

14-4645(L)

Cooling Water Intake Structure Coal., et al. v. EPA, et al.

**UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT**

August Term, 2017

(Argued: September 14, 2017 Decided: July 23, 2018)

Docket Nos. 14-4645(L), 14-4657(CON), 14-4659(CON), 14-4664(CON),
14-4667(CON), 14-4670(CON)

COOLING WATER INTAKE STRUCTURE COALITION,

Petitioner,

AMERICAN PETROLEUM INSTITUTE, UTILITY WATER ACT GROUP,
ENTERGY CORPORATION, AMERICAN LITTORAL SOCIETY,
ENVIRONMENT AMERICA, ENVIRONMENT MASSACHUSETTS,
RIVERKEEPER, INC., NATURAL RESOURCES DEFENSE COUNCIL,
INCORPORATED, DELAWARE RIVERKEEPER NETWORK, RARITAN
BAYKEEPER, INC., DBA NY/NJ BAYKEEPER, HACKENSACK
RIVERKEEPER, CASCO BAYKEEPER, SAVE THE BAY – NARRAGANSETT
BAY, SCENIC HUDSON, INC., SIERRA CLUB, WATERKEEPER ALLIANCE,
INC., SOUNDKEEPER, INC., SURFRIDER FOUNDATION,

Intervenors-Petitioners,

CENTER FOR BIOLOGICAL DIVERSITY, LOUISIANA ENVIRONMENTAL
ACTION NETWORK, CALIFORNIA COASTKEEPER ALLIANCE,
HUMBOLDT BAYKEEPER, SUNCOAST WATERKEEPER, INC., PUGET
SOUNDKEEPER ALLIANCE,

Intervenors,

v.

1 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ANDREW
2 R. WHEELER, IN HIS OFFICIAL CAPACITY AS ACTING
3 ADMINISTRATOR OF THE UNITED STATES ENVIRONMENTAL
4 PROTECTION AGENCY,* NATIONAL MARINE FISHERIES SERVICE,
5 UNITED STATES FISH AND WILDLIFE SERVICE,
6

7 *Respondents.*
8
9

10
11 Before:
12

13 JACOBS, CABRANES, and LOHIER, *Circuit Judges.*
14

15 Environmental conservation groups and industry associations petition
16 for review of a final rule promulgated by the United States Environmental
17 Protection Agency ("EPA") pursuant to section 316(b) of the Clean Water Act,
18 establishing requirements for cooling water intake structures at existing
19 facilities. The Petitioners also seek review of a May 19, 2014 biological
20 opinion jointly issued by the United States Fish and Wildlife Service and the
21 National Marine Fisheries Service at the close of formal Endangered Species
22 Act consultation on the final rule. Because we conclude that both the final
23 rule and the biological opinion are based on reasonable interpretations of the
24 applicable statutes and sufficiently supported by the factual record, and
25 because the EPA gave adequate notice of its rulemaking, we **DENY** the
26 petitions.
27

28 Russell S. Frye, FryeLaw PLLC,
29 Washington, DC, *for Petitioner* Cooling
30 Water Intake Structure Coalition.
31

32 Fredric P. Andes, Jill M. Fortney, Barnes
33 & Thornburg LLP, Chicago, IL; Jeffrey S.

* Pursuant to Federal Rule of Appellate Procedure 43(c)(2), Acting Administrator Andrew R. Wheeler is substituted for former Administrator Gina McCarthy as a respondent. The Clerk of the Court is directed to amend the caption accordingly.

1 Longsworth, Barnes & Thornburg LLP,
2 Washington, DC, *for Intervenor-Petitioner*
3 American Petroleum Institute.
4

5 KRISTY A.N. BULLEIT (Andrew J. Turner,
6 Todd S. Mikolop, Kerry L. McGrath, *on*
7 *the brief*), Hunton & Williams LLP,
8 Washington, DC, *for Intervenor-*
9 *Petitioners* Utility Water Act Group,
10 Entergy Corporation.
11

12 REED W. SUPER, EDAN ROTENBERG,
13 Super Law Group, LLC, New York, NY,
14 *for Intervenor-Petitioners* Riverkeeper
15 Inc., American Littoral Society, Casco
16 Baykeeper, Delaware Riverkeeper
17 Network, Hackensack Riverkeeper,
18 Natural Resources Defense Council,
19 Inc., Raritan Baykeeper, Inc. d/b/a
20 NY/NJ Baykeeper, Save the Bay –
21 Narragansett Bay, Scenic Hudson, Inc.,
22 Sierra Club, Soundkeeper, Inc.,
23 Surfrider Foundation, Waterkeeper
24 Alliance, Inc., *and for Intervenor* Center
25 for Biological Diversity, Louisiana
26 Environmental Action Network,
27 California Coastkeeper Alliance,
28 Humboldt Baykeeper, Suncoast
29 Waterkeeper, Inc., Puget Soundkeeper
30 Alliance.
31

32 Eric E. Huber, Sierra Club, Boulder, CO,
33 *for Intervenor-Petitioner* Sierra Club, *and*
34 *for Intervenor* Center for Biological
35 Diversity, California Coastkeeper
36 Alliance, Humboldt Baykeeper,

1 Louisiana Environmental Action
2 Network, Suncoast Waterkeeper, Inc.

3
4 Charles C. Caldart, National
5 Environmental Law Center, Seattle,
6 WA, *for Intervenors-Petitioners*
7 Environment America, Environment
8 Massachusetts.

9
10 PERRY M. ROSEN, United States
11 Department of Justice, Environment &
12 Natural Resources Division,
13 Environmental Defense Section,
14 Washington, DC; BRIDGET KENNEDY
15 MCNEIL, United States Department of
16 Justice, Environment & Natural
17 Resources Division, Wildlife & Marine
18 Resources Section, Denver, CO (Simi
19 Bhat, United States Department of
20 Justice, Environment & Natural
21 Resources Division, Environmental
22 Defense Section, Washington, DC,
23 Clifford E. Stevens, Jr., United States
24 Department of Justice, Environment &
25 Natural Resources Division, Wildlife &
26 Marine Resources Section, Denver, CO,
27 *on the brief*; Richard T. Witt, Alexis
28 Wade, United States Environmental
29 Protection Agency, Office of General
30 Counsel, *of counsel*), *for Respondents*.

31
32 Andrew K. Jacoby, Varadi, Hair &
33 Checki, LLC, New Orleans, LA (Ann
34 Brewster Weeks, Legal Director, Clean
35 Air Task Force, Boston, MA, *of counsel*),
36 *for Amicus Curiae* Clean Air Task Force.

LOHIER, *Circuit Judge*:

In these consolidated cases, several environmental conservation groups and industry associations petition for review of a final rule promulgated four years ago, in August 2014, by the United States Environmental Protection Agency (“EPA”) pursuant to section 316(b) of the Clean Water Act (“CWA”), 33 U.S.C. § 1326(b), establishing requirements for cooling water intake structures (“CWISs”) at existing regulated facilities, see National Pollutant Discharge Elimination System—Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300 (Aug. 15, 2014) (codified at 40 C.F.R. pts. 122, 125) (“Final Rule” or “Rule”).¹ The Petitioners also seek review of a May 19, 2014 biological opinion jointly issued by the United States Fish and Wildlife Service (“FWS”) and the National Marine Fisheries Service (“NMFS,” and, together with the FWS, the “Services”) at the close of formal Endangered Species Act (“ESA”) consultation on the Final Rule. The Government continues to defend the Rule today. Because we conclude, among other things, that both the Rule and the

¹ The various abbreviations in this opinion are defined both in text and in a separate glossary set forth in the Appendix.

biological opinion are based on reasonable interpretations of the applicable statutes and sufficiently supported by the factual record, and because the EPA gave adequate notice of its rulemaking, we **DENY** the petitions for review.

BACKGROUND

To start, we describe CWISs; their general impact on the environment; and the statutes, regulations, and rules relevant to these petitions. We then provide an overview of the relevant regulatory and procedural history and a summary of the arguments advanced in the various petitions before us.

1. Cooling Water Intake Structures

To dissipate waste heat, power plants and manufacturing facilities use CWISs to extract large volumes of water—nearly 75 trillion gallons annually—from nearby water sources. The force of inflowing water can trap, or “impinge,” larger aquatic organisms against the structures and draw, or “entrain,” smaller aquatic organisms into a facility’s cooling system. Impingement and entrainment kill hundreds of billions of aquatic organisms from waters of the United States each year.

The harm to aquatic organisms caused by a CWIS most directly relates to the amount of water the structure withdraws, which in turn depends on the type

of cooling system the facility uses. “Once-through” cooling systems draw cold water from a waterbody and return heated water to the waterbody in a continuous flow. See Riverkeeper, Inc. v. EPA, 358 F.3d 174, 182 n.5 (2d Cir. 2004) (“Riverkeeper I”). “Closed-cycle” cooling systems generally recirculate the same cooling water within a CWIS by using towers or reservoirs to dissipate heat from the water. Id.; see also 79 Fed. Reg. at 48,333. Closed-cycle cooling withdraws approximately 95 percent less water than once-through cooling.

2. Statutory Framework

A. The Clean Water Act

The express purpose of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). Sections 301 and 306 of the CWA broadly authorize the EPA to establish pollution discharge standards. Id. §§ 1311, 1316. In 1972 Congress amended the CWA to specifically address the operation of CWISs. See Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816; see also Riverkeeper I, 358 F.3d at 184 (describing the 1972 amendments as marking a “sea of change” in Congress’s approach to water pollution). In section 316(b), it directed the EPA to establish standards governing the operation of CWISs:

1 Any standard established pursuant to [CWA section 301] or [CWA
2 section 306] and applicable to a point source shall require that the
3 location, design, construction, and capacity of cooling water intake
4 structures reflect the best technology available for minimizing
5 adverse environmental impact.

6
7 33 U.S.C. § 1326(b). Section 316(b) lists no specific factors that the EPA should
8 consider in establishing the applicable “best technology available” (“BTA”)
9 standard. We have held that “interpretation of section 316(b) is informed by the
10 two provisions it cross-references,” Riverkeeper, Inc. v. EPA, 475 F.3d 83, 91 (2d
11 Cir. 2007) (“Riverkeeper II”), rev’d on other grounds, Entergy Corp. v.
12 Riverkeeper, Inc., 556 U.S. 208 (2009), but that the EPA need not comply with
13 “every statutory directive contained” in those two provisions when acting
14 pursuant to section 316(b), id. (quoting Riverkeeper I, 358 F.3d at 187).
15 Moreover, the EPA may consider “the benefits derived from reductions [in
16 adverse environmental impact] and the costs of achieving them” when
17 establishing the BTA. Entergy, 556 U.S. at 219.

18 The standards promulgated under CWA sections 301, 306, and 316(b) are
19 implemented by permits issued through the National Pollutant Discharge
20 Elimination System (“NPDES”). See 33 U.S.C. § 1342; 40 C.F.R. §§ 122.44(b)(3),
21 125.90(a). “An NPDES permit serves to transform generally applicable . . .

standards . . . into the obligations . . . of the individual discharger . . .” EPA v. California ex rel. State Water Res. Control Bd., 426 U.S. 200, 205 (1976). NPDES permits are issued by the EPA or, if the EPA has approved a State’s permitting program, by the Director of the NPDES program for the State.² See 33 U.S.C. § 1342. Under the authorized State programs, Directors must submit draft permits to the EPA for review. Id. § 1342(d)(1)–(2). If a Director fails to amend the permit in response to any EPA objections, the EPA may federalize the permit (i.e., reclaim permitting authority for that permit). Id. § 1342(d)(4). And if a State fails to administer the NPDES program in accordance with standards promulgated pursuant to the CWA, the EPA may withdraw approval of the State program. Id. § 1342(c).

B. The Endangered Species Act

In enacting the ESA, Congress wanted to ensure “that all Federal departments and agencies . . . seek to conserve endangered species and threatened species.” 16 U.S.C. § 1531(c)(1). To “reverse the trend toward species extinction,” Tenn. Valley Auth. v. Hill, 437 U.S. 153, 184 (1978), the ESA provides

² As of 2014, when the Final Rule was published, forty-six States operated an EPA-approved NPDES permitting program. 79 Fed. Reg. at 48,312. In June 2018 Idaho became the forty-seventh State to receive the EPA’s approval. See 83 Fed. Reg. 27,769, 27,770 (June 14, 2018).

1 for the listing of species as threatened or endangered and the designation of their
2 critical habitats, 16 U.S.C. § 1533. Once a species is listed, certain statutory
3 protections apply. For example, section 9 of the ESA prohibits the “take”³ of
4 endangered species and those threatened species to which the Services have
5 extended protection, 16 U.S.C. § 1538(a)(1)(B), except that take “incidental” to an
6 otherwise lawful activity may be exempted pursuant to the procedures set forth
7 in ESA sections 7 or 10, id. § 1539(a)(1)(B). Section 7 of the ESA directs federal
8 agencies, in consultation with one or both of the Services, to “insure that any
9 action authorized, funded, or carried out by such agency . . . is not likely to
10 jeopardize the continued existence of any endangered species or threatened
11 species,” or to adversely modify critical habitats designated for such species.⁴ Id.
12 § 1536(a)(2). A federal agency must consult with the Services on a proposed
13 action whenever there is “reason to believe that an endangered species or a
14 threatened species may be present in the area affected by [the proposed action]

³ The ESA defines “take” as “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).

⁴ The ESA’s implementing regulations define the phrase “[j]eopardize the continued existence of” as “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.” 50 C.F.R. § 402.02.

and that implementation of such action will likely affect such species.” Id.
§ 1536(a)(3); see 50 C.F.R. § 402.14(a) (requiring consultation where the acting
agency determines that its action “may affect” listed species or critical habitat).

Consultation with the Services may be informal or formal. Informal
consultation is an optional process to determine whether formal consultation is
necessary. 50 C.F.R. § 402.13(a). As part of informal consultation, the acting
agency may prepare a “biological evaluation” that analyzes the potential effects
of a proposed action on listed species and their critical habitat. See
Memorandum of Agreement Between the Environmental Protection Agency,
Fish and Wildlife Service and National Marine Fisheries Service Regarding
Enhanced Coordination Under the Clean Water Act and Endangered Species Act,
66 Fed. Reg. 11,202, 11,210 (Feb. 22, 2001) (“MOA”). If the acting agency
determines, with the written concurrence of the consulting Service, that the
action “is not likely to adversely affect” listed species or critical habitat, the
consultation process ends. 50 C.F.R. § 402.13(a); see id. §§ 402.12(k)(1),
402.14(b)(1). But if either the acting agency or the consulting Service determines
that the proposed action is “likely to adversely affect” listed species or critical
habitat, the agency and the Service must engage in formal consultation. Id.

§ 402.13(a); see id. § 402.14(a)–(b). At the end of formal consultation, the Service must, using “the best scientific and commercial data available,” 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8), prepare a biological opinion with both a “detailed discussion of the effects of the action on listed species or critical habitat,” 50 C.F.R. § 402.14(h)(2), and a position “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,” id. § 402.14(g)(4). If the Service concludes that the action is likely to jeopardize listed species, the biological opinion must suggest “reasonable and prudent alternatives” to the agency’s proposed action. 16 U.S.C. § 1536(b)(3)(A); 50 C.F.R. § 402.14(g)(5). If the Service concludes that the action is not likely to jeopardize listed species but that incidental take is reasonably likely to occur, the Service is required to provide an incidental take statement (“ITS”) that meets the requirements set forth in 16 U.S.C. § 1536(b)(4). A taking that complies with measures specified in an ITS “shall not be considered to be a prohibited taking of the species concerned.” 16 U.S.C. § 1536(o)(2).

1 C. The Administrative Procedure Act

2 The Administrative Procedure Act (“APA”) requires a federal agency
3 conducting notice-and-comment rulemaking to include in its notice of proposed
4 rulemaking “either the terms or substance of the proposed rule or a description
5 of the subjects and issues involved.” 5 U.S.C. § 553(b)(3). A final rule “need not
6 be an exact replica of the rule proposed in the [n]otice,” only a “logical
7 outgrowth.” Riverkeeper II, 475 F.3d at 113 (quotation marks omitted). A central
8 question under the APA is “whether the agency’s notice would fairly apprise
9 interested persons of the subjects and issues of the rulemaking.” Nat’l Black
10 Media Coal. v. FCC, 791 F.2d 1016, 1022 (2d Cir. 1986) (quotation marks omitted).

11 3. Regulatory History

12 Our decisions in Riverkeeper I, 358 F.3d 174, and Riverkeeper II, 475 F.3d
13 83, discuss at length the history of the EPA’s rulemaking pursuant to section
14 316(b) of the CWA. We assume familiarity with those decisions and therefore
15 provide only a brief overview of the various stages of the rulemaking relevant to
16 these petitions.

17 The EPA first promulgated a regulation implementing section 316(b) in
18 1976. See 41 Fed. Reg. 17,387 (Apr. 26, 1976). The Fourth Circuit remanded

1 certain aspects of that regulation for procedural reasons, see Appalachian Power
2 Co. v. Train, 566 F.2d 451, 457 (4th Cir. 1977), and the EPA subsequently
3 withdrew the remanded regulation, see 44 Fed. Reg. 32,854, 32,956 (June 7, 1979).

4 In 1993 environmental conservation groups sued the EPA to compel the
5 issuance of regulations under section 316(b), which had already been
6 significantly delayed. An amended 1995 consent decree required the EPA to
7 promulgate new regulations in three phases, each addressing a different category
8 of facilities. See Riverkeeper, Inc. v. Whitman, No. 93 Civ. 0314(AGS), 2001 WL
9 1505497, at *1 (S.D.N.Y. Nov. 27, 2001); Cronin v. Browner, 898 F. Supp. 1052,
10 1055 (S.D.N.Y. 1995). We describe each phase in turn.

11 The EPA's Phase I rule, published in 2001,⁵ established uniform national
12 BTA standards for new facilities based on closed-cycle cooling and offered two
13 alternative compliance options. See 40 C.F.R. § 125.84; 79 Fed. Reg. at 48,315–16.
14 In Riverkeeper I, we upheld the Phase I rule with the exception of the compliance
15 option based on “restoration measures,” holding that restoration was

⁵ Also in 2001, the EPA and the Services entered into the MOA, which addressed the protection of endangered and threatened species under the CWA's programs for water quality standards and NPDES permitting. See 66 Fed. Reg. 11,202. The MOA encouraged greater cooperation and communication among the Services, the EPA, and Directors in ensuring that these programs protect ESA-listed species consistent with the scope of the EPA's authority under the CWA. Id. at 11,203–04.

1 inconsistent with Congress's expressed intent in section 316(b) that the EPA
2 directly regulate the "design" of CWISs. 358 F.3d at 189–91.

3 The EPA's Phase II rule, published in 2004, provided that large, existing
4 power plants could comply with BTA performance standards by choosing from a
5 suite of designated technologies that would reduce impingement mortality by 80
6 to 95 percent and entrainment by 60 to 90 percent. See 69 Fed. Reg. 41,576, 41,590
7 (July 9, 2004). The Phase II rule identified five compliance options, including a
8 "cost-benefit comparison" option that allowed site-specific variances from the
9 rule's standards if a facility demonstrated that its compliance costs would be
10 "significantly greater than" the benefits. Id. at 41,591, 41,597. In Riverkeeper II,
11 we held that section 316(b) does not authorize the EPA to determine the BTA or
12 provide for site-specific determinations of the BTA based on a cost-benefit
13 analysis. 475 F.3d at 101, 114, 130–31. Because we could not determine whether
14 the EPA had relied on a cost-benefit analysis in selecting the rule's suite of
15 technologies as the BTA, we remanded the Phase II rule for the EPA to clarify the
16 basis for its decision and possibly to reassess the BTA. Id. at 101, 105. In Entergy
17 Corp. v. Riverkeeper, Inc., the Supreme Court granted certiorari only as to the
18 question whether section 316(b) "authorizes the EPA to compare costs with

benefits in determining ‘the best technology available for minimizing adverse environmental impact’ at [CWISs].” 556 U.S. at 217. The Supreme Court answered that question in the affirmative, “express[ing] no view on the remaining bases for the Second Circuit’s remand.” Id. at 226.

Lastly, the EPA’s Phase III rule, published in 2006, established standards for new offshore facilities, smaller existing power plants, and existing manufacturing facilities. See 71 Fed. Reg. 35,006 (June 16, 2006). After petitioners challenged the Phase III rule in the Fifth Circuit, the EPA requested and received a partial remand of the rule so that it could reconsider the provisions addressing existing facilities in light of Entergy. See ConocoPhillips Co. v. EPA, 612 F.3d 822, 832, 842 (5th Cir. 2010).

4. The Challenged Rule

In response to the Phase II and III remands, the EPA proposed a new round of rulemaking for all existing facilities and new units at existing facilities. See National Pollutant Discharge Elimination System—Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed. Reg. 22,174 (Apr. 20, 2011). Several rounds of comment on the proposed rule followed, and the

1 EPA ultimately reviewed comments from over 1,100 organizations and
2 individuals. 79 Fed. Reg. at 48,352.

3 In 2012 the EPA initiated ESA consultation with the Services on the effects
4 of the proposed rule on listed species and their critical habitat. During informal
5 consultation, the Services disagreed with the EPA's determination, in a draft
6 biological evaluation, that the proposed rule was unlikely to have adverse effects
7 on listed species. On June 18, 2013, after several meetings between the agencies,
8 the EPA requested formal section 7 consultation and submitted a final biological
9 evaluation. With that evaluation in hand, in late 2013 the Services preliminarily
10 concluded that the proposed rule would cause "jeopardy" as defined in the ESA.
11 The EPA and the Services continued to discuss the proposed rule and revisions,
12 culminating in a draft final rule in March 2014. Soon thereafter, in May 2014, the
13 Services jointly issued a biological opinion, concluding that although the
14 operation of CWISs could have significant adverse effects on listed species and
15 their critical habitat, the proposed rule's inclusion of certain process-based
16 protections ensured that it was not likely to "jeopardize" the continued existence
17 of listed species or "adversely modify" critical habitat within the meaning of ESA
18 section 7. See U.S. Fish and Wildlife Service & National Marine Fisheries Service,

1 Endangered Species Act Section 7 Consultation Programmatic Biological Opinion
2 on the U.S. Environmental Protection Agency’s Issuance and Implementation of
3 the Final Regulations Section 316(b) of the Clean Water Act 71 (2014) (“Bio.
4 Op.”). The biological opinion also included an ITS, which found that the “large
5 scale and broad scope” of the proposed rule precluded an accurate estimate of
6 the precise amount of incidental take. Id. at 76. The Services therefore deferred
7 quantification of incidental take to the site-specific permitting process laid out in
8 the proposed rule.

9 The Final Rule promulgated by the EPA and challenged by the Petitioners
10 applies to existing power plants and manufacturing facilities that use CWISs to
11 withdraw more than 2 million gallons of water per day (“mgd”), of which 25
12 percent or more is used for cooling.⁶ See 79 Fed. Reg. at 48,304–05. As we
13 discuss in more detail and as relevant below, the Rule establishes impingement
14 and entrainment standards for existing facilities and for new units at existing
15 facilities, id. at 48,321–23, and it implements several processes to ensure
16 compliance with the ESA, id. at 48,380–83.

⁶ The Rule covers 99.8 percent of total water withdrawals by industrial sources in the United States. 79 Fed. Reg. at 48,308.

1 5. Procedural History

2 After the Final Rule was published, petitions for review were filed in six
3 Circuits. The Fourth Circuit consolidated the petitions, allowed the Petitioners to
4 intervene in one another's suits, and transferred the consolidated petitions to this
5 Circuit pursuant to 28 U.S.C. § 2112(a)(5). We then granted the Petitioners leave
6 to amend their petitions to include challenges to the Services' biological opinion
7 and to add the Services as respondents. We also granted the motion filed by the
8 Center for Biological Diversity, Louisiana Environmental Action Network,
9 California Coastkeeper Alliance, Humboldt Baykeeper, Suncoast Waterkeeper,
10 Inc., and Puget Soundkeeper Alliance for leave to intervene as petitioners.

11 6. The Petitions

12 Four petitions for review are before us.

13 A. Environmental Petition

14 The first petition, filed by the self-described "Environmental Petitioners"
15 and "Environmental Intervenors" (collectively, the "Environmental
16 Petitioners"),⁷ argues that: (1) the Rule's entrainment and impingement

⁷ American Littoral Society, Environment America, Environment Massachusetts, Riverkeeper, Inc., Natural Resources Defense Council, Incorporated, Delaware

requirements violate section 316(b) of the CWA in several ways; (2) the Rule's definition of "new unit" is arbitrary and capricious under the APA insofar as it excludes rebuilt, repowered, and replaced units; (3) the Services violated section 7 of the ESA and its implementing regulations, especially by finding that the Rule incorporates adequate process-based protections to avoid jeopardizing listed species; and (4) the Services' ITS fails to meet the requirements set forth in section 7(b)(4) of the ESA. The Environmental Petitioners seek vacatur and remand of the Final Rule and request that we declare unlawful and set aside the biological opinion and ITS issued by the Services.

B. Industry Association Petition

The second petition, filed by several industry associations we refer to collectively as "UWAG,"⁸ challenges the Rule primarily on the grounds that: (1) the EPA exceeded its authority under the CWA; (2) the Services violated the ESA by, among other things, issuing a biological opinion that relied on an

Riverkeeper Network, Raritan Baykeeper, Inc., d/b/a NY/NJ Baykeeper, Hackensack Riverkeeper, Casco Baykeeper, Save the Bay – Narragansett Bay, Scenic Hudson, Inc., Sierra Club, Waterkeeper Alliance, Inc., Soundkeeper, Inc., Surfrider Foundation, Center for Biological Diversity, Louisiana Environmental Action Network, California Coastkeeper Alliance, Humboldt Baykeeper, Suncoast Waterkeeper, Inc., and Puget Soundkeeper Alliance.

⁸ Utility Water Act Group, Entergy Corporation, Cooling Water Intake Structure Coalition, and American Petroleum Institute.

1 erroneous environmental baseline; and (3) the EPA violated the APA by failing
2 to provide notice of and an opportunity to comment on certain provisions of the
3 Rule adopted at the Services' behest. UWAG requests that we vacate these so-
4 called "Service-driven" provisions and set aside the Services' biological opinion.

5 C. American Petroleum Institute Petition

6 The third petition, separately filed by the American Petroleum Institute
7 ("API"), argues that the EPA violated the APA when it concluded that
8 manufacturing facilities will incur minimal compliance costs in meeting the
9 Rule's standards for "new units," and when in the proposed rule it defined "new
10 unit" so vaguely that interested parties were deprived of notice and an
11 opportunity to comment.

12 D. CWIS Coalition Petition

13 The fourth petition, separately filed by the Cooling Water Intake Structure
14 Coalition ("CWIS Coalition" or "Coalition"), argues that the EPA acted
15 arbitrarily and capriciously in violation of the APA with respect to permit
16 application requirements and with respect to requirements for intake structures
17 that withdraw little or no water exclusively for cooling purposes.

DISCUSSION

1. Jurisdiction

We have jurisdiction to review the Final Rule pursuant to CWA section 509(b)(1), 33 U.S.C. § 1369(b)(1). See Riverkeeper II, 475 F.3d at 95. Because evaluating the biological opinion’s “evidentiary and analytic basis is . . . integral to reviewing the EPA’s final decision,” we can “consider the adequacy of both the section 7 consultation and the [b]iological [o]pinion that resulted from it while reviewing the EPA’s final decision.” Defs. of Wildlife v. EPA, 420 F.3d 946, 956 (9th Cir. 2005), rev’d on other grounds, Nat’l Ass’n of Home Builders v. Defs. of Wildlife, 551 U.S. 644 (2007).

2. Standard of Review

Our substantive review of the Rule has two steps. “First, we examine the regulation against the statute that contains the [agency’s] charge.” Riverkeeper II, 475 F.3d at 95 (quotation marks omitted). If Congress “has directly spoken to the precise question at issue” and has unambiguously expressed its intent, we must give effect to that intent. Chevron U.S.A., Inc. v. Nat’l Res. Def. Council, Inc., 467 U.S. 837, 842–43 (1984). If the statute is silent or ambiguous, we ask only “whether the agency’s answer is based on a permissible construction of the

statute,” id. at 843, that is, we ask whether the agency’s action is “arbitrary,
capricious, or manifestly contrary to the statute,” Riverkeeper I, 358 F.3d at 184
(quotation marks omitted). “Second, if the agency has followed Congress’s
unambiguously expressed intent or permissibly construed an ambiguous statute,
we measure the regulation against the record developed during the rulemaking,”
Riverkeeper II, 475 F.3d at 95 (quotation marks omitted), holding it unlawful
only if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in
accordance with law,” id. (quoting 5 U.S.C. § 706(2)(A)). Our review is “narrow,
limited to examining the administrative record to determine whether the agency
decision was based on a consideration of the relevant factors and whether there
has been a clear error of judgment.” Riverkeeper I, 358 F.3d at 184 (quotation
marks omitted). Because “we lack the [agencies’] expertise when it comes to
scientific or technical matters,” id., we look only to see whether the agency
“examined the relevant data and articulated a satisfactory explanation for its
action,” and whether there is a “rational connection between the facts found and
the choice made,” Nat. Res. Def. Council v. FAA, 564 F.3d 549, 555 (2d Cir. 2009)
(quoting Motor Vehicle Mfrs. Ass’n of the U.S., Inc. v. State Farm Mut. Auto. Ins.
Co., 463 U.S. 29, 43 (1983)). We apply the same analysis to the Services’

biological opinion. See Bennett v. Spear, 520 U.S. 154, 177–78 (1997); Defs. of Wildlife v. U.S. Dep’t of the Navy, 733 F.3d 1106, 1114–15 (11th Cir. 2013).

We also review the Rule for compliance with the procedural requirements of the APA. See 5 U.S.C. § 553(b), (c). In particular, we will remand for further proceedings if an agency fails to comply with the APA’s notice-and-comment provisions. Riverkeeper II, 475 F.3d at 96.

With these general principles in mind, we consider first the several challenges raised by the Environmental Petitioners and then turn to the arguments raised by UWAG, API, and the CWIS Coalition.

3. The Environmental Petitioners

We address the Environmental Petitioners’ broader CWA-based arguments followed by their arguments based on the APA and the ESA.

A. Environmental Petitioners’ CWA-Based Challenges⁹

i. Entrainment Requirements

The EPA recognized that closed-cycle cooling is the most effective system for minimizing entrainment. 79 Fed. Reg. at 48,342. But the EPA also concluded

⁹ As a preliminary matter, we deny the Environmental Petitioners’ motion to compel the Respondents to amend the certified list of documents comprising the administrative

1 that significant barriers at many existing facilities prevent retrofitting to
 2 incorporate closed-cycle cooling systems. Id. at 48,340–42. The EPA therefore
 3 decided that closed-cycle cooling is not the best technology actually “available”
 4 on a national basis and declined to mandate it for all facilities as the required
 5 entrainment technology. Id. The EPA also found that there is no alternative
 6 high- or intermediate-performing technology that is nationally available to
 7 minimize entrainment. Id. at 48,330. For that reason, the EPA established that a
 8 Director should determine the BTA to limit entrainment on a site-specific basis
 9 during the NPDES process, considering the factors identified in the Rule and
 10 information that facilities are required to provide under 40 C.F.R. § 122.21(r). Id.
 11 at 48,351–52; see also 40 C.F.R. §§ 122.43(a), 125.98(f). As contemplated by the
 12 Rule, the Director determines the BTA (which may be closed-cycle cooling) at

record to include certain specified additional documents. The Environmental
 Petitioners have narrowed the scope of this motion to encompass just seven documents,
 all of which are draft documents produced by the Services during consultation with the
 EPA. The Respondents have produced a privilege log that adequately describes the
 nature of the seven requested documents and their rationale for classifying those
 documents as deliberative and therefore privileged. See Fed. R. Civ. P. 26(b)(5)(A)(ii).
 We see nothing in the privilege log that would disturb the “presumption of regularity”
 afforded to the agencies’ certified record. Citizens to Pres. Overton Park, Inc. v. Volpe,
 401 U.S. 402, 415 (1971).

1 each facility and ensures implementation of that technology through NPDES
2 permit conditions.

3 The Environmental Petitioners argue that, in promulgating these
4 entrainment provisions, the EPA violated CWA section 316(b) in four ways.

5 First, the Environmental Petitioners argue that section 316(b) requires the
6 EPA to establish a single, national, categorical entrainment standard. That might
7 be quite advantageous, but we have already held that “the EPA’s decision to
8 regulate some aspects of [CWISs] on a site-specific basis is within its authority
9 and reasonable.” Riverkeeper I, 358 F.3d at 198; see id. at 203 (“The [CWA] does
10 not forbid the EPA from addressing certain environmental problems on a case-
11 by-case basis where categorical regulation is not technologically feasible . . .”).

12 As we explained in Riverkeeper I, section 316(b) “merely directs the EPA to
13 require every [CWIS] subject to regulation . . . to reflect the ‘best technology
14 available.’” Id. at 203. “It does not compel the EPA to regulate either by one
15 overarching regulation . . . or on a case-by-case basis . . .” Id.; see also Nat’l
16 Wildlife Fed’n v. EPA, 286 F.3d 554, 566–67 (D.C. Cir. 2002) (upholding the EPA’s
17 decision to regulate color pollution on a case-by-case basis during the NPDES
18 permitting process where the EPA found that the impact of color pollutants

1 depended on “highly site-specific conditions” (quotation marks omitted)); Maier,
2 P.E. v. EPA, 114 F.3d 1032, 1043 (10th Cir. 1997).¹⁰ Here, the EPA found that a
3 “one-size-fits-all” approach to entrainment was infeasible. 79 Fed. Reg. at 48,342.
4 In light of this finding and our precedent, we conclude that the EPA acted both
5 reasonably and within its authority in adopting a case-by-case approach to
6 entrainment standards. We also reject the Environmental Petitioners’ related
7 argument that the EPA inappropriately abdicated its statutory obligation to set
8 standards for entrainment reduction.

9 Second, the Environmental Petitioners argue that the EPA acted arbitrarily
10 and capriciously when it concluded that closed-cycle cooling is not nationally
11 available. We are not persuaded. The EPA identified three factors that, in
12 combination, render closed-cycle cooling unavailable on a national scale: first,
13 about 25 percent of facilities have constraints on land availability (e.g., limited
14 physical space, restrictive zoning requirements) that would prevent them from

¹⁰ The Environmental Petitioners’ reliance on E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112 (1977), is misplaced. There, the Supreme Court held only that section 301 of the CWA does not require the EPA to establish effluent limitations on a site-specific basis, and that the EPA has the authority to issue regulations establishing effluent limitations for classes of power plants. Id. at 128, 133–36; see Entergy, 556 U.S. at 223 (“[U]nder Chevron, that an agency is not required to do so does not mean that an agency is not permitted to do so.”).

1 retrofitting; second, retrofitting would increase the emission of various
2 pollutants at facilities because of the energy required to retrofit; and third, due to
3 the time required to design and construct closed-cycle systems, facilities nearing
4 the end of their useful lives would not see a net benefit in entrainment reduction
5 resulting from a retrofit. 79 Fed. Reg. at 48,341–42. As to the first factor, the
6 Environmental Petitioners argue that the 25 percent land availability figure is
7 unsupported by the administrative record. Although the EPA acknowledged
8 that its data was inadequate to predict with certainty the number of facilities
9 facing space constraints, we decide only whether the data available provided the
10 EPA an adequate basis for its decision. See Miami-Dade Cty. v. EPA, 529 F.3d
11 1049, 1064–65 (11th Cir. 2008); Am. Iron & Steel Inst. v. EPA, 115 F.3d 979, 1004–
12 05 (D.C. Cir. 1997). Here, the EPA rationally concluded, based on the studies and
13 surveys in the administrative record, that geographic limitations would curtail
14 the availability of closed-cycle cooling at a significant number of facilities. With
15 respect to the second and third factors, the Environmental Petitioners argue that
16 air pollution and limited remaining useful life do not affect “availability,” which
17 they define as “technologically feasible.” Perhaps, but the EPA’s different
18 interpretation of “availability” is rational. See Riverkeeper I, 358 F.3d at 194–96

(concluding that the EPA acted rationally in determining that dry cooling was not nationally available due to its high cost, air emissions resulting from increased energy use, and other factors). The Environmental Petitioners also fault the EPA for relying in part on a “cost-benefit concern,” Env’tl. Br. 54, even though, in the Rule’s preamble, the EPA disclaimed that costs were a “dispositive factor,” 79 Fed. Reg. at 48,340. Yet even assuming that the EPA compared costs to benefits (direct and indirect) in deciding whether to designate closed-cycle cooling as the BTA, the Environmental Petitioners have not explained why the EPA could not do so to inform its analysis of availability. See Entergy, 556 U.S. at 218–19 (BTA may “describe the technology that most efficiently produces some good” and may “involve a consideration of the benefits derived from reductions [in adverse environmental impact] and the costs of achieving them”). Indeed, agencies are ordinarily required to consider the relative costs and benefits of a regulation as part of reasoned decisionmaking. See Michigan v. EPA, 135 S. Ct. 2699, 2707 (2015) (“Consideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages and the disadvantages of agency decisions.”). For all of these reasons, we reject the Environmental Petitioners’ second argument

1 under the CWA and hold that the EPA did not act arbitrarily and capriciously in
2 determining that the combination of three “availability” factors justified rejecting
3 a national standard based on closed-cycle cooling.¹¹

4 The Environmental Petitioners’ third argument under the CWA is that the
5 Rule fails adequately to define “best technology available,” leaving Directors
6 with “unfettered discretion” to establish entrainment requirements at individual
7 facilities. Env’tl. Br. 62 (quoting Riverkeeper II, 475 F.3d at 111 n.22). We do not
8 think the Rule gives Directors excessive discretion. As the Environmental
9 Petitioners acknowledge, the Rule lists eleven factors that a Director may
10 consider when establishing a site-specific entrainment standard, five of which the
11 Director must consider. 40 C.F.R. § 125.98(f)(2)–(3). The Environmental
12 Petitioners nonetheless argue that because the Rule provides no guidance on
13 how these factors should be weighed, Directors may “reach and justify any and
14 all decisions on any grounds that they please.” Env’tl. Br. 64–65. Not so. After a

¹¹ We also reject the Environmental Petitioners’ argument that the EPA could have addressed its availability concerns by creating a variance procedure that exempts certain facilities from the Rule’s standards. The existence of other permissible approaches to regulation does not render the EPA’s chosen approach irrational. See Entergy, 556 U.S. at 218. Moreover, the EPA expressly considered a variance procedure and concluded that, due to the “complex interaction” of several factors limiting the availability of closed-cycle cooling, a variance procedure would be less precise than site-specific balancing of all relevant factors. See 79 Fed. Reg. at 48,343.

1 Director considers the required and optional factors set forth in the Rule, which
2 themselves limit her discretion, she must explain to the EPA in writing why she
3 rejected any better-performing technologies. 40 C.F.R. § 125.98(f)(1). The EPA
4 may then review the Director's explanation and object if it disagrees with the
5 Director's determination of the BTA. Id. § 123.44; 79 Fed. Reg. at 48,383. This
6 scheme hardly leaves the Director's determination of the BTA "virtually
7 unreviewable." *Envtl. Br.* 66.

8 Finally, the Environmental Petitioners argue that the EPA exceeded its
9 statutory authority by allowing Directors to base their BTA determinations in
10 part on a cost-benefit analysis. See 40 C.F.R. § 125.98(f)(2)(v), (f)(4). As noted
11 above, the Supreme Court held in Entergy that the EPA may weigh costs against
12 benefits when setting BTA standards under section 316(b). 556 U.S. at 218–20,
13 226. The Environmental Petitioners acknowledge Entergy but insist that the
14 Court "did not give its blessing to all forms of cost-benefit analysis," endorsing it
15 only where necessary to prevent "extreme disparities" between costs and
16 benefits. *Envtl. Br.* 66, 70. We do not read Entergy so narrowly. Although the
17 Court in Entergy noted that the EPA, in the Phase II rule, had "sought only to
18 avoid extreme disparities between costs and benefits," 556 U.S. at 224, it held that

1 the EPA may generally “rel[y] on cost-benefit analysis” in promulgating
2 standards pursuant to section 316(b), id. at 218–22, 226, and emphasized that
3 section 316(b)’s silence on the permissibility of cost-benefit analysis “convey[s]
4 nothing more than a refusal to tie the agency’s hands as to whether cost-benefit
5 analysis should be used, and if so to what degree,” id. at 222. And although the
6 Environmental Petitioners argue that the Supreme Court did not explicitly
7 approve the delegation of authority to consider costs and benefits to individual
8 Directors, they fail to explain why Directors would be precluded from
9 considering the same factors the EPA could have considered had it chosen to
10 establish a national, categorical standard.

11 For these reasons, we reject the Environmental Petitioners’ CWA-based
12 challenges to the Rule’s entrainment requirements.

13 ii. Impingement Requirements

14 The EPA also declined to adopt closed-cycle cooling as the BTA to
15 minimize impingement mortality at existing facilities, largely for the same
16 reasons it identified with respect to entrainment. See 79 Fed. Reg. at 48,325,
17 48,343. Instead, the EPA determined that “modified traveling screens with a

1 fish-friendly fish return” constitute the BTA.¹² Id. at 48,329, 48,337. The EPA
2 projected that these screens will achieve, on average, a 76 percent survival rate
3 (in other words, reduce impingement mortality to no more than 24 percent). Id.
4 at 48,337 (citing 40 C.F.R. § 125.94(c)(7)). Under the Rule’s impingement
5 provisions, a regulated facility may choose from seven compliance options that
6 reduce impingement mortality, including any type of “modified traveling
7 screen” that meets the Rule’s definition and that the facility demonstrates to the
8 Director is the BTA at that particular site. See 40 C.F.R. § 125.94(c)(1)–(7); 79 Fed.
9 Reg. at 48,321. The Environmental Petitioners argue primarily that these
10 impingement provisions violate the CWA in three ways.

11 First, the Environmental Petitioners argue that closed-cycle cooling, not
12 modified traveling screens, is the BTA for minimizing impingement mortality.
13 But as with the Rule’s entrainment standards, the EPA rationally concluded that
14 closed-cycle cooling is not nationally available. Therefore, it was neither
15 arbitrary nor capricious for it to reject closed-cycle cooling as the BTA to reduce
16 impingement mortality nationwide.

¹² A traveling screen is a mesh screen that prevents debris from entering an intake system. A modified traveling screen is a traveling screen that incorporates certain features to protect aquatic organisms, such as a gentle vacuum that returns fish to the water.

1 Second, the Environmental Petitioners contend that even if the EPA's BTA
2 determination were lawful, the Rule violates the CWA because it fails to ensure
3 that regulated facilities will meet the 76 percent survival rate standard set forth
4 in 40 C.F.R. § 125.94(c)(7). Specifically, they argue that two of the seven options
5 for reducing impingement mortality, 40 C.F.R. § 125.94(c)(6) and (c)(5), are
6 "loopholes" that allow regulated facilities to avoid complying with the 76
7 percent standard and that "impose[] no standard at all." Env'tl. Br. 75–76. One of
8 these two options allows a facility to "operate a system of technologies,
9 management practices, and operational measures" that "the Director determines
10 is the [BTA] for impingement reduction" at that particular site. 40 C.F.R.
11 § 125.94(c)(6). To avail itself of this option, a facility must submit an
12 "impingement technology performance optimization study" under 40 C.F.R.
13 § 122.21(r)(6) that includes at least two years of biological data and describes the
14 technologies that will be used to minimize impingement mortality. Id.
15 § 125.94(c)(6). The Director's determination will then "be informed" by
16 comparing the study results to the 76 percent standard. Id. Although the
17 Environmental Petitioners complain that this language does not technically
18 require compliance with the 76 percent standard, we conclude that the EPA acted

rationally in affording Directors some discretion to determine whether a particular facility's impingement reduction efforts are adequate, especially because, as the EPA persuasively explained, the overall impingement reduction at a particular site cannot always be measured strictly by survival or mortality percentages. See 79 Fed. Reg. at 48,365.

The other compliance option challenged by the Environmental Petitioners allows facilities to operate a "modified traveling screen" that meets the definition set forth in 40 C.F.R. § 125.92(s) and "is the [BTA] for impingement reduction at the site." 40 C.F.R. § 125.94(c)(5) (emphasis added). Relying on Riverkeeper II, the Environmental Petitioners argue that this provision does not require facilities to meet the 76 percent standard or even require a Director's decision to be "informed" by that standard, allowing facilities to choose a type of modified traveling screen that does not achieve the 76 percent survival rate. But Riverkeeper II does not support the Environmental Petitioners' position. There we held that the EPA may set national performance standards as ranges so long as it "require[s] facilities to minimize the adverse environmental impacts attributable to their [CWISs] to the best degree they can." Riverkeeper II, 475 F.3d at 105 (emphasis added); see also id. at 106 (EPA should "require facilities to

1 choose technologies that produce the greatest reduction possible” within the
2 ranges). That is essentially what the EPA has done here. A facility may choose
3 the modified traveling screen option only when “the Director determines [that it]
4 is the [BTA] for impingement reduction at the site,” that is, only when a facility
5 shows that “the technology is or will be optimized to minimize impingement
6 mortality of all non-fragile species.” 40 C.F.R. § 125.94(c)(5); see also 79 Fed. Reg.
7 at 48,325, 48,346. Further, the Director must include in the permit “verifiable and
8 enforceable . . . conditions that ensure the technology will perform as
9 demonstrated.” 40 C.F.R. § 125.94(c)(5); 79 Fed. Reg. at 48,329. Under certain
10 circumstances, the Director can also require additional protective measures that
11 must be incorporated into the permit. See 40 C.F.R. § 125.94(c)(8)–(9), (g). This
12 process adequately ensures that a modified traveling screen at a particular site is
13 in fact the BTA for reducing impingement mortality at that site.

14 The third way in which these impingement provisions violate the CWA,
15 the Environmental Petitioners argue, is that the EPA arbitrarily excluded fragile
16 species from the calculation of impingement mortality. Under 40 C.F.R.
17 § 125.94(c)(7), a facility meets the impingement mortality standard so long as no
18 more than 24 percent of “non-fragile species” are killed. The EPA has explained,

1 though, that it excluded fragile species because its data showed that the mortality
2 of those species depends largely on natural conditions, not technology
3 performance. Including fragile species in the mortality calculation would
4 therefore mask the true effectiveness of the technology and render it impossible
5 to identify a BTA to minimize impingement. The EPA's explanation is
6 adequately supported by the administrative record, and the Environmental
7 Petitioners point to no evidence suggesting that it is irrational.

8 B. Environmental Petitioners' APA-Based Challenge

9 We turn to the Environmental Petitioners' challenge under the APA to the
10 definition of "new unit." The EPA determined that "new units" at existing
11 facilities, like the "new facilities" covered by the Phase I rule, 40 C.F.R. § 125.83
12 (defining "new facility"), must meet performance standards commensurate with
13 those that may be attained by closed-cycle cooling, id. § 125.94(e)(1)–(2). It
14 defined "new unit" to exclude rebuilt, repowered, and replacement units at
15 existing facilities, such that only "new stand-alone" units added after October 14,
16 2014 are subject to the more stringent closed-cycle standard. Id. § 125.92(u)
17 (quotation marks omitted); see 79 Fed. Reg. at 48,311. The Environmental
18 Petitioners argue that there is no rational connection between the facts found by

1 the EPA and its decision to exclude rebuilt, repowered, and replacement units
2 from the definition of “new unit.” We disagree.

3 Responding to comments on the proposed rule, the EPA explained that it
4 excluded rebuilt units for two primary reasons: first, including rebuilt units
5 would discourage manufacturers from improving their facilities; and
6 second, many activities that could be considered “rebuilding” or “repowering”
7 would raise the same hurdles that led the EPA to conclude that closed-cycle
8 cooling was not nationally available. The Rule’s preamble reflects the same
9 concerns. See 79 Fed. Reg. at 48,311, 48,339. The EPA thus “articulate[d] a
10 satisfactory explanation for” limiting the definition of “new unit,” and there is a
11 “rational connection between the facts found and the choice made.” State Farm,
12 463 U.S. at 43 (quotation marks omitted).

13 The Environmental Petitioners stress that the EPA narrowed the definition
14 of “new unit” that appeared in the proposed rule. But an agency may modify a
15 rule through the notice-and-comment process so long as the agency’s
16 modification is rational and “the agency’s path may reasonably be discerned.”
17 Id. (quotation marks omitted); see also Ne. Md. Waste Disposal Auth. v. EPA,
18 358 F.3d 936, 951 (D.C. Cir. 2004) (“Agencies[] are free—indeed, they are

1 encouraged—to modify proposed rules as a result of the comments they
2 receive.”). Here, the EPA explained why it ultimately defined “new unit” in the
3 manner it did after the notice-and-comment period, and we discern no “clear
4 error of judgment” in its explanation. See Nat. Res. Def. Council, Inc. v.
5 Muszynski, 268 F.3d 91, 97 (2d Cir. 2001) (quotation marks omitted).

6 Accordingly, we decline to vacate this portion of the Rule.

7 C. Environmental Petitioners’ ESA-Based Challenges

8 The Environmental Petitioners next challenge various elements of the
9 section 7 consultation process—relating to the Services’ biological opinion and
10 ITS—as inconsistent with the ESA and the Services’ own implementing
11 regulations.

12 i. The Biological Opinion

13 The Environmental Petitioners argue that the Services’ biological opinion
14 violates section 7 of the ESA by (1) deferring analysis of the Rule’s impact on
15 jeopardy to later review by individual Directors; (2) failing to use the best
16 scientific and commercial data available to evaluate thermal impacts of the Rule;
17 (3) failing to analyze the Rule’s effect on species under the FWS’s jurisdiction;
18 and (4) concluding that the Rule is unlikely to jeopardize ESA-listed species or

adversely modify their critical habitat. We reject each of these arguments, most of which are really challenges to the Services' "programmatic" approach to the biological opinion.

a. Jeopardy Analysis

As stated above, section 7 of the ESA requires federal agencies, in consultation with the Services, to "insure that any action authorized, funded, or carried out by" the agency "is not likely to jeopardize the continued existence of any endangered species or threatened species" or destroy or adversely modify any critical habitat designated for such species. 16 U.S.C. § 1536(a)(2). In evaluating the Rule, the Services determined that a "programmatic," or process-based, approach was appropriate. Bio. Op. 36. Instead of site- and species-specific analyses, this approach involves "examin[ing] whether and to what degree [the] EPA has structured" the Rule to satisfy section 7's mandate. Id. Applying this approach, the Services concluded that the Rule was unlikely to jeopardize listed species because it "built in a sufficient process" to avoid jeopardy (e.g., giving the Services a meaningful opportunity to review permit applications and to recommend control measures and requirements for monitoring and reporting). Id. at 72. As this "technical assistance process" was

critical to the Services' no-jeopardy conclusion, we briefly describe its key features below.

The Rule contemplates that regulated facilities must include in their permit applications information about the presence of ESA-listed species. 40 C.F.R. § 125.95(f). The Director who reviews the application then sends it to the Services for a sixty-day review period, after which the Director must publish any information or recommendations the Services provide. Id. § 125.98(h); 79 Fed. Reg. at 48,382. In those jurisdictions where a Director administers the permitting process, the Services may raise concerns with the EPA, which can then coordinate with the Director to comply with the CWA and the ESA. Alternatively, the EPA may federalize the permit and initiate formal consultation with the Services pursuant to section 7 of the ESA. See 40 C.F.R. § 123.44; 79 Fed. Reg. at 48,381–83.

The Environmental Petitioners object, first, that “there is no formal assurance that such a process will, in fact, be followed.” Env'tl. Br. 98. Although the Rule explicitly requires Directors to send permit applications and draft permits to the Services, 40 C.F.R. § 125.98(h), the Rule's preamble, they point out, characterizes the Services' role as reflecting the EPA's “expectations,” see, e.g., 79

1 Fed. Reg. at 48,381 (“EPA expects that the Services will respond within 60 days
2 and provide to the Director . . . any measures that the Services recommend . . . for
3 the protection of listed species” (emphasis added)). True, but the Rule itself
4 is properly interpreted to require the Services’ participation in the technical
5 assistance process because that process is part of the proposed action the Services
6 approved pursuant to formal consultation. See Ctr. for Bio. Diversity v. FWS, 807
7 F.3d 1031, 1046 & n.12 (9th Cir. 2015) (proposed conservation measures in
8 challenged memorandum of agreement were enforceable because they were
9 “included as part of the project consulted upon” (quotation marks omitted)); see
10 also FWS & NMFS, Endangered Species Consultation Handbook: Procedures for
11 Conducting Consultation and Conference Activities Under Section 7 of the
12 Endangered Species Act at 4-19 (1998) (“Consultation Handbook”) (“Since
13 conservation measures are part of the proposed action, their implementation is
14 required under the terms of the consultation.”).¹³ We do not presume that an
15 agency will act in accordance with “expectations” set out in a governing
16 regulation. Rather, we reach the much more limited conclusion that where, as

¹³ Moreover, formal consultation can be reinitiated if any of “the assumptions about the [technical assistance] process . . . are not being followed.” Bio. Op. 78–79.

1 here, the Services conditioned their no-jeopardy finding on compliance with
2 certain procedures and represented to this Court at oral argument that they have
3 a “commitment” to those procedures, Oral Arg. Tr. 33:11, the Rule obligates the
4 Services to abide by those procedures. If the Services fail to honor the obligations
5 specified in the Rule’s technical assistance provisions, the Environmental
6 Petitioners may challenge individual permits pursuant to the ESA’s citizen-suit
7 provisions once those permits issue. See 16 U.S.C. § 1540(g)(1)(A).

8 The Environmental Petitioners also contend that even if the technical
9 assistance process is binding, the Services nonetheless contravened the ESA and
10 its implementing regulations by deferring analysis of the Rule’s impact on
11 jeopardy to the permit-specific review stage. According to the Environmental
12 Petitioners, the Services improperly disregarded their obligation to “consider all
13 phases” of the agency action in their initial biological opinion, as the Ninth
14 Circuit appears to require. Env’tl. Br. 100 (citing Conner v. Burford, 848 F.2d
15 1441, 1453–54 (9th Cir. 1988)). But “the rule that biological opinions must be
16 coextensive in scope with the entire action or else violate the ESA is nowhere to
17 be found in the language of the ESA,” Defs. of Wildlife, 733 F.3d at 1121
18 (quotation marks omitted), and, like the Eleventh Circuit, we decline to adopt

1 such a rule here.¹⁴ Nothing in the ESA requires that the Services assess every
 2 future “phase” of an agency action on a site-specific or species-specific basis.
 3 Therefore, properly construing the agency action as the promulgation of CWA
 4 section 316(b) standards, the Services discharged their duty to assess “the effects
 5 of the action as a whole” in their biological opinion. 50 C.F.R. § 402.14(c).

6 b. Thermal Impacts

7 The Services similarly deferred consideration of how thermal pollution
 8 resulting from the operation of CWISs would affect aquatic ecosystems. They
 9 explained in the biological opinion that “[t]o date, [the] EPA has not been able to
 10 reliably estimate the impact of thermal discharge associated with CWIS

¹⁴ In any event, the Services’ biological opinion would satisfy even the Ninth Circuit’s purported rule. The “agency action” subject to consultation here was the EPA’s promulgation of the Rule, not the subsequent implementation of the Rule by State Directors. See 50 C.F.R. § 402.03 (section 7 consultation requirement applies only to “actions in which there is discretionary Federal involvement or control”); Nat’l Ass’n of Home Builders, 551 U.S. at 650, 653 n.4 (“If [permitting] authority is transferred [from the EPA to a State], then state officials—not the federal EPA—have the primary responsibility for reviewing and approving NPDES discharge permits, albeit with continuing EPA oversight.”). To the extent future permits affect ESA-listed species, those effects are not “phases” of the Rule, Env’tl. Br. 100, but, as the Services concluded, “indirect effects” of the Rule, 50 C.F.R. §§ 402.02, 402.14(g)(3).

For similar reasons, we reject the Environmental Petitioners’ complaint that the technical assistance process “is not the equivalent of” section 7 consultation. Env’tl. Br. 106. In those jurisdictions where the State administers the NPDES program, the Services have no obligation to conduct section 7 consultation or its “equivalent” on individual permits because the issuance of such a permit is not a federal action.

1 operations on federally-listed species or designated critical habitat.” Bio. Op. 51.
2 Instead of relying on available data, the Services thought it enough that the EPA
3 committed to overseeing the technical assistance process, “which will allow [the]
4 EPA to more reliably estimate the . . . stressors that are likely to be produced as a
5 direct or indirect result of thermal discharge activities” at individual facilities.
6 Id. The Environmental Petitioners argue that the Services thus shirked their
7 statutory responsibility to consider the “best scientific and commercial data
8 available.” 16 U.S.C. § 1536(a)(2). They claim that available modeling techniques
9 would have allowed the Services to estimate thermal pollution in the biological
10 opinion rather than defer analysis to the permitting process.

11 As an initial matter, we disagree with the Environmental Petitioners that
12 the Services failed to “seek out and consider” existing scientific data on thermal
13 pollution. Miccosukee Tribe of Indians v. United States, 566 F.3d 1257, 1265 (11th
14 Cir. 2009); see Bio. Op. App’x C, at 41 (citing a report on thermal stressors the
15 Environmental Petitioners suggest was ignored). Rather, evidently aware of this
16 data and the risk of environmental harm from thermal pollution, the Services
17 nonetheless agreed with the EPA that “[t]he exact nature and magnitude of . . .
18 indirect effects [including thermal pollution] would be species-specific based on

1 the relative size and amount of overlap of habitat with facility and CWIS
2 locations . . . and many other factors.” Bio. Op. 42 (quotation marks omitted).

3 The more central question, then, is not whether the Services considered
4 available data, but whether they were authorized to determine that there was no
5 “best . . . data available” that would enable assessment of thermal pollution on a
6 national scale, 16 U.S.C. § 1536(a)(2), and therefore to defer consideration of
7 thermal impacts to the site-specific permitting process.

8 We conclude that they were so authorized. We find support for our
9 conclusion in the Eleventh Circuit’s 2013 decision in Defenders of Wildlife, 733
10 F.3d 1106. Petitioners there challenged a biological opinion issued by the NMFS
11 that approved the installation of an “Undersea Warfare Training Range” and
12 allegedly deferred any consideration of the effects of operations expected to
13 occur on that range until those operations were actually authorized. Id. at 1113–
14 14, 1118. The Eleventh Circuit concluded both that the NMFS adequately
15 considered the effects of future operations in its initial biological opinion and
16 that the NMFS was authorized to reconsider those effects in a new biological
17 opinion “closer in time to when [the] operations will actually commence.” Id. at
18 1122.

1 We agree with the Eleventh Circuit that, as long as the initial stage of an
2 agency's project "does not foreclose the adoption of . . . reasonable and prudent
3 measures [to avoid jeopardy], and as long as the conclusions of the biological
4 opinion are not arbitrary, a staged structuring of consultation may comply fully
5 with Section 7's mandate." Id. Far from being arbitrary, the Services' conclusion
6 here that a categorical assessment of thermal impacts was infeasible reflects a
7 "scientific determination deserving deference," Miccosukee Tribe, 566 F.3d at
8 1265, and nothing else compels us to order that consultation be carried out in
9 some other manner, see Defs. of Wildlife, 733 F.3d at 1121–22. We therefore hold
10 that the Services did not violate their statutory obligations when they decided to
11 solicit more data (during the permitting process) in order to assess thermal
12 impacts on a site-specific basis.

13 c. Species Within the FWS's Jurisdiction

14 The Environmental Petitioners next argue that the FWS failed adequately
15 to analyze the Rule's effect on species within its jurisdiction before making a no-
16 jeopardy determination. Unlike the NMFS, which provided detailed appendices
17 containing information on species under its jurisdiction, the FWS provided one
18 section in the biological opinion that, according to the Environmental Petitioners,

1 is “cursory to the point of meaninglessness” and fails to satisfy the FWS’s duty
2 under 16 U.S.C. § 1536(b)(3)(A) to “detail[] how the agency action affects . . .
3 species or [their] critical habitat.” Env’tl. Br. 131–32. As the Environmental
4 Petitioners acknowledge, however, a biological opinion need only include the
5 following elements: “the current status of the species, the environmental
6 baseline, the effects of the proposed action, and the cumulative effects of the
7 proposed action.” Gifford Pinchot Task Force v. FWS, 378 F.3d 1059, 1063 (9th
8 Cir. 2004) (citing 50 C.F.R. § 402.14(g)(2)–(3)), superseded on other grounds by
9 Definition of Destruction or Adverse Modification of Critical Habitat, 81 Fed.
10 Reg. 7214 (Feb. 11, 2016) (codified at 50 C.F.R. § 402.02). Here, the FWS provided
11 the current status of the species and the environmental baseline but, relying on
12 the protections of the technical assistance process, deferred evaluation of the
13 Rule’s effects on the species within its jurisdiction. At bottom, then, the
14 Environmental Petitioners’ argument is yet another challenge to the Services’
15 programmatic approach, and we reject it for the same reasons stated above with
16 respect to the Services’ analysis of thermal impacts.

d. No-Jeopardy Conclusion

Having resolved the Environmental Petitioners' various challenges to the Services' programmatic approach, we now turn to their attack on the Services' substantive conclusion that the Rule, including the protections of the technical assistance process, is "not likely to jeopardize the continued existence of ESA-listed species" or destroy or adversely modify their critical habitat. Bio. Op. 71. The Environmental Petitioners argue that the administrative record does not support the Services' conclusion because the Services failed to consider four factors: the current jeopardy of numerous listed species, the impact on listed species during the Rule's indefinite implementation period, the Rule's impact on species recovery (as opposed to species survival), and the discretionary nature of the technical assistance process. We address each of these factors in turn.

First, the Environmental Petitioners fault the Services for reaching a no-jeopardy conclusion after they identified several species that are currently or nearly in jeopardy. They argue that the Services may not sanction agency action that causes any additional harm and thus "deepens" jeopardy. Env'tl. Br. 110 (quoting Nat'l Wildlife Fed'n v. NMFS, 524 F.3d 917, 930 (9th Cir. 2008)). But the Services made no formal finding that any species are, as the Environmental

Petitioners contend, “currently in jeopardy or nearly so.” Env’tl. Br. 110. The NMFS found only that continued operation of CWISs under the Rule would have adverse impacts on species that are threatened or whose status is “precarious.” See, e.g., Bio. Op. App’x B, at 15; Bio. Op. App’x C, at 53. Were this finding enough to foreclose a no-jeopardy conclusion, even the Environmental Petitioners’ preferred solution of mandating closed-cycle cooling—which, after all, would not eliminate impingement and entrainment of threatened species by CWISs—would fail ESA consultation.

Second, the Environmental Petitioners claim that the biological opinion “ignores the harm that will occur during the significant time lag . . . between the effective date of the Rule and implementation of any protective measures for listed species at specific facilities.” Env’tl. Br. 115. This argument rests on a misunderstanding of the actions subject to section 7 consultation. Section 7 tasks the Services with analyzing the effects of the EPA’s proposed action. “Take” resulting from CWIS operations at facilities operating under permits issued prior to the Rule, see 16 U.S.C. § 1538(a)(1)(B), (G), and which the EPA has no authority to modify, is not an “effect” of the Rule and is therefore not subject to

1 analysis by the Services.¹⁵ To the extent the Environmental Petitioners object to
2 the “significant lag time in the Rule’s implementation,” Env’tl. Reply Br. 82, that
3 lag time, without more, is not arbitrary or capricious, especially where, as here,
4 the EPA reasonably explained why it may take three to fourteen years to fully
5 implement the Rule, see 79 Fed. Reg. at 48,358–60.

6 Third, the Environmental Petitioners argue that the Services failed to
7 consider whether the Rule would hinder the recovery of listed species. As part
8 of their jeopardy analysis, the Services were required to consider the Rule’s
9 impact on species recovery, in addition to species survival. See Nat’l Wildlife
10 Fed’n, 524 F.3d at 932. But an independent analysis of recovery is not required,
11 see Rock Creek All. v. FWS, 663 F.3d 439, 443 (9th Cir. 2011), in part because it is
12 hard to “draw clear-cut distinctions” between survival and recovery, 51 Fed.
13 Reg. 19,926, 19,934 (June 3, 1986). Nevertheless, the Services here recognized the
14 need to “assess[] whether the action would appreciably reduce the likelihood of
15 recovery of listed species,” Bio. Op. 17, and concluded that the Rule “has built in

¹⁵ The Rule makes clear that it does not independently authorize take. 40 C.F.R. §§ 125.90, 125.94(c)(11), 125.98(b)(1), 125.98(j); see 79 Fed. Reg. at 48,382. If a facility engages in unlawful take before the Rule is fully implemented, the Environmental Petitioners may file an action against that facility to enjoin the take. See 16 U.S.C. § 1540(g).

1 a sufficient [technical assistance] process to insure that it is not likely to result in
2 an appreciable reduction in the likelihood of both the survival and recovery of
3 any listed species,” id. at 72 (emphasis added). The Services therefore did not
4 “avoid . . . consideration of recovery impacts,” Nat’l Wildlife Fed’n, 524 F.3d at
5 932, but rather concluded that such impacts, like survival impacts, should be
6 assessed on a site-specific basis—an approach that complies with the ESA.

7 Finally, the Environmental Petitioners maintain that even if the Services
8 can rely on a rule’s process-based protections rather than analyze its substantive
9 impacts, this Rule’s technical assistance process cannot support a no-jeopardy
10 finding because it is “wholly voluntary” and “not designed to provide
11 meaningful species protection,” as it fails to promote the use of closed-cycle
12 cooling. Env’tl. Br. 120–21. We reject this argument because, as explained, the
13 technical assistance process involves a binding commitment by the Services, and
14 the EPA acted reasonably in declining to mandate standards based on closed-
15 cycle cooling.

16 ii. The Incidental Take Statement

17 In their final challenge, the Environmental Petitioners contend that the
18 Services failed to comply with the provisions of the ESA that specify

requirements for ITSs. If a consulting Service concludes after formal consultation that the incidental take of listed species will not cause jeopardy, that Service “shall” provide the acting agency with an ITS that:

- (i) specifies the impact of such incidental taking on the species,
- (ii) specifies those reasonable and prudent measures that the [Service] considers necessary or appropriate to minimize such impact,
- (iii) in the case of marine mammals, specifies those measures that are necessary to comply with section 1371(a)(5) of [the Marine Mammal Protection Act] with regard to such taking, and
- (iv) sets forth the terms and conditions (including, but not limited to, reporting requirements) that must be complied with by the Federal agency . . . to implement the measures specified under clauses (ii) and (iii).

16 U.S.C. § 1536(b)(4). The Environmental Petitioners assert that the ITS issued by the Services here is deficient in all four respects.

The Services’ ITS fails to specify the impact of the take, the Environmental Petitioners argue, because it does not numerically quantify the Rule’s anticipated take. It is true that Congress preferred expressing take in numerical form, so as to establish a “trigger” for the re-initiation of consultation. See Endangered Species Act, H.R. Rep. No. 97-567, at 27 (1982); Ariz. Cattle Growers’ Ass’n v. FWS, 273 F.3d 1229, 1249 (9th Cir. 2001). But Congress also acknowledged that a “precise number” is not always available. H.R. Rep. No. 97-567, at 27; see Ariz.

1 Cattle Growers' Ass'n, 273 F.3d at 1249 ("We have never held that a numerical
2 limit is required."). Therefore, although an ITS that "contains no numerical cap
3 . . . normally violates the ESA," such an ITS is adequate if it "explain[s] why it
4 was impracticable to express a numerical measure of take." Ctr. for Bio.
5 Diversity v. U.S. Bureau of Land Mgmt., 698 F.3d 1101, 1126–27 (9th Cir. 2012)
6 (quotation marks omitted); see also Miccosukee Tribe, 566 F.3d at 1275. The ITS
7 here explains that the "paucity of information" about facilities with CWISs
8 prevented the Services from quantifying anticipated take at this juncture, and it
9 contemplates that the Services' field offices will quantify incidental take at
10 individual facilities as part of the technical assistance process. Bio. Op. 75–76.
11 Given the Services' commitment to the technical assistance process, their
12 justification for not immediately quantifying take is adequate.

13 The Environmental Petitioners next assert that the Services' ITS failed to
14 specify "reasonable and prudent measures" to minimize the impact of incidental
15 take on listed species, in contravention of 16 U.S.C. § 1536(b)(4)(ii), or to set forth
16 terms and conditions required to implement those measures, in contravention of
17 16 U.S.C. § 1536(b)(4)(iv) and 50 C.F.R. § 402.14(i)(1)(iv). But the ITS does
18 identify one reasonable and prudent measure, namely, that the "EPA will use its

1 authorities under the CWA to minimize impacts to listed species pursuant to the
2 [section] 316(b) Rule and [the] CWA.” Bio. Op. 76. The ITS also includes various
3 administrative conditions, like a detailed annual reporting requirement, and
4 several substantive implementing conditions. It specifies, for example, that the
5 EPA will ask Directors to reopen continued permits if the Services determine that
6 a facility’s CWIS operations may have more than minor detrimental effects on
7 listed species. These elements of the ITS are adequate. The ESA does not
8 mandate any particular form or content for reasonable and prudent measures,
9 requiring only that the Services identify measures that they “consider[] necessary
10 or appropriate” to minimize the impact of incidental take.¹⁶ 16 U.S.C.
11 § 1536(b)(4)(ii). And contrary to the Environmental Petitioners’ assertion, the
12 Services have not “delegate[d]” the task of determining reasonable and prudent
13 measures to the EPA. Env’tl. Br. 124. Rather, the Services specified as a
14 reasonable and prudent measure that the EPA must exercise its oversight
15 authority under the CWA in connection with the Rule’s technical assistance
16 process. Their reliance on the binding technical assistance process was a

¹⁶ The ESA’s implementing regulations, far from demanding an extensive list of reasonable and prudent measures or terms and conditions, specify only that these elements of the ITS “cannot alter the basic design, location, scope, duration, or timing of the [agency] action and may involve only minor changes.” 50 C.F.R. § 402.14(i)(2).

1 “meaningful . . . attempt to minimize incidental takings associated with the
 2 project.” Or. Nat. Res. Council v. Allen, 476 F.3d 1031, 1039 n.7 (9th Cir. 2007).

3 Finally, the Environmental Petitioners assert that the ITS fails to include
 4 measures necessary to comply with the Marine Mammal Protection Act
 5 (“MMPA”) and that the NMFS unlawfully failed to prescribe regulations under
 6 section 1371(a)(5) of the MMPA that set forth permissible methods of taking
 7 marine mammals due to the operation of CWISs.¹⁷ We are not persuaded,
 8 especially because the biological opinion contemplates that facilities whose
 9 CWISs may affect certain marine mammals or their critical habitat will be
 10 required to “[i]ninstall large organism excluder devices” and contact the NMFS “to
 11 determine whether [they] need to apply for a[n] [MMPA] permit.” Bio. Op.
 12 App’x D, at 1. The biological opinion thus outlines a procedure under which

¹⁷ Section 1371(a)(5)(A)(i) provides that the NMFS may authorize the incidental taking of small numbers of marine mammals if it:

(I) finds that the total of such taking . . . will have a negligible impact on such species or stock . . . ; and (II) prescribes regulations setting forth—
 (aa) permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat . . . ; and (bb) requirements pertaining to the monitoring and reporting of such taking.

16 U.S.C. § 1371(a)(5)(A)(i).

1 either no marine mammals are taken or, if necessary, the NMFS will authorize
2 take pursuant to the MMPA in the context of individual permit applications.

3 For these reasons, we reject the Environmental Petitioners' challenges to
4 the ITS under the ESA.

5 4. The Industry Petitioners

6 We now turn to the three petitions for review filed by the Industry
7 Petitioners—UWAG, API, and the CWIS Coalition.

8 A. UWAG

9 UWAG challenges on procedural and substantive grounds what it
10 describes as the “Service-driven” provisions of the Rule (including provisions
11 relating to the technical assistance process) that the EPA added after formal
12 consultation to minimize harm to listed species resulting from the operation of
13 CWISs.

14 i. Procedural Challenges

15 UWAG contends that the EPA violated the APA by failing to provide
16 adequate notice of and an opportunity to comment on the Rule's Service-driven
17 provisions, the EPA's biological evaluation, the Services' biological opinion, and
18 the underlying data that supported each. See 5 U.S.C. § 553(b), (c). But there is

1 no “independent right to public comment with regard to consultations
2 conducted under § 7(a)(2)” of the ESA. Nat’l Ass’n of Home Builders, 551 U.S. at
3 660 n.6. So no procedural infirmity arises in failing to provide notice of or an
4 opportunity to comment on the biological opinion or other determinations by the
5 Services. See id. (“Nothing in section 7 authorizes or requires the Service[s] to
6 provide for public involvement (other than that of the applicant) in the
7 ‘interagency’ consultation process.” (quoting 51 Fed. Reg. at 19,928)). Unless the
8 scientific material discussed in the biological opinion ultimately formed the
9 “basis” of the EPA’s rule, the public was not entitled to comment on it. See
10 United States v. Nova Scotia Food Prods. Corp., 568 F.2d 240, 252 (2d Cir. 1977).

11 As for the Rule itself, the EPA was required only to “fairly apprise
12 interested persons of the subjects and issues of [its] rulemaking.” Nat’l Black
13 Media Coal., 791 F.2d at 1022 (quotation marks omitted). “The final rule need
14 only be a logical outgrowth of the proposed rule, not an exact replica of it.”
15 Riverkeeper I, 358 F.3d at 202 (quotation marks omitted); see also Riverkeeper II,
16 475 F.3d at 116 (“An agency cannot pull a surprise switcheroo on interested
17 parties between a proposal and the issuance of a final rule.” (quotation marks
18 omitted)); Ne. Md. Waste Disposal, 358 F.3d at 951–52. Here, the proposed rule

1 addressed potential impacts on listed species. It would have required Directors
2 to identify the benefits of available technologies to threatened and endangered
3 species, 76 Fed. Reg. at 22,288, and NPDES permit applicants to submit
4 information on all threatened and endangered species susceptible to
5 impingement and entrainment at their CWISs, id. at 22,276. The proposed rule
6 also contemplated input from the Services by allowing Directors to confer with
7 both the EPA and the Services when issuing permit applications. See id. at
8 22,205, 22,210, 22,278. Because these provisions “fairly apprise[d] interested
9 persons” that the “subjects and issues of the rulemaking” included compliance
10 with the ESA and also fairly apprised them of the Services’ role in achieving that
11 compliance, Nat’l Black Media Coal., 791 F.2d at 1022 (quotation marks omitted),
12 we reject UWAG’s APA-based challenge to the Service-driven provisions.

13 ii. Substantive Challenges

14 a. The Service-Driven Requirements

15 UWAG broadly contends that the Service-driven requirements of the Final
16 Rule are neither authorized by nor consistent with section 316(b) of the CWA.¹⁸

¹⁸ As stated above, section 316(b) mandates that any standard established pursuant to section 301 or 306 “shall” require that the “location, design, construction, and capacity”

1 It goes so far as to say that the EPA had no authority to create a role for the
 2 Services, even in advising the EPA and Directors on site-specific environmental
 3 impacts. Although that broad claim has no basis in the statutory language or, for
 4 that matter, our caselaw, see Fund for Animals v. Kempthorne, 538 F.3d 124, 133
 5 (2d Cir. 2008), we address UWAG's more pointed assertion that the EPA
 6 unlawfully delegated its authority to the Services.

7 An agency impermissibly delegates its authority where, without statutory
 8 authorization, "it shifts to another party almost the entire determination of
 9 whether a specific statutory requirement . . . has been satisfied, or where [it]
 10 abdicates its final reviewing authority." Id. at 133 (quotation marks omitted).

of CWISs "reflect the best technology available for minimizing adverse environmental impact." 33 U.S.C. § 1326(b). Relying on Riverkeeper I, UWAG argues that an agency acting pursuant to section 316(b) may require measures related only to the "location, design, construction, [or] capacity" of CWISs, but 40 C.F.R. § 125.98(b)(2) allows Directors to require facilities to implement "additional control measures" unrelated to these four parameters. This provision, though, is more limited than the "restoration" provisions we remanded in Riverkeeper I. See 358 F.3d at 189–91. If a Director at a given site includes in a permit control measures that "have nothing to do with" section 316(b)'s parameters, id. at 189, the EPA may still veto the permit, see 40 C.F.R. § 123.44(c). If the EPA fails to veto the permit, the affected parties can bring a particularized, as-applied challenge. We therefore agree with the EPA that UWAG's challenge is unripe. See EPA v. EME Homer City Generation, L.P., 134 S. Ct. 1584, 1609 (2014); Ohio Forestry Ass'n v. Sierra Club, 523 U.S. 726, 732–33 (1998) (ripeness requirement is intended to "protect the agencies from judicial interference until an administrative decision has been formalized and its effects felt in a concrete way by the challenging parties" (quotation marks omitted)).

1 “Agencies may seek advice and policy recommendations from outside parties,
2 but they may not rubber-stamp decisions made by others under the guise of
3 seeking their advice.” Id. (quotation marks omitted). Because section 402 of the
4 CWA, which authorizes the EPA to delegate responsibility for administering the
5 NPDES program to the States (with the EPA retaining veto authority), does not
6 authorize delegation to the Services, UWAG objects to the provisions of the Rule
7 “requir[ing] States to coordinate or consult with the Services” and giving the
8 Services “a special opportunity to provide ‘technical assistance.’” UWAG Br. 38.
9 It also objects to an interpretation of the Rule that allows the EPA to veto a draft
10 permit “based on recommendations or determinations made by the Services.”
11 UWAG Br. 39. These objections lack merit for two reasons.

12 First, the Rule does not require Directors to accept the Services’
13 recommendations and clearly vests the authority to establish permit
14 requirements in Directors, not the Services.¹⁹ See 40 C.F.R. § 125.94(g) (“[C]ontrol
15 measures, monitoring requirements, and reporting requirements [established by
16 the Director] may include measures or requirements identified by [the Services].”

¹⁹ UWAG’s delegation challenge is therefore weaker than the one we rejected in Fund for Animals, where the FWS issued an order under the Migratory Bird Treaty Act that transferred final permitting authority to other agencies. 538 F.3d at 130, 132–33.

(emphasis added)); see also id. §§ 125.96(g), 125.98(b), 125.98(f). Second, the EPA has hardly “abdicate[d] its final reviewing authority” by providing for the Services’ input. Fund for Animals, 538 F.3d at 133 (quotation marks omitted); see U.S. Telecom Ass’n v. FCC, 359 F.3d 554, 568 (D.C. Cir. 2004). To the contrary, nothing in the Rule itself suggests that the EPA will “rubber-stamp” the Services’ conclusions. See 79 Fed. Reg. at 48,382–83 (EPA has “discretionary” oversight authority). Rather, the Rule contemplates that the EPA will independently determine, with the benefit of the Services’ expertise, whether the terms of a permit comply with section 316(b) of the CWA. Such a scheme reflects the cooperative arrangement specified by Congress in the ESA and by the agencies in their MOA, not unlawful delegation.

b. The Biological Opinion

UWAG also challenges the Services’ biological opinion. Again, we are not persuaded.

UWAG asserts that the biological opinion is unlawful because the Services should have concurred in the EPA’s initial determination that the proposed rule was unlikely to adversely affect listed species. This is especially true, UWAG claims, where the EPA, in its biological evaluation, initially defined its action as

1 one that merely sets standards rather than authorizes any new activities. Under
2 these circumstances, UWAG asserts, the Services could not conduct formal
3 consultation.

4 We conclude that the agencies acted appropriately in conducting formal
5 consultation. The ESA requires the Services to independently evaluate the
6 effects of agency action on a species or critical habitat. See 16 U.S.C.
7 § 1536(b)(3)(A); Conservation Cong. v. U.S. Forest Serv., 720 F.3d 1048, 1051 (9th
8 Cir. 2013). The Services' Consultation Handbook explains that the Services will
9 find that an agency action is "not likely to adversely affect" a species or habitat
10 "only if ALL of the reasonably expected effects of the proposed action will be
11 beneficial, insignificant, or discountable." Consultation Handbook at 4-1. In
12 this case, the Services' finding that this standard was not satisfied was
13 reasonable because the EPA acknowledged that listed species would continue to
14 be affected after implementation of the proposed rule and because the nature of
15 the proposed rule's impact on listed species remained unclear. See id. at 3-13
16 ("[I]f there is not enough information to adequately determine the nature of the
17 effects, a letter of nonconcurrence is provided to the action agency.").

1 Nor do we agree that the Services, having proceeded with formal
2 consultation, should have issued a no-jeopardy finding without including the
3 Service-driven provisions just because the proposed rule would have produced
4 a net reduction in species mortality even absent those provisions. The ESA's
5 implementing regulations provide a structure for issuing jeopardy findings. To
6 determine whether a proposed action is "likely to jeopardize" listed species or
7 adversely modify critical habitat, 50 C.F.R. § 402.14(g)(4), the Services are
8 required to evaluate the "[e]ffects of the action," meaning "the direct and
9 indirect effects of an action on the species or critical habitat, together with the
10 effects of other activities that are interrelated or interdependent with that action,
11 that will be added to the environmental baseline," id. § 402.02. The
12 "environmental baseline" includes, as relevant here, "the past and present
13 impacts of all Federal, State, or private actions and other human activities in the
14 action area." Id. § 402.02; see also Consultation Handbook at 4-22 ("The
15 environmental baseline is a 'snapshot' of a species' health at a specified point in
16 time. It does not include the effects of the action under review in the
17 consultation."). "Indirect effects," which are not included in the baseline, "are
18 those that are caused by the proposed action and are later in time, but still are

1 reasonably certain to occur.” 50 C.F.R. § 402.02. Where the future operation of a
2 regulated facility depends on the discretion of the acting agency, the continued
3 operation of that facility is not a “past” or “present” impact of previous federal
4 action. See Nat’l Wildlife Fed’n, 524 F.3d at 930–31; In re Operation of the Mo.
5 River Sys. Litig., 421 F.3d 618, 632–33 (8th Cir. 2005).

6 The Services here concluded that because “the operation of [CWISs] is
7 within [the] EPA’s discretion” under section 316(b)—i.e., the discretion to set
8 BTA standards that affect how CWISs operate and whether they will jeopardize
9 listed species—the continued operation of CWISs under the Rule is not “a past
10 impact of Federal action” (such that it would be included in the environmental
11 baseline), but rather an indirect effect of the Rule. Bio. Op. 28. We defer to the
12 Services’ reasonable interpretation that the effects of future CWIS operations on
13 listed species are properly considered indirect effects of the Rule. See Forest
14 Watch v. U.S. Forest Serv., 410 F.3d 115, 117–18 (2d Cir. 2005). And the Services
15 were not cornered into making a no-jeopardy finding just because the proposed
16 rule was expected to reduce entrainment and impingement mortality.

17 Consistent with the ESA’s goal of “conserv[ing] endangered species and
18 threatened species,” 16 U.S.C. § 1531(c)(1), the relevant inquiry is whether the

action causes jeopardy or adverse modification, period—not whether it provides “incremental improvements” that make conditions “slightly less harmful” to a species but still reduce the likelihood of survival and recovery for that species, Aluminum Co. of Am. v. Adm’r, Bonneville Power Admin., 175 F.3d 1156, 1162 n.6 (9th Cir. 1999).

B. American Petroleum Institute

As we explained above, the Final Rule requires that “new units” at existing power plants and manufacturing facilities be designed to withdraw an amount of water commensurate with that withdrawn by a closed-cycle cooling system or otherwise provide the same protection from adverse environmental impacts. 40 C.F.R. § 125.94(e). Focusing on how the Rule applies to manufacturing facilities, API argues that the proposed rule did not provide adequate notice of the meaning of “new unit” and that the EPA’s estimate of compliance costs for manufacturing facilities that install “new units” improperly relied on limited and outdated data. We reject both arguments.

i. Notice of “New Unit” Definition

As already noted, the Final Rule need only be a “logical outgrowth” of the proposed rule. Riverkeeper II, 475 F.3d at 113 (quotation marks omitted). In its

1 proposed rule, the EPA defined “new unit” (which the preamble likened to “new
2 stand-alone facilities”) as “any addition of an operating unit at an existing
3 facility” after the Rule’s effective date, including “newly built units added to
4 increase capacity at the facility.” 76 Fed. Reg. at 22,196, 22,282. During the
5 comment period, API commented on this proposed definition, arguing that it
6 was unclear and that, insofar as it referred to “increase[d] capacity,” it applied
7 only to power plants, not manufacturing facilities. In the Final Rule, the EPA
8 removed the “increase[d] capacity” language and defined “new unit” as a new
9 “stand-alone” unit. See 40 C.F.R. § 125.92(u); see also 79 Fed. Reg. at 48,311,
10 48,353. API thus had, and took advantage of, the opportunity to comment on the
11 definition of “new unit,” and also had “fair notice” of the change the EPA
12 eventually adopted in response. Long Island Care at Home, Ltd. v. Coke, 551
13 U.S. 158, 174–75 (2007). The EPA therefore complied with the APA’s notice-and-
14 comment requirements in defining “new unit.”

15 ii. Estimate of Compliance Costs

16 We turn, then, to the EPA’s estimate of compliance costs. To analyze
17 compliance costs, the EPA collected data from site visits (including visits to eight
18 manufacturing facilities), reviewed industry comments, and considered

1 industry-specific studies involving manufacturing facilities. The EPA
2 acknowledges that it collected more extensive data from power plants than from
3 manufacturing facilities. But in urging that the data on manufacturing facilities
4 is unduly limited, API fails to explain why data on intake structures used at
5 power plants would not apply equally to those used at manufacturing facilities.
6 Nor is the EPA's greater focus on power plants arbitrary and capricious, as
7 manufacturing facilities have more options to reuse cooling water and therefore
8 will, on average, incur lower compliance costs than power plants.

9 We also reject API's assertion that the EPA relied excessively on
10 "outdated" data. Although the EPA relied in part on surveys conducted during
11 the Phase II rulemaking in the early 2000s, see 67 Fed. Reg. 17,122, 17,134 (Apr. 9,
12 2002), the EPA sought to improve accuracy by collecting additional information
13 and adjusting costs for inflation. Based on this information, the EPA determined
14 that most manufacturing facilities would comply with the Rule's "new unit"
15 standards by reusing cooling water for manufacturing processes (now reported
16 to be an industry standard practice). The EPA thus "examine[d] the relevant
17 data" and articulated "a rational connection" between that data and its
18 conclusion that manufacturing facilities would not incur meaningful additional

costs in implementing the Rule’s requirements for new units. State Farm, 463 U.S. at 43 (quotation marks omitted); see also Forest Watch, 410 F.3d at 118–19.

C. CWIS Coalition

The CWIS Coalition brings two additional challenges to the Final Rule, both of which rest on misinterpretations of the Rule.

i. Permit Application Requirements for “Below-Threshold” Facilities

The parties agree that the Final Rule, at least as described in its preamble, sets standards only for facilities that withdraw more than 2 mgd and use 25 percent or more of that water exclusively for cooling purposes. 79 Fed. Reg. at 48,304–05, 48,361. But the Coalition argues that the Rule’s permit application requirements at 40 C.F.R. § 122.21(r)(1)(ii)(A) apply more broadly to “[a]ll existing facilities” as defined at 40 C.F.R. § 125.92(k), which does not contain any thresholds. Therefore, the Coalition asserts, the Rule arbitrarily subjects even “below-threshold” facilities to burdensome permit application requirements.

The Coalition reads the permit application requirements out of context. The Rule’s permit application requirements “apply to [CWISs] at existing facilities that are subject to this subpart,” which incorporates the 2 mgd and 25 percent thresholds. 40 C.F.R. § 125.90(a). Although section 122.21(r)(1)(ii)(A)

might appear to apply to below-threshold facilities, other subparts of section 122.21(r) confirm that it does not. Section 122.21(r)(1)(ii)(E), for example, states that if a new unit at an existing facility increases the capacity of that facility to more than 2 mgd, then that facility must submit permit application information even if it was “not previously subject to” the Rule’s requirements. This provision would be incongruous if below-threshold facilities were already required to meet the permit application requirements. And even if the Rule were ambiguous with respect to the applicability of its permit application requirements, the Coalition has not shown that the EPA’s interpretation of its own regulations in this case is “plainly erroneous or inconsistent with the regulation.” Chase Bank USA, N.A. v. McCoy, 562 U.S. 195, 208 (2011) (quotation marks omitted). We therefore defer to that interpretation and decline to vacate 40 C.F.R. § 122.21(r)(1)(ii)(A).

ii. BTA Requirements for Individual Structures

The Coalition also contends that the EPA exceeded its authority under section 316(b) by imposing BTA requirements on individual intake structures that withdraw no water for cooling purposes. But the Rule defines a “cooling water intake structure” as the “total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the

United States.” 40 C.F.R. § 125.92(f) (emphasis added). If a structure withdraws water only for process purposes, it is not a “cooling water intake structure” and therefore not subject to the Rule’s requirements. To the extent the Coalition argues that the EPA may not regulate CWISs that use only a “small portion of the water withdrawn” for cooling purposes, Coal. Br. 19, this argument lacks any basis in the CWA. Section 316(b) directs the EPA to promulgate regulatory standards for “cooling water intake structures” without defining the term or setting any particular threshold for water withdrawal. 33 U.S.C. § 1326(b). Again, we defer to the EPA’s reasonable determination that an intake structure that withdraws some amount of cooling water is a “cooling water intake structure.” See Chevron, 467 U.S. at 843; see also Riverkeeper I, 358 F.3d at 203.

CONCLUSION

To summarize, we hold that: (1) the EPA acted reasonably and within its statutory authority in establishing BTA standards to minimize aquatic mortality resulting from both entrainment and impingement; (2) the EPA adequately explained why it defined “new units” at existing facilities as new stand-alone structures; (3) the Services’ biological opinion is consistent with the ESA and its implementing regulations, and their no-jeopardy finding is supported by the

1 administrative record; (4) the Services' ITS is consistent with the ESA; (5) the
2 EPA provided adequate notice of the Rule's "Service-driven" provisions; (6) the
3 EPA acted within, and did not unlawfully delegate, its statutory authority by
4 including provisions in the Rule that allow the Services to advise the EPA and
5 Directors on the site-specific impacts of CWISs; (7) the EPA and the Services did
6 not violate the ESA by engaging in formal consultation on the proposed rule;
7 (8) the Services were not compelled to find that the proposed rule (without the
8 technical assistance process) would avoid jeopardy just because the proposed
9 rule was expected to reduce impingement and entrainment; (9) the Services
10 complied with their own implementing regulations by treating the continued
11 operation of CWISs as an "indirect effect" of the Rule rather than as part of the
12 environmental baseline; (10) the EPA provided adequate notice of the Rule's
13 definition of "new unit"; (11) the EPA reasonably estimated the cost of
14 complying with the Rule's standards for "new units"; (12) the EPA reasonably
15 interpreted the Rule as not imposing new permit application requirements on
16 "below-threshold" facilities (namely, those that do not withdraw more than 2
17 mgd and use 25 percent or more of that water exclusively for cooling purposes);
18 and (13) the EPA reasonably determined that section 316(b) of the CWA

1 authorizes it to regulate all CWISs, including those that use only a small portion
2 of the water withdrawn for cooling purposes.

3 We have considered the Petitioners' remaining arguments and conclude
4 that they are without merit. For the foregoing reasons, we **DENY** the petitions
5 for review.

APPENDIX

Glossary of Abbreviations

APA Administrative Procedure Act

API American Petroleum Institute

BTA Best Technology Available

CWA Clean Water Act

CWIS Cooling Water Intake Structure

EPA Environmental Protection Agency

ESA Endangered Species Act

FWS Fish and Wildlife Service

ITS Incidental Take Statement

MMPA Marine Mammal Protection Act

MOA Memorandum of Agreement

NMFS National Marine Fisheries Service

NPDES National Pollutant Discharge Elimination System

UWAG Utility Water Act Group