FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CENTER FOR BIOLOGICAL DIVERSITY, *Petitioner,* v. UNITED STATES BUREAU OF LAND MANAGEMENT; U.S. FISH AND WILDLIFE SERVICE, *Respondents,* RUBY PIPELINE, L.L.C., *Respondent-Intervenor.*	No. 10-72356
COALITION OF LOCAL GOVERNMENTS, ON BEHALF OF ITS MEMBERS, INCLUDING LINCOLN COUNTY, WYOMING, *Petitioner,* v. BUREAU OF LAND MANAGEMENT; DEPARTMENT OF THE INTERIOR, *Respondents,* RUBY PIPELINE, L.L.C., *Respondent-Intervenor.*	No. 10-72552

WARNER BARLESE, Member, Summit Lake Paiute Tribe, Nevada, and Chairman, Summit Lake Paiute Council,
Petitioner,

v.

UNITED STATES BUREAU OF LAND MANAGEMENT; U.S. ARMY CORP OF ENGINEERS; U.S. FISH AND WILDLIFE SERVICE,
Respondents,

RUBY PIPELINE, L.L.C.,
Respondent-Intervenor.

No. 10-72762

IBLM Nos.
NVN-084650
OR-64807
UTU-82880
WYW-171168
(W0350)

FORT BIDWELL INDIAN COMMUNITY OF THE FORT BIDWELL INDIAN RESERVATION OF CALIFORNIA,
Petitioner,

v.

UNITED STATES BUREAU OF LAND MANAGEMENT; U.S. FISH AND WILDLIFE SERVICE; UNITED STATES ARMY CORPS OF ENGINEERS,
Respondents,

RUBY PIPELINE, L.L.C.,
Respondent-Intervenor.

No. 10-72768

DEFENDERS OF WILDLIFE; SIERRA CLUB; GREAT BASIN RESOURCE WATCH,
Petitioners,

RUBY PIPELINE, L.L.C.,
Intervenor,

v.

UNITED STATES BUREAU OF LAND MANAGEMENT; UNITED STATES ARMY CORPS OF ENGINEERS; U.S. FISH AND WILDLIFE SERVICE,
Respondents.

No. 10-72775

IBLM No. CP09-54-000

OPINION

On Petition for Review of Orders of the Bureau of Land Management and the Fish and Wildlife Service

Argued and Submitted
October 11, 2011—Portland, Oregon

Filed October 22, 2012

Before: Marsha S. Berzon and N. Randy Smith, Circuit Judges, and William E. Smith, District Judge.*

Opinion by Judge Berzon

*The Honorable William E. Smith, District Judge for the U.S. District Court for the District of Rhode Island, sitting by designation.

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OPINION

BERZON, Circuit Judge:

Our case concerns a decision by the Bureau of Land Management ("BLM") to authorize the Ruby Pipeline Project ("Project"). The Project involves the construction, operation, and maintenance of a 42-inch-diameter natural gas pipeline extending from Wyoming to Oregon, over 678 miles. The right-of-way for the pipeline encompasses approximately 2,291 acres of federal lands and crosses 209 rivers and streams that support federally endangered and threatened fish species. According to a Biological Opinion ("the Biological Opinion" or "the Opinion") formulated by the Fish and Wildlife Service ("FWS"), the project "would adversely affect" nine of those species and five designated critical habitats. The FWS nonetheless concluded that the project "would not jeopardize these species or adversely modify their critical habitat." The propriety of the FWS's "no jeopardy" conclusion, and the BLM's reliance on that conclusion in issuing its Record of Decision, are at the heart of this case.

This opinion addresses those challenges to the Project that petitioners Center for Biological Diversity, Defenders of Wildlife *et al.*, and Summit Lake Paiute Tribe have raised under the Endangered Species Act ("ESA"), 16 U.S.C. § 1531 et seq.[1] Specifically, we resolve petitioners' claims that the

[1]We address the remaining issues raised by the petitioners in a separate memorandum disposition filed concurrently with this opinion.

Biological Opinion and its accompanying Incidental Take Statement were arbitrary and capricious because: (1) the Biological Opinion's "no jeopardy" and "no adverse modification" determinations relied on protective measures set forth in a conservation plan not enforceable under the ESA; (2) the Biological Opinion did not take into account the potential impacts of withdrawing 337.8 million gallons of groundwater from sixty-four wells along the pipeline; (3) the Incidental Take Statement miscalculated the number of fish to be killed, by using a "dry-ditch construction method" for water crossings; and (4) the Incidental Take Statement placed no limit on the number of "eggs and fry" of threatened Lahontan cutthroat trout to be taken during construction.

We agree with the first two contentions and so set aside the Biological Opinion as arbitrary and capricious. We also set aside the Record of Decision, as it relied on the invalid Biological Opinion.[2]

I. BACKGROUND

A. Statutory Scheme

The Endangered Species Act is a comprehensive scheme with the "broad purpose" of protecting endangered and threatened species. *Babbit v. Sweet Home Chapter of Comtys. for a Great Or.*, 515 U.S. 687, 698 (1995); *see Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978). Two interlocking provisions of the Act are of particular significance here: section 9, which prohibits the "take"[3] of any member of an endangered

[2]That the pipeline was completed and put into service during the pendency of this lawsuit does not render the petitioners' challenges moot. It is still possible to mitigate the Project's adverse effects on listed species and critical habitat. *Compare Pyramid Lake Paiute Tribe of Indians v. Hodel*, 882 F.2d 364, 368-69 (9th Cir. 1989), *with Feldman v. Bomar*, 518 F.3d 637, 642-44 (9th Cir. 2008).

[3]"The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19).

or threatened species, 16 U.S.C. § 1538(a)(1)(B), and section 7, which imposes upon federal agencies an "affirmative duty to prevent violations of section 9," *Ariz. Cattle Growers' Ass'n v. U.S. Fish & Wildlife*, 273 F.3d 1229, 1238 (9th Cir. 2001) (citing 16 U.S.C. § 1536(a)(2)).

Under Section 7, a federal agency must "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species." 16 U.S.C. § 1536(a)(2).[4] To facilitate compliance with this substantive requirement, section 7 and its implementing regulations also impose specific procedural duties upon federal agencies: Before beginning any "major construction activities," agencies must prepare a "biological assessment" to determine whether listed species or critical habitat "are likely to be adversely affected" by the proposed action. 50 C.F.R. § 402.12 (2012). If so, the action agency must formally consult with the appropriate wildlife agency, in this case the FWS,[5] before undertaking the action. 50 C.F.R. § 402.14; *see Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1020 (9th Cir. 2012) (en banc); *Sierra Club v. Babbitt*, 65 F.3d 1502, 1505 (9th Cir. 1995).

During the formal consultation process, the FWS must

[4]The ESA defines "critical habitat" as: (i) areas occupied by the species, at the time the species is "listed" as endangered or threatened under the Act, that contain "those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection;" and (ii) areas not occupied by the species at the time of listing that are determined by the Secretary of the Interior to be "essential for the conservation of the species." 16 U.S.C. § 1532(5)(A).

[5]The FWS administers the Act with respect to all species aside from marine species, which fall within the jurisdiction of the National Marine Fisheries Service (NMFS). *See* 50 C.F.R. § 402.01; *Westlands Water Dist. v. U.S. Dep't. of Interior*, 376 F.3d 853, 873 (9th Cir. 2004).

"[f]ormulate its biological opinion as to whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat." 50 C.F.R. § 402.14(g)(4). If the FWS concludes that jeopardy or adverse modification is likely, then any take resulting from the proposed action is subject to section 9 liability (unless that take is authorized by other provisions of the Act not relevant here). *See Sierra Club v. Babbitt*, 65 F.3d at 1505; *Defenders of Wildlife v. EPA*, 420 F.3d 946, 966 (9th Cir. 2005), *rev'd on other grounds by Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644 (2007). Although a federal agency or project applicant is "technically free to disregard the Biological Opinion and proceed with its proposed action, . . . it does so at its own peril (and that of its employees), for 'any person' who knowingly 'takes' [a member of] an endangered or threatened species is subject to substantial civil and criminal penalties, including imprisonment." *Bennett v. Spear*, 520 U.S. 154, 170 (1997); *see also San Luis & Delta-Mendota Water Auth. v. Salazar*, 638 F.3d 1163, 1170 (9th Cir. 2011) ("[T]he determinative or coercive effect of a Biological Opinion stems directly from the Service's power to enforce the no-take provision in ESA § 9 . . . .").

If, on the other hand, the FWS concludes in its biological opinion that *no* jeopardy or adverse modification is likely, but that the project is likely to result only in the "incidental take"[6] of members of listed species, then the FWS will provide, along with its biological opinion, an incidental take statement authorizing such takings. 50 C.F.R. § 402.14(i). An incidental take statement must:

> (1) specify the impact [i.e., the amount or extent] of the incidental taking on the species; (2) specify the

[6]"Incidental take refers to takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." 50 C.F.R. § 402.02.

> "reasonable and prudent measures" that the FWS considers necessary or appropriate to minimize such impact; [and] (3) set forth "terms and conditions" with which the action agency must comply to implement the reasonable and prudent measures . . . .

Or. Natural Res. Council v. Allen, 476 F.3d 1031, 1034 (9th Cir. 2007) (quoting 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)). "Significantly, the Incidental Take Statement functions as a safe harbor provision immunizing persons from Section 9 liability and penalties for takings committed during activities that are otherwise lawful and in compliance with its terms and conditions." *Ariz. Cattle Growers' Ass'n*, 273 F.3d at 1239 (citing 16 U.S.C. § 1536(o)).

ESA regulations further require federal agencies and project applicants to "monitor the impacts of incidental take" by "report[ing] the progress of the action and its impact on the species" to the FWS. 50 C.F.R. § 402.14(i)(3). If the amount or extent of incidental taking is exceeded, the action agency "must immediately reinitiate consultation with the FWS." *Allen*, 476 F.3d at 1034-35 (citing 50 C.F.R. §§ 402.14(i)(4), 402.16(a)). The action agency must also reinitiate consultation if the proposed action "is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion." 50 C.F.R. § 402.16(c); *see also Defenders of Wildlife v. Flowers*, 414 F.3d 1066, 1070 (9th Cir. 2005). When reinitiation of consultation is required, the original biological opinion loses its validity, as does its accompanying incidental take statement, which then no longer shields the action agency from penalties for takings. *See Allen*, 476 F.3d at 1037; U.S. Fish & Wildlife Serv. & Nat. Marine Fisheries Serv., *Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act* 4-23 (1998) [hereinafter *ESA Handbook*].

B. The Ruby Pipeline Project: Formal Consultation and the Biological Opinion

In January 2009, Respondent-Intervenor Ruby Pipeline L.L.C. ("Ruby") filed a formal application with the Federal Energy Regulatory Commission (FERC) seeking a Certificate of Public Convenience and Necessity ("Certificate"), *see* 15 U.S.C. § 717f(c)(1)(A), authorizing the Project. After Ruby and FERC had agreed on the rough scope of the project, FERC requested consultation with the FWS about the proposed license.

FWS's resulting Biological Opinion focused on nine listed species it determined the Project "would adversely affect," as well as the 209 bodies of water the Project would cross that either fall within or connect to the listed species' critical habitats. Five of the species—Lahontan cutthroat trout, Warner sucker, Lost River Sucker, shortnose sucker, and Modoc sucker—inhabit waters in Nevada, Oregon, or both. The other four species—Colorado pikeminnow, humpback chub, razorback sucker, and bonytail chub—live in the Colorado River system. The FWS determined that the first group of species, the Nevada/Oregon group, would be adversely affected by the Project's stream crossings, while the second group, those in the Colorado River system, would be adversely affected by the use and depletion of ground and surface water during construction.

Crucially, the Biological Opinion factored into its jeopardy determination several "voluntary" conservation actions Ruby had indicated it would facilitate implementing, which the Opinion identified as "reasonably certain to occur." The Opinion explained that these actions, set forth in an Endangered Species Conservation Action Plan (sometimes "CAP"), were "to be implemented by Ruby in the future," "would be beneficial to listed fishes and their habitats, and . . . [would] eventually contribute to the conservation and recovery of these fishes." Whether the Biological Opinion properly relied

upon the Conservation Action Plan as mitigating the adverse effects of the Project is the central issue in this case.[7]

Although it recognized that the Project would adversely affect the nine listed species, the Biological Opinion ultimately concluded that the Project was "not likely to jeopardize the continued existence" of these species or "adversely modify or destroy designated critical habitat." The FWS therefore provided an Incidental Take Statement authorizing "mortality to Lahontan cutthroat trout, Warner sucker, Modoc sucker, Lost River sucker, and shortnose sucker," provided the specified terms and conditions were met. It also "exempt[ed from section 9 liability] all take in the form of harm that would occur from the Project's removal of 49.5 acre-feet of water" from the Colorado River Basin.

II. DISCUSSION

The Administrative Procedure Act ("APA") governs our review of agency decisions under the ESA. *Karuk Tribe*, 681 F.3d at 1017. Under the APA, an agency action is valid unless it is " 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.' " *Id.* (quoting 5 U.S.C. § 706(2)(A)). An agency action is arbitrary and capricious if the agency has:

> relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

[7]We provide further detail regarding the origin and nature of the Conservation Action Plan in Part II.A of the opinion, which addresses that issue.

Pac. Coast Fed'n of Fishermen's Ass'ns v. Nat'l Marine Fisheries Serv., 265 F.3d 1028, 1034 (9th Cir. 2001) (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm*, 463 U.S. 29, 43 (1983)).

A. The Conservation Action Plan

The petitioners' central argument is that the Biological Opinion was arbitrary and capricious because it relied in part on the projected beneficial effects of the Conservation Action Plan for its conclusion that the Project would not jeopardize the nine listed fish species or adversely affect critical habitat. The Conservation Action Plan measures are unenforceable under the procedures established by the ESA, petitioners maintain, but should be, and so cannot be relied upon in assessing the likely impact of the project on listed species. Unless the Conservation Action Plan is binding under the ESA, the FWS will be unable to use the ESA's "strict civil and criminal penalties," *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059, 1063 (9th Cir. 2004), to ensure that the plan is implemented. We agree that the Opinion's reliance on the CAP is inconsistent with the statutory scheme, and that the Opinion is therefore invalid.

1. Background

a. Development and features of the Conservation Action Plan

In May 2009, FWS staff sent Ruby an "ESA Mitigation and Conservation Action Plan Proposal," suggesting measures that "would address Ruby[']s] impacts to listed species and their critical habitats as well as assist with recovery of these listed species." The FWS requested that Ruby file the final Conservation Action Plan with FERC so it could "be included as part of the final biological assessment." This approach, it appears, would have rendered the Conservation Action Plan

part of the proposed action, and so enforceable under the ESA. *See* further discussion at p.12727, *infra*.

FWS staff then produced a draft Memorandum of Agreement to establish a proposed Conservation Action Plan; the Memorandum attached the Conservation Action Plan that would be the subject of the Agreement. Both documents were revised several times. During the revision process, FERC, the action agency, objected to the inclusion of the Conservation Action Plan as part of the proposed action. The FWS thereupon revised the draft Memorandum of Agreement "to represent a stand-alone agreement between Ruby and [the] agencies," "delet[ing] [the] previous assumption that this Memorandum of Agreement and ESA conservation action plan would be part of the FERC proposed [section 7] action." FWS staff also noted that Ruby contributed language to the revised draft "to provide rationale that the ESA conservation action plan, while related to the ESA proposed action, [was] not interrelated or interdependent for purposes of section 7 effects analysis."

Ultimately, the Memorandum of Agreement was made final and renamed the "Letter of Commitment by Ruby Pipeline LLC regarding the Endangered Species Act Conservation Action Plan for the Ruby Pipeline Project" ("Letter"). The Letter spelled out the nature of and limits on Ruby's commitment "to fund and/or implement conservation measures for the benefit of federally threatened and endangered species that occur within the Ruby Pipeline Project . . . action area." Notably, it characterized the Conservation Action Plan as entirely independent of the requirements of section 7 of the ESA:

> Separately, and not in lieu of FERC's . . . Section 7 consultation responsibility, Ruby has agreed to commit to fund conservation actions that are beneficial to listed species and their habitats that occur within the Ruby Project action area, and that will contribute

> to the conservation and recovery of these species. . . . This Plan *is not part of the FERC proposed action for ESA consultation* and also is *separate from, and in addition to, any reasonable and prudent measures developed as part of the Section 7 consultation* with the Service for the Project. . . . [W]hile Ruby has committed to fund the conservation actions identified in the Plan to conserve and assist with recovery of these listed species, the Project *is not dependent on these conservation actions*. Conversely, the conservation actions identified in the Plan involve projects that already had been identified by the Service . . . and thus could proceed regardless of whether the Project was authorized.

(Emphasis added.)

To the Letter was attached a list of, among other things, twelve fish-specific conservation measures; the Letter referred to the attachment as "Ruby's Endangered Species Act Conservation Action Plan." The listed conservation measures, if completed, were to benefit each of the nine listed species that, according to the Biological Opinion, the Project would adversely affect. Included were the construction of a fish migration barrier to protect Lahontan cutthroat trout from invasive non-native trout; improvements to a road adjacent to Modoc sucker spawning and rearing habitat; research and monitoring of Warner sucker populations; and restoration of native riparian vegetation along select tributaries in the Green River Basin, to decrease water loss that could adversely impact the endangered Colorado River fishes.

Ruby committed to funding fully only seven of the twelve Conservation Action Plan measures. For the remaining five measures, Ruby agreed to contribute partial funding, with the remaining funds to be "acquired via cost-share." For four of those five projects, Ruby's partial contribution would amount to twenty-five percent of the costs; the remaining seventy-five

percent would be "obtained from other sources." For the remaining partially-funded project, Ruby would pay $150,000, leaving an unspecified amount of "remaining funds" to be acquired elsewhere. The Letter of Commitment indicated that it would be the FWS's responsibility to obtain cost-share funding. Ruby agreed, if the FWS were unable to do so, to "pay any reasonable costs, *as determined by Ruby in its sole discretion* . . . to ensure the identified conservation action is completed." (Emphasis added.)

The Letter stated that "Ruby anticipate[d] that each of the actions [would] be *initiated* within five years of Ruby's receipt of its Certificate" from FERC authorizing the Project. (Emphasis added.) It further stated that, if any of the conservation actions could not "be completed for any reason, Ruby [would] work with the Service, other federal agencies, states and/or NGO partners to identify another ESA conservation action that will provide the same or greater conservation benefit for the same species as the conservation action that was originally identified." Nothing in the Letter set forth any penalties or other consequences to be imposed upon Ruby if required CAP measures were underfunded or not implemented.

To the degree there are funding commitments, the CAP measures are, however, in some measure enforceable, albeit not through the ESA's mechanisms. The Action Plan was incorporated into both the FERC Certificate and the BLM's Record of Decision, each of which provides for discretionary agency enforcement.

First, as to the FERC Certificate, the Natural Gas Act authorizes FERC to impose civil penalties of up to $1,000,000 per day for each violation of "any rule, regulation, restriction, condition, or order made or imposed by [FERC]." *Id.* § 717t-1(a). Condition 1 of the FERC Certificate for the Project states that Ruby "shall follow" the "mitigation measures" described in "its application, supplemental filings . . . , and as

identified in the EIS," and Appendix M to the FEIS includes a version of the Conservation Action Plan.[8]

Second, the regulations for the Mineral Leasing Act authorize the BLM to suspend or terminate a right-of-way grant or temporary use permit if an applicant does not "comply with applicable laws and regulations or any terms, conditions, or stipulations of the grant" or permit. 43 C.F.R. § 2886.17(a), (b); *see also* 30 U.S.C. § 185(o). If the BLM terminates a project's grant or Temporary Use Permit, the applicant must "remove any facilities within the right-of-way or TUP area within a reasonable time, as determined by BLM, unless BLM instructs . . . otherwise." 43 C.F.R. § 2886.19(a). The BLM may declare any facilities not removed to be the property of the United States, while holding the company liable for costs of removal "and for remediating and restoring the right-of-way or TUP area." *Id.* § 2886.19(c). Ruby therefore faces potentially stiff consequences if it does not follow through with its Conservation Action Plan commitments. But whether to impose those consequences will be with the discretion of FERC and BLM, with no role for FWS.

b. The Biological Opinion's reliance on the Conservation Action Plan

The Biological Opinion relied in part on the Conservation Action Plan to conclude that the Project would not jeopardize the continued existence of the nine listed fish or adversely modify critical habitat. Specifically, the Biological Opinion's

[8]The version of the Conservation Action Plan included in Appendix M of the FEIS is a draft and does not specify in any matter how much Ruby would contribute for the conservation measures. The parties assume, however, that Condition 1 of the FERC Certificate renders binding the Conservation Action Plan measures set forth in the final version of the plan, attached to the March 18, 2010 Letter of Commitment. We shall so assume as well for present purposes, although we can well imagine a dispute on the matter should Ruby fail to fund the measures and be fined as a result.

jeopardy analysis referenced the Conservation Action Plan measures in its review of the Project's anticipated "cumulative effects," that is, the "effects of future [non-Federal] activities . . . that are reasonably certain to occur within the action area" of the Project. As the Biological Opinion explained:

> Ruby Pipeline LLC has voluntarily committed to fund several conservation actions in the action area that, when implemented in the future, would be beneficial to listed fish and their habitats, and that will eventually contribute to the conservation and recovery of these fishes. As noted in the Description of Proposed Action section, . . . FERC did not propose Ruby's voluntary Endangered Species Conservation Action Plan conservation commitments as part of the BA's proposed action. The Service considers these voluntary conservation actions to be reasonably certain to occur, to be implemented by Ruby in the future, and therefore analyzes their effects herein this Cumulative Effects section of the [Biological Opinion].

The Opinion went on to describe the individual CAP measures (without noting that funding of some of them was not assured and that the measures might not be implemented for years) and discuss their anticipated effects on listed species and their habitats. With respect to impacts on the Lahontan cutthroat trout, Warner sucker, Lost River Sucker, shortnose sucker, and Modoc sucker, the Biological Opinion concluded:

> The Service . . . anticipates the nonfederal actions identified above that result in positive effects will expand listed fishes' distributions, improve knowledge of fish needs and occurrences, and provide additional protection from entrainment-related mortality. From the standpoint of species survival and recovery, many of the beneficial conservation actions will have significant survival and recovery

> benefit to individual species, especially for Lahontan cutthroat trout and Warner sucker, which will eventually experience significant enhancement of habitat connectivity in the action area.

2. Analysis

[1] The pivotal question is whether the FWS was permitted to consider the CAP measures when determining whether the Project would jeopardize listed species or adversely modify critical habitat. An agency action is arbitrary and capricious when the agency "relie[s] on factors which Congress has not intended it to consider." *Pac. Coast Fed'n of Fishermen's Ass'ns*, 265 F.3d at 1034 (quoting *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43). Because the Plan should properly have been part of the project itself, the FWS should not have treated its anticipated benefits as background cumulative effects and used them as a basis for determining the likely effects of the Project. Doing so rendered the Plan unenforceable under the ESA, depriving FWS of the power to ensure that the measures were actually carried out.

a. Cumulative effects versus interrelated effects

The Service's *ESA Handbook* explains that the ESA jeopardy determination turns on four considerations: "(1) the status of the species, (2) the environmental baseline, (3) all effects of the proposed action, and (4) the cumulative effects of other anticipated actions." *ESA Handbook* 4-37. To factor into the jeopardy and adverse modification determinations, the beneficial effects of the Conservation Action Plan measures must qualify as either "effects of the proposed action" or "the cumulative effects of other anticipated actions," *id*.; *see* 50 C.F.R. § 402.14(g)(4), as the other two considerations are inapplicable.

"[E]ffects of the proposed action" encompass the effects of "interrelated actions" which are "part of [the] larger action

and depend on the larger action for their justification." 50 C.F.R. § 402.02. "The test for interrelatedness . . . is 'but for' causation: but for the federal project, these activities would not occur." *Sierra Club v. Marsh*, 816 F.2d 1376, 1387 (9th Cir. 1987); *accord ESA Handbook* 4-27. "Interrelated actions" include "conservation measures," which the *ESA Handbook* defines as "actions to benefit or promote the recovery of listed species." *Id*. at xii. Conservation measures "minimize or compensate for" a project's adverse effects to the species under review and are an "integral part" of the proposed action. *Id*. at xii, 4-19.

In contrast, "cumulative effects" are "those effects of future State or private activities, *not involving Federal activities*, that are reasonably certain to occur within the action area of the Federal action subject to consultation." 50 C.F.R. § 402.02 (emphasis added). The *ESA Handbook* explains that "[f]uture federal actions that are unrelated to the proposed action" are not considered "cumulative effects," because they require separate section 7 consultation. *ESA Handbook* at 4-31; *accord Marsh*, 816 F.2d at 1387 ("The effects of *unrelated* private or state activities that are reasonably certain to occur are 'cumulative effects.' ") (emphasis added).

[2] Before addressing the categorization issue in this case, we first explain why the answer to the categorization issue is legally determinative. As we develop, whether the Biological Opinion properly relied on the CAP in its jeopardy assessment depends primarily upon whether it properly characterized the CAP's projected benefits as "cumulative effects of other anticipated actions," rather than as "effects of the proposed action." *ESA Handbook* at 4-37.

b. Enforceability under the ESA

The reason the categorization issue is the critical one is that the unrelated, nonfederal actions giving rise to "cumulative effects" are not enforceable under the ESA, meaning that:

they are not subject to the ESA consultation procedures; ESA citizens' suit provisions are not applicable; and they are not enforceable through the threat of penalties for takings of listed species if the mitigation conditions are not complied with. Thus, while "cumulative effects" must be "reasonably certain to occur," 50 C.F.R. § 402.02; *see Marsh*, 816 F.2d at 1387, they are essentially background considerations, relevant to the jeopardy determination but not constituting federal actions and so beyond the action agency's power to effectuate. *See* 50 C.F.R. § 402.02. In contrast, "[s]ince conservation measures are part of the proposed action, their implementation is required under the terms of the consultation."[9] *ESA Handbook* at 4-19.

That the consultation concerning and enforceability of mitigation measures turns on their integration into the proposed

[9]Generally speaking, measures that benefit a species can also be made enforceable via incorporation into the "terms and conditions" of an Incidental Take Statement. *See* 50 C.F.R. § 402.14(i)(1)(iv); *see, e.g.*, *Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944, 953 n.4 (9th Cir. 2003). Whether measures specifically designed to offset the adverse impacts of a proposed project should be categorized as "interrelated actions" that are part of the proposed project or as "terms and conditions" of an Incidental Take Statement depends on the nature of those measures.

Specifically, only those measures that *minimize* a project's incidental takings are properly included in an Incidental Take Statement's terms and conditions. *See* 50 C.F.R. § 402.14(i)(1)(ii); *accord ESA Handbook* 4-19 (emphasizing that "the objective of the incidental take analysis under section 7 is minimization, not mitigation"). Terms and conditions can include only "minor changes" and "cannot alter the basic design, location, scope, duration, or timing of the action." 50 C.F.R. § 402.14(i)(2). Measures that minimize incidental takings can factor into *both* jeopardy determinations *and* incidental take analyses. *ESA Handbook* at 4-19.

In contrast, measures that do not minimize incidental takings but nonetheless promote recovery of a species are properly considered "conservation actions" that are interrelated to a proposed project. The CAP projects here do not minimize incidental takings associated with construction of the pipeline and are therefore more appropriately considered "interrelated actions" to the larger project.

action is illustrated by *Sierra Club v. Marsh.* In *Marsh*, we held that "[t]he substantive and procedural provisions of the ESA are *the* means determined by Congress to assure adequate protection [of listed species]." 816 F.2d at 1384 (emphasis added). *Marsh* concerned a "no jeopardy" Biological Opinion for a highway and flood control project, in which the FWS relied on San Diego County's planned acquisition and preservation of 188 acres of mitigation marsh lands for its conclusion that listed birds would not be affected. *Id*. at 1379-80. But the County did not carry out its promise, and the action agency, the U.S. Army Corps of Engineers, refused to reinitiate consultation with FWS. We enjoined the project until the Corps reinitiated consultation and "insure[d] the acquisition of the mitigation lands or modifie[d] the project accordingly." *Id*. at 1389. In so holding, we relied on the status of the land acquisition arrangement as *part* of the proposed project: Because acquisition of the mitigation lands was *part of the project design*, *see id*. at 1379, the change in the project when the acquisition fell through triggered reinitiation of formal consultation under the ESA regulations. *See id*. at 1388 (citing 50 C.F.R. § 402.16).

As *Marsh* makes clear, if a non-federal party promises to take action mitigating the impact of a federal action on listed species but fails to do so, the contemplated protections of listed species may never materialize. As we observed in *Thomas v. Peterson*, "[i]f a project is allowed to proceed without substantial compliance with [the ESA's] procedural requirements, there can be no assurance that a violation of the ESA's substantive provisions will not result. The latter, of course, is impermissible." 753 F.2d 754, 764 (9th Cir.1985); *see also Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1146 (9th Cir. 2001) (holding that the decision not to designate a species of lizard for ESA protection was arbitrary and capricious, in part because the decision relied on "the benefits assertedly flowing from" a Conservation Agreement that the signatory state and federal agencies failed to implement fully).

In contrast, where, as in *Marsh*, conservation agreements are part of the project design, the ESA's sequential, interlocking procedural provisions ensure recourse if the parties do not honor or enforce the agreement, and so ensure the protection of listed species. First, when a proposed action "is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion," the section 7 regulations require reinitiation of formal consultation. 50 C.F.R. § 402.16(c). This requirement provides the FWS with the opportunity—and the obligation—to reexamine altered projects to ensure that any changes will not place species in jeopardy or risk degradation to critical habitat. As we held in *Marsh*, where mitigation measures are not carried out, any risk to listed species thereby created "must be borne by the project, not by the endangered species." *See* 816 F.2d at 1386.

Second, where an action agency does not reinitiate consultation with the FWS despite the failure of promised conservation measures, the Biological Opinion for the proposed action becomes invalid. *See ESA Handbook* 4-23. Under these circumstances, the accompanying incidental take statement no longer insulates the agency or applicant from the ESA's "substantial civil and criminal penalties," *Bennett*, 520 U.S. at 170, for takings of listed species.

Third, the ESA authorizes "any person" to bring suit to enjoin any violation of the Act. 16 U.S.C. § 1540(g)(1)(A). Noncompliance with the ESA's procedural and substantive requirements regarding compliance with mitigation measures incorporated as part of the action project therefore exposes an action agency and project applicant to citizen suits. The ESA's citizen suit provision plays an important role in the protection of endangered species: its "obvious purpose is to encourage enforcement." *Bennett*, 520 U.S. at 170.

Neither the Natural Gas Act nor the Mineral Leasing Act, under which respondents argue the CAP measures are

enforceable, provide for either criminal penalties or citizen suits. Moreover, "[t]he primary responsibility for insuring that federal projects do not harm endangered species or their habitats rests with the FWS." *Marsh*, 816 F.2d at 1379. The FWS is the federal agency with the greatest expertise in protecting listed (non-marine) species, *see id.* at 1388, and the *only* agency with the central purpose of conserving species. *See* U.S. Fish & Wildlife Service, Who We Are, http://www.fws.gov/who/ (last visited July 12, 2012); *see also N. Cal. River Watch v. Wilcox*, 633 F.3d 766, 776 (9th Cir. 2011) (underscoring "the degree of regulatory expertise necessary to [ESA] enforcement"). Other agencies can, do, and indeed are sometimes even required by statute to have competing priorities. The Federal Land Policy and Management Act, for example, mandates the BLM to "manage . . . public lands under principles of multiple use." 43 U.S.C. § 1732(a). This responsibility entails taking into account not only the continued existence of "wildlife and fish," but also future generations' needs for "recreation, range, timber, [and] minerals," among other things. 43 C.F.R. § 1601.0-5(i). That the priorities of other agencies can conflict with those of the FWS was apparent in *Marsh*, 816 F.2d at 1381, and, as will appear, is apparent here.

In its discussion of section 7 of the ESA in *TVA v. Hill*, the Supreme Court made clear that "Congress considered and rejected language that would have permitted an agency to weigh the preservation of species against the agency's primary mission." *Marsh*, 816 F.2d at 1383 (citing *TVA v. Hill*, 437 U.S. at 181-82). Here, categorizing the CAP measures as private actions that produce only "cumulative effects" removes them from the purview of the ESA, thereby eliminating the procedural protections of section 7 and circumscribing the enforcement authority of the FWS. As reflected in the FERC Certificate and BLM Record of Decision, enforcement of these purportedly non-federal actions would be left to the discretion of FERC and the BLM, and not to the FWS, the expert agency entrusted with administering the ESA. *Com-*

pare 30 U.S.C. § 185 (authorizing the Secretary of the Interior to administer the Mineral Leasing Act with respect to rights-of-way for natural gas transportation through federal lands), *and* 43 C.F.R. § 3160.0-3 (delegating the Department of Interior's functions under the Mineral Leasing Act, "except mineral revenue functions and the responsibility for leasing of restricted Indian Lands," to the Bureau of Land Management), *and* 15 U.S.C. § 717o (delegating administration of the Natural Gas Act to FERC); *with* 16 U.S.C. § 1540 (entrusting enforcement of the ESA to the Secretary of the Interior), *and* 50 C.F.R. § 402.01(b) (delegating to the FWS responsibilities for administering the ESA).

This arrangement would allow the action agencies to weigh their own priorities against protection of the listed fish, as those agencies have broad discretion as to enforcement authority. For example, although FERC "shall" impose civil penalties for violations of its conditions, the agency retains the discretion to determine the magnitude of those penalties. *See* 15 U.S.C. § 717t-1. Similarly, although the Mineral Leasing Act *authorizes* the BLM to suspend the right-of-way or temporary use permits for the pipeline should Ruby fail to fund the CAP measures, those penalties are purely discretionary. *See* 43 C.F.R. § 2886.17(a)-(b) (stating that the BLM "*may* suspend or terminate" a right-of-way grant or temporary use permits) (emphasis added). We lack assurance that the BLM would, for instance, terminate the right-of-way for and require removal of the pipeline—which has already been constructed and is delivering millions of gallons of natural gas per day—in the event that Ruby fails to follow through with the CAP measures.

In sum, miscategorizing mitigation measures as "cumulative effects" rather than conservation measures incorporated in the proposed project profoundly affects the ESA scheme. Any such miscategorization sidetracks the FWS, the primary ESA enforcement agency; precludes reopening the consultation process when promised conservation measures do not

occur; and eliminates the possibility of criminal penalties and exposure to citizen suit enforcement incorporated in the ESA to assure that listed species are protected.

Respondents maintain, however, that one of our precedents, *Selkirk Conservation Alliance v. Forsgren*, 336 F.3d 944 (9th Cir. 2003), allows the FWS to rely on promised conservation measures as background "cumulative effects" for purposes of the Biological Opinion, despite all of these adverse consequences to the ESA scheme. Decidedly not so.

In *Selkirk*, the FWS, concluding in a Biological Opinion that the construction of roads through forest lands would not jeopardize grizzly bears, "considered the effect of [a] Conservation Agreement and concluded that, with the Agreement in place, the overall effect of the [proposed] [p]roject [would] not jeopardize the grizzly bears." *Id*. at 952. The parties to the Conservation Agreement included the FWS, the Forest Service, and Stimson, the private company proposing the action. *See id.* at 949-50. The agreement imposed dozens of requirements on Stimson's use of its lands, all designed to promote conservation of the grizzly bear. *See id*. *Selkirk* held it proper for the FWS to consider the beneficial effects of the Conservation Agreement in formulating its Biological Opinion, while emphasizing that "federal agencies cannot delegate the protection of the environment to public-private accords. Even given the cooperation of private entities, the agencies must vigilantly and independently enforce environmental laws." *Id*. at 955.

As this admonition suggests, the conservation agreement in *Selkirk was*, contrary to respondents' assertion, enforceable under the ESA: "The biological opinion incorporated the provisions of the Conservation Agreement into the terms and conditions of the Incidental Take Section, thus making Stimson's compliance with the Agreement mandatory if Stimson wishe[d] to avoid liability for the unauthorized taking of endangered and threatened species." *Id*. at 953 n.4. In addi-

tion, all parties "implicitly assumed Stimson [was] contractually *and legally* bound to implement the agreed mitigation measures and that the government agencies intend[ed] to enforce Stimson's compliance." *Id*. at 954 n.5 (emphasis added). We further articulated our "full[ ] expect[ation] that Stimson and the government agencies [would] fulfill their obligations" and noted that the plaintiff environmental group was "undoubtedly committed to assuring that they do." *Id*. As previously noted, a citizen group is only empowered to enforce such a public-private agreement if that agreement is part of the project and so enforceable under the ESA, which provides for citizen suits. *See* 16 U.S.C. § 1540(g).

[3] We now hold what was implicit in *Marsh* and *Selkirk* and is dictated by the statutory scheme: a conservation agreement entered into by the action agency to mitigate the impact of a contemplated action on listed species must be enforceable *under the ESA* to factor into the FWS's "biological opinion as to whether [an] action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat." 50 C.F.R. § 402.14(g)(4). Congress did not contemplate leaving the federal government's protection of endangered and threatened species to mechanisms other than those specified by the ESA, the statute designed to accomplish that protection. Rather, it entrusted the federal government's protection of listed species and critical habitat to the Act's own provisions, and to the FWS, the agency with the expertise and resources devoted to that purpose.

c. Categorizing the Conservation Action Plan measures

Our question, then, is whether the CAP measures in this case were properly categorized as background "cumulative effects" or whether, instead, they should have been treated as part of the proposed project, reviewed as such in the Biological Opinion, and, if accepted as adequate, enforceable under

the ESA if not carried out. We conclude that the CAP—entered into by FERC, the federal government action agency—does not meet the criteria for background "cumulative effects" and should only have been taken into account in the Biological Opinion if incorporated as part of the proposed project.

Initially, the origin of the "cumulative effects" treatment of the CAP measures is informative. At the outset, FWS and FERC staff advocated for conflicting approaches toward the CAP measures. While reviewing the September 2009 draft Memorandum of Agreement, for example, the FWS's section 7 Coordinator for the Project cautioned that "[i]f the voluntary conservation actions are not part of Ruby/FERC's proposed action (and included in the [Biological Assessment] as such), they cannot be analyzed in FWS's determination of jeopardy/adverse modification." The Coordinator reemphasized this concern a month later to colleagues at the FWS: "It needs to be very clear that if Ruby/FERC truly want us to use the ESA plan in our jeopardy analysis that it be included in the Biological Assessment as part of the proposed action. And if that is what they want — the actions will be required." Despite these and other admonitions, and notwithstanding the clear interrelation between the conservation activities and the pipeline construction, FERC ultimately did not include the Conservation Action Plan measures in the proposed action.

[4] Yet, the CAP measures and pipeline construction were unequivocally interrelated, in that the promises regarding the conservation measures were dependant on approval of the project. This much is evident from Ruby's Letter of Commitment, which made clear that Ruby's funding of the conservation measures was contingent upon FERC's authorization of the pipeline project: "Once Ruby has received a Certificate of Public Convenience and Necessity . . . from FERC authorizing the Project and any legal challenges thereto have been resolved such that Ruby may begin construction of the Project, Ruby will fund the conservation actions described in the

Plan." In other words, the Conservation Action Plan projects would not be implemented unless FERC green-lighted the proposed action. *See Marsh*, 816 F.2d at 1387. This quid-pro-quo relationship was underscored at oral argument when counsel for the federal respondents characterized the Conservation Action Plan measures as items on the FWS's "wish list." The CAP measures were thus *not* "future non-federal actions," *ESA Handbook* at 4-32. Instead, their implementation depended on Federal authorizations.

The CAP measures, moreover, fit squarely within the definition of "conservation measures" in the *ESA Handbook*. They included projects designed to "benefit or promote the recovery of," *ESA Handbook* at xii, the same nine listed fish species that the pipeline project would likely adversely affect. As such, they were intended to "compensate for . . . project effects on the species under review," *ESA Handbook* at xii, and were, moreover, "closely related to the action," *id*. at 4-19, as evidenced by their location within the Project's action area, as well as their potential to improve bodies of water impacted by the Project.

For example, the Project would result in "[i]ncreased sediment loads and water turbidity," which could, among other adverse effects, degrade spawning habitat, compromise juvenile fish survival, and "adversely affect fish behavior, such as feeding and migration." Corresponding closely to these impacts, one of the Conservation Action Plan measures consisted of improving an aging road adjacent to Thomas Creek, the only habitat of the Modoc sucker. According to the CAP description, "[r]educed sedimentation from road improvement will benefit spawning and rearing habitats for the Modoc sucker." Thus, although language in the draft Memorandum of Agreement stating that the Conservation Action Plan measures were "designed to offset potential adverse impacts to listed species and critical habitat," was removed, a comparison of the Biological Opinion and the CAP confirms that those measures *were* intended to serve precisely that purpose.

That purpose is further confirmed by the Biological Opinion's reliance on the measures to conclude that there would be no jeopardy to the nine listed species.

"In short, we must determine whether an animal which looks like a duck, walks like a duck, and quacks like a duck, is in fact a duck." *In re Safeguard Self-Storage Trust*, 2 F.3d 967, 970 (9th Cir. 1993). Labeling the Conservation Action Plan measures as "private" and "voluntary" does not eliminate their unequivocal relation to and dependence on the Project, which the parties agree is a federal action. The federal nature of the CAP measures is also apparent from their characterization in the Letter of Commitment as "hav[ing] been extracted from listed species recovery plans, other ESA action plans, or recovery team activities"—that is, from activities authorized by the FWS for the purpose of preserving the impacted listed species. *See* 50 C.F.R. § 402.02.

Moreover, Ruby's financial commitments are partial, and if the measures are not carried out, Ruby's only *obligation* will be working with the FWS and other entities to "identify" other ESA conservation actions. Furthermore, the Letter created no binding timeline for implementation of the Conservation Action Plan measures; it notes only that Ruby "anticipates" that the actions will be "initiated within five years of Ruby's receipt of [the FERC] Certificate."

[5] Were these vague and distant-in-time measures considered in the Biological Opinion as part of the project in question, it is quite possible that they would have been disapproved as inadequate for ESA § 7 and § 9 purposes. Severing the Conservation Action Plan measures from the proposed action and instead treating their anticipated benefits as "cumulative effects" of independent origin insulated the action agencies from consultation requirements under section 7, and Ruby from the ESA's penalties for unlawful take under section 9 in the event that the measures never materialized.

[6] The Biological Opinion therefore unreasonably relied on the Conservation Action Plan measures as "cumulative effects" and took them into account in the jeopardy determination, when reliance on them would have been proper only if they were included as part of the project and so subject to the ESA's consultation and enforcement provisions. As the Opinion is therefore arbitrary and capricious, it must be set aside.

B. Withdrawals of groundwater

Petitioners also contend that the Biological Opinion was arbitrary and capricious because, in reaching incidental take conclusions for listed fish species, it did not consider the potential effects of withdrawing 337.8 million gallons of groundwater from sixty-four wells along the length of the pipeline. We agree.

1. Background

Ruby proposed to withdraw water during the construction phase of the pipeline project for two primary purposes: (1) hydrostatic testing[10] and (2) dust abatement.[11] Although Ruby proposed to use both groundwater and surface water for hydrostatic testing and dust abatement, the Biological Opinion discussed only the likely impacts of *surface water* withdrawals on listed fish species. It did not address what effects, if any, the *groundwater* withdrawals would likely have.

[10]Hydrostatic testing "involves filling the pipeline with water to a designated test pressure and maintaining that pressure for about 8 hours" to determine whether the pipeline is capable of withstanding the operating pressure for which it was designed.

[11]Dust abatement involves using water to control dust produced during various construction activities such as vegetation and topsoil removal, blasting and trenching, and the movement of vehicles and motorized equipment on unpaved access roads.

Whether this omission was arbitrary and capricious depends on whether information available to the FWS indicated that the groundwater withdrawals "may affect" listed species. 50 C.F.R. § 402.14(a). The ESA regulations required the FWS to "[r]eview all relevant information provided by the [action] agency or otherwise available" during the formal consultation process. *Id.* § 402.14(g)(1). Both the Biological Assessment and the Final Environmental Impact Statement,[12] which were issued approximately six months before the Biological Opinion, were "relevant" and "available" within the meaning of the regulations. Indeed, the FWS's cover letter to the Biological Opinion acknowledged that the Opinion was "based on information gathered from multiple sources including the Project's Biological Assessment and Final Environmental Impact Statement." We summarize below the information in the Biological Assessment, Biological Opinion, and Final Environmental Impact Statement pertaining to water withdrawals and their potential impacts on listed fish species.

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[12]The National Environmental Policy Act ("NEPA") requires agencies to prepare a detailed environmental impact statement for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The statement must discuss:

> (i) the environmental impact of the proposed action,
>
> (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
>
> (iii) alternatives to the proposed action,
>
> (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
>
> (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Id.

a. The Biological Assessment

According to the Biological Assessment, "[w]ater for hydrostatic testing would be obtained from a combination of groundwater and surface waters." Ruby would withdraw surface water from the Colorado River system and groundwater from sources in Nevada and Oregon. As to Lahontan cutthroat trout, found in Oregon and Nevada, the Biological Assessment explained that "because no *surface waterbodies* in Nevada would be used for hydrostatic testing or dust control, no cumulative water depletions would impact the population status or recovery of this species."[13] (Emphasis added.) As to the various listed suckers also found in Oregon and Nevada, the Biological Assessment reasoned that because no *surface waters* containing any of the listed suckers would be used for hydrostatic testing, "no cumulative water depletions would impact the population status or recovery of these species." The Biological Assessment did not discuss whether Ruby's withdrawals of *groundwater* in Nevada and Oregon would likely affect the Lahontan cutthroat trout or listed suckers.

b. Biological Opinion

Consistent with the Biological Assessment, the Biological Opinion mentioned Ruby's plans to withdraw both groundwater and surface water for hydrostatic testing. It specified that Ruby would withdraw surface water from the Colorado River Basin, but that "[a]ll other waters for hydrostatic testing in listed fish basins will be removed from below-surface wells." The Biological Opinion concluded that the *surface water* depletions would have "a minor, but still adverse, effect on Colorado River fishes," but did not discuss what effect, if any, *groundwater* withdrawals would likely have on the five listed fish species in the project's action areas outside the Colorado River Basin.

[13]The Biological Assessment defines a water "depletion" as "consumptive loss plus evaporative loss of surface or groundwater within the affected basin."

c. Final Environmental Impact Statement

The Final Environmental Impact Statement provided more detailed information about Ruby's proposed water withdrawals. It indicated that Ruby planned to withdraw nearly 338 million gallons of groundwater along the length of the pipeline in Wyoming, Utah, Nevada, and Oregon. In contrast, much smaller quantities of surface waters would be used; only 29 million gallons would be used for hydrostatic testing, and only 35 million gallons would be used for dust abatement. Groundwater was to be drawn from sixty-four different wells in varying quantities, while surface water was to be drawn from twenty-one sources, all within the Colorado River Basin.

The Final Environmental Impact Statement discussed in great detail the anticipated impact of taking surface water from three of these sources, explaining that the withdrawals could result in the temporary loss of habitat, change water temperatures and dissolved oxygen levels, increase downstream flows, and contribute to streambank and substrate scour. The Statement noted that the withdrawal of 16 million gallons of surface water "represents a substantial quantity of water that may contribute to depletion effects to Colorado River Basin listed fishes," and concluded that the project "*is likely to adversely affect*" those fishes.

In contrast to its detailed analysis of surface water withdrawal impacts, the Statement provided a much more limited discussion of the likely effects of Ruby's proposed groundwater withdrawals:

> We received numerous comments expressing concern that appropriation of groundwater for hydrostatic testing and dust control could cause detrimental effects to the area's limited water resources. Our review of data published by the National Drought Mitigation Center has revealed that portions of Wyoming, Utah, Nevada, and south-

> ern Oregon are currently experiencing drought conditions. Therefore, the use of groundwater for construction purposes has the potential to impact the already limited water supply in these areas. . . .
>
> The volumes of groundwater to be appropriated for hydrostatic testing and dust abatement are estimated at 338 million gallons, which is substantially more than the 66 million gallons originally identified by Ruby and evaluated in the draft EIS. Because the volume of water is considerable and the project is located in a region of the country where water resources are limited, we believe that appropriating water of this volume could result in a significant impact.

The Final Environmental Impact Statement did not specify, however, whether that "significant impact" was likely to include effects on listed fish species, even though the Project's action area in Nevada and Oregon, where the groundwater withdrawals were to occur, encompassed potential critical habitat for Lahontan cutthroat trout and listed suckers.

2. Discussion

A Biological Opinion is arbitrary and capricious if it fails to "consider[ ] the relevant factors and articulate[ ] a rational connection between the facts found and the choice made.' " *Pac. Coast Fed'n of Fishermen's Ass'ns*, 265 F.3d at 1034 (quoting *Natural Res. Def. Council v. U.S. Dep't of the Interior*, 113 F.3d 1121, 1124 (9th Cir. 1997)). The parties disagree as to whether groundwater withdrawals constituted a "relevant factor" in determining whether the project would likely jeopardize the continued existence of any listed fish species or result in the destruction or adverse modification of their habitat. *Id*.

To determine whether the groundwater withdrawals were a "relevant factor" that should have been analyzed in the Bio-

logical Opinion, we begin with the ESA regulations. Section 402.14 of those regulations states that "[e]ach federal agency shall review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat." 50 C.F.R. § 402.14(a) (emphasis added). Where actions "may affect" listed species, "the burden is on the Federal agency to show the absence of likely, adverse effects to listed species or critical habitat as a result of its proposed action in order to be excepted from the formal consultation obligation." 51 Fed. Reg. 19926, 19949 (June 3, 1986). Otherwise, formal consultation must proceed, and the FWS must formulate a Biological Opinion that, among other things, includes "[a] detailed discussion of the effects of the action on listed species or critical habitat." 50 C.F.R. § 402.14(h)(2).

We have previously held that the " 'may affect' standard 'must be set sufficiently low to allow Federal agencies to satisfy their duty to insure under section 7(a)(2) [that species are not jeopardized].' " *Flowers*, 414 F.3d at 1072 (quoting 51 Fed. Reg. at 19949) (internal quotation marks omitted) (alteration in original). "*Any possible effect, whether beneficial, benign, adverse, or of an undetermined character*, triggers the formal consultation requirement." *Id.* (internal quotation marks omitted) (emphasis in original); *accord Cal. Wilderness Coal. v. U.S. Dep't of Energy*, 631 F.3d 1072, 1106 (9th Cir. 2011). Thus, while petitioners bear the burden of showing that the groundwater withdrawals "may affect" listed species or critical habitat, the burden is not a heavy one. Essentially, petitioners need to show only that an effect on listed species or critical habitat is plausible.

The government first argues that groundwater withdrawals would have no discernible impact on listed fish species because "[t]hose species do not live in ground water—they live in rivers and streams." That explanation is specious. Obviously, fish do not live underground. But, as the government recognizes, "groundwater and surface water are 'physically interrelated as integral parts of the hydrologic cycle.' "

Indeed, "[i]n most areas, the surface- and ground-water systems are intimately linked," U.S. Geological Survey, U.S. Dep't of the Interior, *Fact Sheet No. 103-03, Ground-Water Depletion Across the Nation* 2 (2003), and withdrawing groundwater from nearby surface waters "can diminish the available surface-water supply by capturing some of the ground-water flow that otherwise would have discharged to surface water," Thomas C. Winter et al., U.S. Geological Survey, U.S. Dep't of the Interior, *Circular No. 1139, Ground Water and Surface Water: A Single Resource* 12 (1998). In *Cappaert v. United States*, 426 U.S. 128, 142 (1976), for example, the petitioner's pumping of groundwater was causing the water level of a nearby pool of surface water to decrease. *See also United States v. Smith*, 625 F.2d 278, 280 (9th Cir. 1980) (observing that pumping groundwater may affect flow of nearby river). As the U.S. Geological Survey has explained:

> Ground-water pumping can alter how water moves between an aquifer and a stream, lake, or wetland by either intercepting ground-water flow that discharges into the surface-water body under natural conditions, or by increasing the rate of water movement from the surface-water body into an aquifer. In either case, the net result is a reduction of flow to surface water . . . .

Fact Sheet No. 103-03 at 2; *see also* Leonard F. Konikow & Eloise Kendy, *Groundwater Depletion: A Global Problem*, 13 Hydrogeology J. 317, 317 (2005) (describing how "lowered water tables" resulting from groundwater withdrawal may "reduce groundwater discharge to springs, streams, and wetlands"); Marios Sophocleous, *Interactions Between Groundwater & Surface Water: The State of the Science*, 10 Hydrogeology J. 52, 60-63 (2002) (explaining that excessive

pumping of groundwater can cause significant surface-water depletion).[14]

Accordingly, depletion in underlying groundwater levels could conceivably alter surface water levels. Changes in surface water levels may, in turn, affect listed species, for all the reasons explained in detail in the Final Environmental Impact Statement.

[7] In several respects, the record supports this hypothesis regarding the possible impact of ground water withdrawal on surface water levels and therefore on listed species as one sufficiently plausible that the Biological Opinion should have addressed it. First, the Biological Opinion itself indicated that the Project would cross numerous surface waterways that fell within or linked to designated or potential critical habitat, and that Ruby proposed to withdraw significant amounts of groundwater from some of these areas. Next, the Final Environmental Impact Statement explained that the Project's action area extended over the Basin and Range aquifer system, a repository of groundwater that underlies the Project's action area in Nevada and southern Oregon. Significantly, the Final Environmental Impact Statement asserted that "[a]quifer discharge" within this system "occurs through upward leakage to shallower aquifers and then the major streams." The Final Environmental Impact Statement thus established that at least some surface waters within this region are connected to underlying groundwater, and so suggests that decreases in groundwater levels could lead to corresponding decreases in surface water levels. The record thus demonstrates that groundwater withdrawals were a "relevant factor" that should have been considered in the Biological Opinion, even though

[14]A reviewing court may look beyond the administrative record "for the limited purposes of ascertaining whether the agency considered all the relevant factors or fully explicated its course of conduct or grounds of decision." *Asarco, Inc. v. EPA*, 616 F.2d 1153, 1160 (9th Cir. 1980). It is for that purpose that we do so here.

groundwater sources do not themselves provide habitat for listed fish.

Anticipating this conclusion, the government alternatively argues that "the groundwater depletions contemplated by this Project are simply too small to have any discernible effect on the surface water flows to which they are connected." Asserting that "the relationship of groundwater flows to surface water flows is not one-to-one," the government maintains that "[a]lthough 337.8 million gallons of groundwater depletion might sound significant to those outside the field, in the context of ESA consultation it is not, when the depletion will occur as a one-season event spread between 6[4] separate locations along the Pipeline route . . . ."

The record, however, indicates that this assertion is not self-evident even to those *not* "outside the field." The Final Environmental Impact Statement noted that "[t]he use of . . . groundwater for hydrostatic testing, dust abatement, and vehicle washing *could* directly or indirectly affect surface water volumes." (Emphasis added.) It also characterizes the volume of groundwater to be withdrawn as "considerable," especially considering that "the project is located in a region of the country where water resources are limited." In addition, a draft of the Biological Assessment revealed comments by FWS staff advocating the "use of high pressure air in place of water to test the pipeline in order to avoid adverse effects to LCT [Lahontan cutthroat trout] through water depletion from *both* surface *and* groundwater sources" (Emphasis added.) Moreover, contrary to the government's intimation that the groundwater withdrawals were individually small, over 40 million gallons of groundwater was to be withdrawn from a single source. In comparison, the largest withdrawal of surface water from any single source would amount to just over 16 million gallons. The record therefore provides a basis for inferring that even if surface water levels do not vary on a one-to-one ratio in response to fluctuating groundwater levels, the groundwater withdrawals at the level contemplated are

not, as the government now maintains, de minimis, and so "may affect" listed fish species.

It is of course *possible*, as the government argues, that the groundwater withdrawals would ultimately have had no "discernible effect" on listed fish. But it is also plausible that groundwater depletions in Nevada and Oregon would have adversely affected Lahontan cutthroat trout and the listed suckers, especially in light of the conclusion in both the Biological Assessment and the Final Environmental Impact Statement that "*[a]ny* water depletion would represent an adverse impact on habitat" (emphasis added) for other listed fish within the project's action areas (i.e., the Colorado River Basin species). While the record certainly does not compel either conclusion, it does establish that the groundwater withdrawals were a "relevant factor" that required discussion in the Biological Opinion. *See Pac. Coast Fed'n of Fishermen's Ass'ns*, 265 F.3d at 1034.

The Biological Opinion provides no indication at all that FWS applied its expertise to the question of whether groundwater withdrawals may adversely affect listed fish species. "We cannot gloss over the absence of a cogent explanation by the agency by relying on the post hoc rationalizations offered by defendants in their appellate briefs." *Humane Soc'y of U.S. v. Locke*, 626 F.3d 1040, 1049 (9th Cir. 2010). Moreover, given the surface inadequacy of those explanations, "[d]efendants' post hoc explanations serve only to underscore the absence of an adequate explanation in the administrative record itself. " *Id*. at 1050.

[8] In sum, groundwater withdrawals constituted a "relevant factor" to determining whether the Project would result in jeopardy to listed fish species or adverse modification of those species' critical habitat. *See Pac. Coast Fed'n of Fishermen's Ass'ns*, 265 F.3d at 1034. The FWS therefore acted unreasonably when it did not discuss the potential impacts of groundwater withdrawals on the listed species occupying the

Project's action areas in Nevada and Oregon, or, alternatively, explain why the withdrawals would not likely have such impacts. The Biological Opinion was therefore arbitrary and capricious in failing to "examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made' " in remaining silent on the potential impact of the Project's proposed groundwater withdrawals. *See Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (quoting *Burlington Truck Lines v. United States*, 371 U.S. 156, 168 (1962)); *see also Allen*, 476 F.3d at 1041.

C. Reliance on the 2004 Biological Opinion

We next consider whether the Biological Opinion arbitrarily and capriciously relied on an earlier biological opinion when calculating incidental fish take levels associated with using a "dry-ditch construction method" to cross bodies of water. The FWS's reliance on that opinion, we conclude, was reasonable.

1. Background

The Biological Opinion for the project stated that Ruby would use the "dry ditch" method to cross bodies of water providing, or connecting to, habitat for listed fish species. This method entails installing a temporary dam on a body of water and diverting the entire flow over the construction area through a pipe or a pump. The work area between the dams is emptied of water, and fish trapped in that area are captured and released downstream by experienced fisheries biologists. According to the Biological Opinion, this approach would result in take of fish species in two ways. First, some fish would remain "trapped between the upstream and downstream dams of the water body crossing" where, if missed during salvage operations, they would "suffer harm or mortality during water body crossing construction." Second, there would be "[a]dverse, direct effects" on fish that are caught,

including "physical injury, death, and physiological stress during capture, holding or release; predation and cannibalism when relocated fish are released; and potential horizontal transmission of disease and pathogens and stress-related phenomena."

In estimating how many fish would be killed or injured through this process, FWS relied on estimates from a 2004 biological opinion concerning an entirely separate project and analyzing the impacts on shortnose suckers from the direct handling and dewatering associated with certain "inwater construction activities." The 2004 opinion estimated that, for each project, one fish would be killed from direct handling and one would be killed during the dewatering procedure. The current Biological Opinion adopted those estimates even though it mandated a somewhat different "fish salvage sequence" than the one postulated for the 2004 project.

2. Discussion

The Incidental Take Statement accompanying the current Biological Opinion, petitioners note, did not, unlike the 2004 document, require (1) slowly dewatering project areas so that fish biologists could locate and remove trapped fish before they were injured; and (2) isolating project areas to prevent additional fish from entering. Petitioners assert that given these differences, Ruby's projected "dry-ditch" method could result in a higher rate of take than that set forth in the 2004 opinion, and the FWS was therefore arbitrary and capricious in relying on the earlier opinion. We do not agree.

Contrary to the petitioners' assertions, the current Biological Opinion and Incidental Take Statement *did* require implementation of similar protective measures to those taken into account in the 2004 opinion. First, the Biological Opinion stated that water would be pumped out of project areas at speeds that comported with Oregon Department of Fish and Wildlife and Nevada Department of Wildlife standards, stan-

dards petitioners regard as sufficiently protective. *Compare* Pet'r Summit Lake's Reply Br. 33 (discussing the "need for a velocity requirement of 0.4 cubic feet per second for active pump screens"), *with* Or. Dep't of Fish and Wildlife, *Fish Screening Program: Small Pump Screen Self Certification*, *available at* ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Biology/Biology_Manual/ODFW_Small_Pump_Screen_Self_Certification_2004. pdf (providing that "[t]he screen approach velocity for active pump screens shall not exceed 0.4 fps (feet per second)"). By requiring Ruby to adopt pump velocities at least as slow as those set forth by the state agencies, Term 1.1(d) of the Incidental Take Statement provided protections during the dewatering process equivalent to those mandated by the 2004 Biological Opinion.

Second, Terms 1.1(a) and (c) of the Incidental Take Statement together required that Project work sites in waterbody crossings be isolated so that no additional fish could enter after qualified biologists removed fish from the work site area. Term 1.1(a) required Ruby to install "block nets" around the areas where "coffer dam[s]" were to be placed, and Term 1.1(c) required that the nets be kept in place "during subsequent placement of [the] coffer dams." Term 1.1(e) further required that the biologists conduct a second "salvage pass" of the isolated work area to capture and remove any additional fish before it was completely dewatered.

[9] Petitioners do not present any other objections to FWS's reliance on the 2004 biological opinion. We therefore hold that the agency did not act arbitrarily and capriciously in relying on the older biological opinion to estimate incidental fish take levels associated with the "dry-ditch" construction method.

D. Quantifying the incidental take of Lahontan cutthroat trout eggs and fry

Petitioners also contend that the Biological Opinion for Ruby's pipeline project was arbitrary and capricious for

another reason: its Incidental Take Statement authorized the incidental take of "all eggs and fry" of threatened Lahontan cutthroat trout near eighteen water crossings, without numerically limiting the take or explaining why doing so would be impracticable. We conclude that the impracticability was self-evident under the circumstances here, so no explanation was needed. We also hold that the FWS's alternative method of defining the incidental take level was not arbitrary and capricious.

1. Background

Lahontan cutthroat trout begin to spawn in April but, in colder, higher elevation waters, may spawn as late as July. Where the trout might be present, the Biological Opinion forbade Ruby from undertaking inwater work before July 1, the date by which most young fish would have emerged from the spawning gravel. The Opinion recognized, however, that an unknown number of eggs and fry "may still be in the gravel" at a "limited number of higher elevation" water crossings after July 1. The Incidental Take Statement therefore authorized the take, after July 1, of "all eggs and fry" of Lahontan cutthroat trout at eighteen water crossings. Specifically, (1) as to incidental takings in the form of mortality arising from "fish salvage" procedures associated with water crossings, the Statement allowed the take, after July 1, of "[a]ll eggs and fry within 10 higher-elevation waterbody crossings," provided that "[m]ortality per stream [would be] limited to the 115 ft wide work area"; and (2) as to incidental takes arising from blasting, the Statement permitted the take, after July 1, of "[a]ll eggs and fry within and adjacent to 8 higher-elevation waterbody crossings," provided that "[m]ortality [would be] limited to areas 200 feet upstream and downstream from the isolated work area."

2. Discussion

An Incidental Take Statement that "contains no numerical cap on take and fails to explain why it does not" normally vio-

lates the ESA. *Allen*, 476 F.3d at 1037. Similarly, while an Incidental Take Statement may use "a surrogate" to delimit incidental take levels where "no number may be practically obtained," *id*. at 1038, the statement ordinarily "must explain why it was impracticable to express a numerical measure of take," *id*. at 1037.

[10] The Incidental Take Statement for the Project did not explain its failure to quantify the authorized take of Lahontan cutthroat trout eggs and fry. But the impracticability of quantifying this take is self-evident, in light of the very large number and minute size of fish eggs and fry. Notably, when "Congress recognized . . . that a numerical value would not always be available" in delimiting incidental take levels under the ESA, it provided as an example " 'the number of eggs of an endangered or threatened fish which will be sucked into a power plant when water is used as a cooling mechanism.' " *Id*. (quoting H.R. Rep. No. 97-567, at 27 (1982), *reprinted in* 1982 U.S.C.C.A.N. 2807, 2827). Given the highly analogous situation here, the Incidental Take Statement did not need to explain why " 'no such numerical value could be practically obtained.' " *Id*. (quoting *Ariz. Cattle Growers' Ass'n*, 273 F.3d at 1250). This case thus contrasts with *Allen*, in which we held that the FWS had unreasonably failed to explain why it could not "numerically . . . quantify the level of take of northern spotted owls," *id*. at 1038, given the evident practicability of doing so.

Furthermore, the Incidental Take Statement did not ignore the incidental take issue, but instead used a surrogate for determining incidental take levels. We have previously observed that "various components of the ecological landscape . . . [can] be used as a surrogate for defining the amount or extent of take if the conditions [are] linked to the take of the protected species." *Id*. at 1038. For the chosen surrogate to be reasonable, it "must be able to perform the functions of a numerical limitation." *Id*.

[11] Consistent with these principles, the Incidental Take Statement permissibly used "habitat characteristics" as a proxy for a numerical limit. *See id*. It restricted the incidental take from "salvage" activities to eggs and fry to "the 115 ft wide work area" of "10 higher-elevation waterbody crossings." Similarly, it limited the take of eggs and fry from blasting activity to those within or adjacent to "8 higher-elevation waterbody crossings," so long as "[m]ortality [was] limited to areas 200 feet upstream and downstream from the isolated work area." Both types of work were not to begin until July 1st. Because these proxies, in the form of narrowly drawn geographical areas, "set a clear standard for determining when the authorized level of take had been exceeded," *id*. at 1039, the Incidental Take Statement was not arbitrary and capricious in its methods of quantifying the incidental take of Lahontan cutthroat trout eggs and fry.

E. The BLM's reliance on the Biological Opinion

Finally, the petitioners maintain that the BLM's Record of Decision must be set aside because it relied on the FWS's flawed Biological Opinion. Section 7 of the ESA imposes a substantive duty on the BLM to ensure that its actions are not likely to jeopardize the continued existence of the listed fish or result in destruction or adverse modification of critical habitat. *See* 16 U.S.C. § 1546(a)(2). " 'Arbitrarily and capriciously relying on a faulty Biological Opinion violates this duty.' " *Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 532 (9th Cir. 2010) (quoting *Defenders of Wildlife v. EPA*, 420 F.3d at 976). In particular, an agency cannot meet its section 7 obligations by relying on a Biological Opinion that is legally flawed or by failing to discuss information that would undercut the opinion's conclusions. *See id*.

[12] The Biological Opinion here was both legally flawed —because it relied in large part on the beneficial effects of the Conservation Action Plan measures as "cumulative effects" to reach its "no jeopardy" and "no adverse modification"

determinations—and inadequate with regard to evaluating the potential impacts of the Project's groundwater withdrawals. Accordingly, the BLM violated its substantive duty to ensure that its authorization of the Project would not jeopardize the survival of the nine listed fish or adversely modify the species' critical habitat.

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[13] For the foregoing reasons, we vacate the FWS's Biological Opinion and remand for the agency to formulate a revised Biological Opinion that: (1) addresses the impacts, if any, of Ruby's groundwater withdrawals on listed fish species and critical habitat; and (2) categorizes and treats the Conservation Action Plan measures as "interrelated actions" or excludes any reliance on their beneficial effects in making a revised jeopardy and adverse modification. We otherwise deny the petition as to the issues discussed in this opinion. We also vacate and remand the BLM's Record of Decision.

VACATED AND REMANDED.