universe of six projects provided by MVP. *See, e.g.*, JA0447 (FWS staffer emailing "a summary of [his] research on the six projects included in the cumulative effects table provided by MVP.").

[3] MVP (at 28) argues such an inquiry "compares apples to oranges." But as FWS explains in its handbook, FWS "can review the broader NEPA discussion of cumulative effects, and apply the [ESA]'s narrower cumulative effects definition." JA1793.

MVP (at 26) argues that canvassing the state stormwater permit databases is sufficient because they include construction projects resulting in land disturbance greater than one acre. But future impacts to the aquatic action area are not limited to impacts from construction projects. *See* Pet'rs' Br. 21-22 (describing other types of activities); *id*. at 26-27. Limiting the analysis to construction projects omits impacts from activities such as logging, water withdrawals, agricultural activities, and urbanization. *See, e.g.*, JA1901 (MVP's species assessment for candy darter discussing "foreseeable trends demonstrating increases in agricultural activities, urban development, [and] road projects, which are the leading causes of non-point runoff and stream sedimentation").[4] While FWS may use information provided by the applicant, FWS Br. 25, it may not rely solely on that information when it is unduly narrow or limited. Pet'rs' Br. 23-25; *see also* JA1793 ("Gathering information on cumulative effects often requires more effort than merely gathering information on a proposed action.").

FWS also argues, for the first time, that the Roberts study's "risk projections" implicitly account for the cumulative effects of future non-federal actions. FWS Br. 25-26. This *post hoc* litigation explanation should be disregarded.

[4] *See also* JA1456 (noting that it is "highly likely" that bait bucket transfers, which occur when anglers or commercial bait sellers collect species of baitfish indigenous to one watershed and transport them for use in other watersheds, will introduce variegate darters to the remaining candy darter watersheds).

See Dow Agrosciences LLC v. N.M.F.S., 707 F.3d 462, 467-69 (4th Cir. 2013) (disregarding *post hoc* litigation explanations in holding biological opinion arbitrary and capricious). Even if the Court were to consider this argument, the Roberts study cannot be used for this purpose. That study estimated the size of various logperch populations and estimated a minimum viable population, applying various catastrophe scenarios; it did not attempt to identify future non-federal activities that would have impacts within the action area for this project.[5]

D. FWS Failed to Properly Analyze Climate Impacts

Roberts (2016) does not mention climate change, *see* JA1612-27, yet MVP (at 29) maintains that climate change "figured prominently" in that study. Similarly, FWS (at 19) maintains that it adequately considered climate change in the BiOp because the study's "risk projections" account for environmental stochasticity (*i.e.*, fluctuations in environmental conditions).[6] But the study simply noted that the Roanoke and Pigg River populations are less susceptible than smaller populations to extirpation from environmental stochasticity and catastrophes. JA1627. This common-sense proposition hardly constitutes an adequate analysis of climate impacts. *See* Pet'rs' Br. 28. The Court should reject

[5] Neither FWS nor MVP meaningfully respond to Petitioners' argument that FWS failed to consider land-based actions located beyond the terrestrial action area that may nonetheless impact the aquatic action area. Pet'rs' Br. 25 n.12.

[6] Climate impacts such as a sustained increase in water temperatures do not qualify as stochastic events, which "aris[e] from random factors." JA1405.

FWS's *post hoc* litigation position that statements in Roberts (2016) regarding various populations' relative vulnerability to environmental stochasticity somehow sufficiently account for climate impacts in the BiOp. *See, e.g.*, *Dow Agrosciences*, 707 F.3d at 467-69.

The Court should also reject FWS's attempt (at 19) to characterize the authors' statement that floods "occur frequently," JA1617, as somehow substituting for an assessment of climate impacts in the BiOp. As FWS recognizes in the BiOp's one sentence addressing climate impacts on logperch, climate change is "*an increasing threat*…with storm events increasing in frequency and intensity, resulting in increased periods of higher water volume, flow rates, and turbidity that affect the [logperch]'s abilities to forage, shelter, and reproduce." JA0049 (emphasis added). Accordingly, FWS's attempt to rely on a 2016 study that does not mention climate change, and that utilizes an outdated dataset ending in 2014, fails.

FWS claims that Petitioners "have not shown that existing stressors have changed significantly since the study was published in 2016." FWS Br. 17. Notably, however, MVP has repeatedly blamed record-breaking precipitation in 2018 for sedimentation problems along the pipeline route. *See* JA0504; MVP Br. 9. Despite this recognition of recent increases in storm frequency and intensity, MVP maintains that citing a 2016 study that does not mention climate change is

sufficient for the BiOp's consideration of climate impacts on logperch. MVP Br. 29.

Similarly, even though the BiOp contains no mention of climate impacts on the candy darter, MVP claims (at 30) that FWS has engaged in a "substantial assessment of climate change effects" on the darter. FWS and MVP again attempt to rely on the 2018 SSA. This document does contain useful information about climate effects, including that a recent analysis "ranked the candy darter 'highly vulnerable' to the effects of climate change." JA1442.[7] Contrary to FWS's contentions (at 23-24), this vulnerability is not limited to increases in water temperature. *See, e.g.*, JA1444 ("Low-flow conditions resulting from…hydrological changes brought about by human development or climate change (or a combination of these) could be a stressor to localized candy darter populations…."). Moreover, as FWS acknowledges, climate change is increasing the frequency and intensity of storms, which in turn increases sedimentation. JA0049. This impacts candy darters, which are "intolerant of excessive stream sedimentation." JA0050. Despite these wide-ranging impacts, the BiOp fails to

[7] FWS (at 24) asserts that the SSA "indicates that the affected populations likely are at 'low risk of the effects of climate change.'" But the SSA states, in a section focused only on water temperature, that populations within more forested watersheds "*may* be at low risk of the effects of climate change over the next 25 years." JA1442 (emphasis added).

even mention climate impacts on the darter, let alone consider them in conjunction with the effects of the project.

II. FWS's Analysis of Recovery Impacts is Arbitrary

FWS's attempts to prop up its inadequate analysis of logperch and darter recovery are unavailing. FWS repeats (at 34) its claim that project-related turbidity will be "short-term" and that stream reaches impacted by sediment deposition "will remain functional" despite sediment impacts to the logperch's prey base lasting for years. But the record shows that the project will result in increases in sediment loading over the long-term, and that the impacts of increased turbidity and sediment deposition are severe. Pet'rs' Br. 30-35. *See also* JA1890 (MVP's expectation that 10.52 kilometers in logperch-occupied streams will be impacted "from an incremental increase in sediment deposition from Project construction."); JA1909 ("Roanoke logperch may potentially experience lasting effects from sedimentation after Project completion."); JA0590 (sediment migrates downstream over time).

FWS argues (at 38) that it "conservatively assumed," based on various studies, that sediment deposition impacts would last up to four years. But as a senior endangered species biologist in the West Virginia Field Office wrote regarding pipeline stream crossings:

> [C]aution should be used when interpreting results of short-term studies. Yount & Niemi (1999, p. 558) cite an example of one study

> that made a preliminary determination of stream recovery within one year, but when the site was re-examined six years later, fish biomass, fish populations, macroinvertebrate densities, and species composition were still changing. It was suspected that shifts in sediment and nutrient inputs to the site as a result of construction in and around the stream contributed to the long-term lack of recovery…. There is also the potential for cumulative effects. While a single crossing may have only short-term or minor effects, multiple crossings or multiple sources of disturbance and sedimentation in a watershed can have cumulative effects on fish survival and reproduction that exceed the recovery capacity of the river, resulting in permanent detrimental effects (Levesque & Dube 2007, pp. 406-407).

JA1011-12. With its numerous crossings within logperch watersheds, and additional impacts from both the construction and permanent right-of-way, Pet'rs' Br. 34, MVP is precisely the type of project that warrants such caution. Instead, FWS (at 37-38) and MVP (at 35-36) downplay the severity of turbidity and sediment deposition impacts. Moreover, arguments that logperch are mobile and can simply avoid impacts areas, FWS Br. 34, MVP Br. 33, are unavailing when such extensive stream reaches will experience elevated sedimentation. In sum, FWS ignored record evidence showing that precisely the type of impacts caused by MVP can adversely affect logperch recovery.

For candy darter, FWS asserts (at 41) that it appropriately considered the darter's short life cycle because it "analyzed both the short-term and long-term effects of the Project." But discussing short-term impacts is not the same as analyzing the consequences of those impacts on recovery in light of a species' short life cycle. Pet'rs' Br. 38-39. And as FWS's SSA for candy darter notes,

"[e]xcessive stream sedimentation (or siltation) results from soil erosion associated with upland activities (e.g.,…pipeline construction…) as well as activities that can destabilize stream channels themselves (e.g.,…pipeline crossings…)." JA1440. These concerns are particularly salient in light of the candy darter's high risk of extinction. *See* JA1407-08 (describing future scenario that FWS considers most likely, in which only "four isolated candy darter populations are predicted to remain extant" and "these populations are predicted to have low resiliency and be at an increased risk of extirpation from catastrophic or stochastic events"). FWS's failure to consider those concerns in the context of the darter's recovery render its BiOp arbitrary.

III. The Incidental Take Limit is Arbitrary

A. FWS Arbitrarily Weakened the Sediment Concentration Thresholds

FWS used the bull trout guidance ("Muck (2010)") after concluding it "represents the best available methodology" to assess sedimentation effects. JA0101. FWS's rationale in the BiOp for weakening the take thresholds in the bull trout guidance by changing "cumulatively" to "continuously" was that 1) Newcombe and Jensen (1996) "provided the basis for analyzing sediment effects to bull trout" in the guidance (*id.*); 2) Newcombe and Jensen used the term "exposure duration," (JA0102); and 3) Merriam-Webster defines "duration" as "continuance in time," (*id.*). FWS "cannot now supplement its reasoning through representations

made on appeal." *Mountain Valley Pipeline, LLC v. N. Carolina Dep't of Envtl. Quality*, ___ F.3d ___, 2021 WL 922110, at *11 (4th Cir. 2021); *see also Motor Vehicle Mfrs. Ass'n of the U.S. v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 43 (1983) ("The reviewing court…may not supply a reasoned basis for the agency's action that the agency itself has not given.") (internal quotations and citations omitted).

FWS (at 44) first attempts to downplay its reliance on the guidance. *But see* JA0369 (agency memorandum describing the surrogate measure of take as "the impact area in which project-related sediment concentrations are predicted to exceed one or more of the Muck [2010] thresholds"); JA0351 (providing interim steps to "safeguard against Project-related sediment…reaching or exceeding the respective impact concentrations/durations that FWS adopted from Muck (2010)").

FWS (at 46) also claims that it could not have changed course from established agency policy or practice because there was none. But the agency has used the bull trout guidance in numerous biological opinions, and has consistently adopted its use of "cumulatively" for the three- and seven-hour thresholds. *See also* JA0858 (FWS biologist noting that she "spoke to the author [of the guidance] last fall and [the Washington Field Office is] still using it for the Section 7 effects determinations, so almost 10 years in use."); JA0543 ("The guidance provides methodology to assess and monitor take and has been used in numerous

[Washington Field Office] Opinions and by NOAA Fisheries for many fish in the Salmonidae family."); JA0858 ("This threshold is consistent with the threshold for expected adverse effects to adult and juvenile fish, specifically when sediment concentrations exceed 20 mg/L over background for over seven hours cumulatively"); JA0547 (draft of MVP BiOp using "cumulatively" for the three- and seven-hour standards). FWS has now "abandoned without a cogent explanation its earlier determination"—which also reflects the best available science—that harm can result from non-continuous exposure to elevated sediment levels. *Defs. of Wildlife v. U.S. Dep't of the Interior*, 931 F.3d 339, 363 (4th Cir. 2019).

Despite the agency's use of "cumulatively" in the guidance and consistent application of that standard in subsequent BiOps, FWS (at 43) now suggests that this was essentially an erroneous deviation from Newcombe and Jensen. But the use of "cumulatively" reflects the reality that storm events and instream activities causing sedimentation events often result in fluctuating levels and "[a]brupt peaks" of suspended sediment. JA0976. *See also* JA0562 ("patterns in [suspended sediment] and turbidity dynamics include fluctuating duration and intensity of inputs that vary spatially and temporally during base flow and storm events"); JA0901 (noting that suspended sediment is "highly dynamic"). In the bull trout guidance and subsequent biological opinions, FWS recognized the biological

reality that fish can be harmed by elevated sediment concentrations even when exposure is "interrupted by brief interludes when concentrations return to background levels" or decrease below the threshold concentration. JA0976.

FWS (at 44) complains that the guidance does not "identify the time period during which cumulative exposures would be measured." But in the past, FWS has used its expertise to determine that a 10-hour workday was an appropriate time period, based on the instream work those projects involved. *See, e.g.*, JA0956 ("To determine exposure duration, we assumed that work below the [ordinary high water mark] would occur 10 hours a day, for as many as 45 days…."). This time frame recognizes that "[w]hen construction stops, at night,…[suspended sediment] concentrations downstream may decline dramatically…." JA0975. The 10-hour workday approach thus allowed FWS to consider "the overall effect of the entire sediment release event…." JA0976. Importantly, FWS employed its expertise and had a rationale based on the type of work at issue. Here, no such rationale was provided.

FWS (at 50) and MVP (at 42) point out that there are differences between past projects that applied the guidance and this project. Here, for example, "the majority of impact is related to upland sedimentation rather than instream impacts." JA1022. *See also* JA0491 (noting that the "described monitoring program is premised on the bull trout guidance, which focuses on sediment

generated from instream activities in a discrete location as opposed to stormwater from upstream activities across a watershed"). But the fact that impacts here will be of a different (and more severe) nature highlights why FWS must apply its expertise to evaluate how aquatic species may be harmed by sedimentation events. It may very well have been appropriate for FWS to determine that a different time period for cumulative exposure would be appropriate here, based on differences between past projects and this one. But instead of applying any such reasoning, FWS simply changed the standard to "continuously," using only the Merriam-Webster definition of "duration" as a justification.

FWS and MVP argue that the Newcombe and Jensen study supports the agency's last-minute decision to switch from "cumulatively" to "continuously." FWS states (at 44) that the study's severity-of-effect ("SEV") scores are based on duration of exposure, which "generally" refers to continuous exposure. FWS then states (at 45) that it used continuous exposure duration to "ensure consistency with Newcombe and Jensen." But all FWS points to is the use of the term "exposure duration" in the study, and a dictionary definition of the word "duration."[8] FWS points to no evidence in Newcombe and Jensen (1996) to support its claim that

[8] FWS does not explain why, when considering the meaning of the term "exposure duration," it considers Merriam-Webster's definition of the word "duration" to be more authoritative than EPA's definition of "exposure duration." FWS Br. 48-49.

"exposure duration" in that study means continuous exposure at a specific concentration.

This failure is unsurprising. Such conditions are rarely, if ever, found in the field. Because sedimentation events involve fluctuating levels of sediment concentrations, scientists have developed various methods to assign a sediment concentration to a sedimentation event. *See* JA0975 ("Characterizing an instream construction event is difficult since construction does not produce uniformly high [suspended sediment] concentrations downstream."). For example, the author of the other study that the bull trout guidance was based on (Anderson (2016)) concluded that "the weighted average method is the recommended approach for characterizing the concentration during sediment release episodes." JA0982.

For their part, Newcombe and Jensen endorsed a technique "for assigning a sediment concentration to a sediment release episode…[that] is often used for determining a *mean value for data with high fluctuations* (Newcombe pers. comm.)." JA0980 (emphasis added). In other words, Newcombe and Jensen endorsed this technique for assigning a *single* concentration to a sediment release episode with *variable* suspended sediment levels.[9] This entirely contradicts FWS's

[9] Indeed, the technique Newcombe and Jensen endorsed "increases the influence of the high peaks and decreases the importance of periods of low concentration." JA0982. *See also* JA0978 (noting that Newcombe and Jensen "endorse[d] the removal of intervals of clear water from the dataset").

position that Newcombe and Jensen interpreted exposure duration to mean "*continuous* exposure" for a "specified number of hours" at a "specified concentration." FWS Br. 47 (emphasis in original). But rather than grapple with these complexities, FWS merely relied on a lay dictionary's definition of one half of a scientific term.

The Newcombe and Jensen study "provides a meta-analysis of previous papers documenting responses of fish to the duration and concentration of suspended sediment in streams." JA0869. Under FWS's theory, all of the studies that contributed datapoints to Newcombe and Jensen's database would have involved studies where fish were exposed to a specific sediment concentration for a continuous period of time.

But a closer look at those studies shows that they were in fact based on fluctuating, intermittent exposures. For example, the Newcombe and Jensen database indicates that a 1967 study involved exposing trout to 300 mg/L for 720 hours. JA1825. But this study in Bluewater Creek, Montana, found that few trout were found "where sediment concentrations or loads were high (*range in daily load 2-1,800 tons*)…." JA0916 (emphasis added). In other words, the trout in the creek were not continuously exposed to precisely 300 mg/L for 720 hours.[10]

[10] The long durations included in the Newcombe and Jensen model are themselves evidence that the study authors did not interpret "exposure duration" to mean "*continuous* exposure for the specified number of hours at the specified

Similarly, the database indicates that a 1961 study involved exposing fish to 35 mg/L for 2 hours. JA1826. But in that study, the "*average* maximum turbidity was 35 ppm."[11] In other words, during the two-hour exposure period, the turbidity was sometimes above and sometimes below 35 ppm. *See also* JA1831 (study in database evaluating effects over 48 hours of exposure in a natural stream, where concentrations could not possibly be continuous).

FWS's claim (at 47) that the Newcombe and Jensen data "assumes a single, continuous period" with exposure to "the specified sediment concentration" thus contradicts the record. Newcombe and Jensen reviewed available empirical studies and utilized a technique "for providing a single concentration to represent the sediment release episode[s]." JA0948. *See also* Charles P. Newcombe, Mining and Fisheries Protection: Sediment Impact Models (1998)[12] ("The Newcombe-Jensen models describe sediment pollution episodes in terms of *average* concentration, duration of exposure, and potential ill effect.") (emphasis added).[13]

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concentration." FWS Br. 47 (emphasis in original). This would render the model useless, as there is no real-world situation in which, for example, a fish would be exposed to a non-fluctuating suspended sediment concentration for 30 months. *See* JA0952.

[11] *See* A. Cordone and D. Kelley, The Influences of Inorganic Sediment on the Aquatic Life of Streams (1961) (emphasis added), https://www.waterboards.ca.gov/water_issues/programs/tmdl/records/region_1/2003/ref2075.pdf.

[12] https://open.library.ubc.ca/media/download/pdf/59367/1.0042328/1.

[13] Similarly, Anderson (1996) shows a reduction in fish numbers at 1461 mg/L for a duration of 48 hours. JA0929. But the study itself found that sediment

Thus, although FWS's take assessment found "that the elevated concentrations must persist continuously to result in take," JA0330, the established science recognizes that is not the case. FWS "interpreted [the Newcombe and Jensen] study to address continuous exposures," MVP Br. 40, based only on Merriam-Webster, which is in conflict with the scientific literature underpinning the study. While a court must be deferential when examining a scientific determination that requires a high level of expertise, *see, e.g.*, *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 377 (1989), here the record shows that FWS's decision to weaken the thresholds was not based on such expertise.

FWS and MVP also highlight that the guidance was developed for a different species. MVP Br. 16. But FWS made the decision to apply the (weakened) thresholds to the logperch and candy darter—and did so despite evidence that darters are more sensitive to sediment than salmonids like bull trout. *See, e.g.*, Pet'rs' Br. 45 n.23; JA0899 (noting that Newcombe and Jensen's "nonsalmonid model predicts demonstrably greater adult sediment sensitivity than the model for salmonids…."). In other words, using the bull trout thresholds in the first place did not constitute a "conservative" approach. FWS Br. 45. *See also*

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concentrations "rose to *a maximum* of 1461 mg/L during construction." JA0917. As in Newcombe and Jensen (1996), the fish were not continuously exposed to the specific concentration listed.

JA1887. Choosing to then weaken those standards, based on neither agency expertise nor a well-supported scientific rationale, was arbitrary.

MVP asserts that challenging such changes constitutes "pick[ing] at the margins." MVP Br. 2. But if the best available science shows that an endangered aquatic species is harmed from certain elevated sediment levels when exposed in an intermittent manner (e.g., 40 mg/L for three hours cumulatively over a 10-hour period), and here the take limit is only triggered if such exposure is continuous for three hours, that means that MVP can "take" that species without triggering reinitiation of consultation. That is not a minor flaw and the Endangered Species Act prohibits such a result.

B. Flaws in the Monitoring Plan Render It Arbitrary

FWS failed to support its blanket adoption of a 200-meter upstream/800-meter downstream "impact area" for both pipeline crossings and mixing zones (i.e., where a tributary carrying project-related sediment merges with a logperch- or darter-occupied stream). FWS argues (at 28) that it "conservatively defined" the crossing and mixing zone impact areas based on studies showing that downstream impacts occurred within 500 meters of pipeline crossings. But this explains neither why using an *800-meter* downstream impact area is appropriate, nor why studies regarding pipeline crossings are relevant to mixing zones. *See* JA0469; JA0285; JA0955 (estimating length of downstream sedimentation "[b]ased upon the nature

of the proposed work, the size, volume, and morphology of the [river] within the action area, and the conditions likely to prevail during construction"). Moreover, if FWS believes that impacts will be limited to 500 meters downstream, FWS does not explain how it is "conservative" to extend that boundary by 300 meters, thereby allowing MVP to impact a larger area without triggering the take limit. *See* 50 C.F.R. §402.14(i)(1)(i) (incidental take statement must specify "the amount or extent" of incidental take).

FWS's claim (at 53) that uncertainty in the modeling likely overstates the Project's impacts is belied by the record, which shows a series of violations, overwhelmed erosion and sediment control devices, unanticipated slips, and extreme sedimentation events. *See, e.g.*, JA0391-96; JA0405-15. Claims regarding the "extreme[]" conservatism of the model, MVP Br. 9, are also undermined by the fact that MVP's 2017 analysis concluded that more extensive stream reaches would be impacted by project-related sedimentation. *Compare* MVP Br. 8-9 (stating that its new analysis "showed that only 1 of the 14 streams [with suitable logperch habitat] would experience a localized increase in sediment delivery of greater than 10% above baseline conditions on an annual basis") *with* MVP 2017 Biological Assessment (JA1923) (noting that "approximately 705 miles of waterbodies are expected to have a 10 percent increase or more" in sediment load, and that "[s]edimentation impacts resulting from instream pipeline construction

and access roads were estimated to be 13.0 miles of Roanoke logperch habitat; along with 36.4 miles of habitat affected by increased sedimentation from upland Project construction (i.e., upland runoff)").

FWS states (at 53) that "the facts alone will dictate whether the project caused an exceedance," but ignores that MVP is allowed to select which "facts surrounding an exceedance" to present to the agencies. FWS Br. 52. *See* JA0345.

IV. FWS Arbitrarily Excluded the Blackwater Drainage

FWS stated that "[p]resence/absence surveys for [logperch] were not conducted" for MVP, and claimed that presence "is assumed where suitable habitat was identified…" JA0069. Biologists agreed this was appropriate. Pet'rs' Br. 52; JA1609 (noting that for areas with suitable habitat such as the Blackwater River, "[f]urther sampling specifically targeting logperch can be used to determine presence"). Yet FWS proceeded to effectively assume absence in the Blackwater drainage, despite the presence of suitable habitat.[14]

FWS maintains that it did not assume presence in the Blackwater drainage because 1) traditional surveys unrelated to the project have not documented logperch presence, and 2) recent eDNA sampling did not detect logperch. FWS Br.

[14] FWS notes in the BiOp that implementation of logperch time-of-year-restrictions ("TOYRs") will help ensure no impacts to logperch "from the MVP Blackwater River drainage crossings…." JA0070. *But see* Pet'rs' Br. 54. MVP quotes its own comments on the draft BiOp for the proposition that TOYRs "are being implemented as a backstop conservation measure…." MVP Br. 54.

30. The first point is unavailing because "many of the watersheds within the Roanoke-Chowan remain undersampled (e.g., Blackwater River system), and the few fish collections that do exist were conducted prior to 1980." JA1907. *See also* JA1119 (noting "the elusiveness of the species"); JA1717 (noting that the logperch's "[l]ow detectability increases the likelihood of false absences"). The second point is unavailing because both FWS and MVP acknowledge the limitations of eDNA sampling. Pet'rs' Br. 53. *See also* JA0723-24 ("A lack of positive [eDNA] results" could mean that the species occurs near the test location but "does not have a strong presence."); JA1717 (noting that "[t]he Roanoke logperch's low catchability, patchy distribution, and low abundance make them difficult to detect").

In sum, FWS claimed that presence would be assumed in suitable habitat because traditional surveys were not conducted for this project, and then arbitrarily assumed logperch were not present.[15]

V. FWS Failed to Specify the Impact on the Indiana Bat

Negative summer mist-net surveys do not mean that Indiana bats ("Ibats") cannot be adversely affected by forest clearing. As FWS explained in the

[15] FWS included suitable habitat in the Blackwater drainage when considering recovery impacts. Pet'rs' Br. 31 n.16. This inconsistency is particularly ironic in light of the severe sedimentation impacts the project has caused in this drainage. *See, e.g.*, JA0393; JA0527-32.

biological opinion for the Atlantic Coast Pipeline ("ACP"), where there were similarly "negative survey results," JA1509, Ibats can be harmed by clearing suitable unoccupied summer habitat:

> We expect the majority of effects to Ibats from tree clearing will occur in suitable unoccupied summer habitat that Ibats use as a travel corridor between hibernacula and roost trees…. Tree removal may fragment the habitat such that Ibats traveling through the area will be more vulnerable to predation, resulting in injury or death.

JA1512. *See also Defs. of Wildlife*, 931 F.3d at 362. In other words, FWS previously determined that, despite negative summer survey results, serious negative impacts to Ibats could occur. FWS now takes the position that its expired[16] negative summer mist-net surveys "unequivocally" indicate that "bats do not use the relevant areas" for any purpose. FWS Br. 56-57. But FWS has failed to explain why negative summer surveys show that Ibats using the area as a travel corridor during other parts of the year will not be harmed, when in the past it has reached the opposite conclusion.

MVP (at 56-57) argues that its pipeline would affect fewer acres than ACP, but this does not explain why FWS concluded for ACP that the *majority* of effects to Ibats would result from clearing unoccupied habitat, whereas *no* impacts would

[16] FWS maintains that the 2015 and 2016 survey results are still valid, FWS Br. 56 n.6, but fails to respond to Petitioners' arguments on this point. *See also* JA1018 ("The Virginia surveys have expired" for Ibat); JA1282 (a survey completed using pre-2018 survey guidelines is valid for three years).

result from clearing a substantial acreage for MVP. Moreover, FWS's conclusion is contrary to the evidence before the agency. Threats to the Ibat include "loss/degradation of summer/migration/swarming habitat" and "loss of forest habitat connectivity." JA1051. *See Defs. of Wildlife*, 931 F.3d at 362. And "one of the greatest emerging causes of conversion of forest/habitat loss within the range of the Indiana bat is energy production and transmission (e.g., oil, gas, coal, wind)." JA1052.

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CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(g), I certify that this brief complies with the type-volume limitation because it contains 6,500 words.

I further certify that this brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in Times New Roman 14-point font using Microsoft Word.

Dated: March 19, 2021

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CERTIFICATE OF SERVICE

I hereby certify that on March 19, 2021, I electronically filed the foregoing Reply Brief on behalf of Petitioners with the Clerk of Court using the CM/ECF System, which will automatically send e-mail notification of such filing to all counsel of record.

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