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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ARIZONA

GRAND CANYON TRUST, Plaintiff, vs. U.S. BUREAU OF RECLAMATION, and ROBERT W. JOHNSON, Commissioner U.S. Bureau of Reclamation, Defendants.	Case No. 07-cv-8164-DGC **LODGED: PROPOSED** MEMORANDUM IN SUPPORT OF PLAINTIFF'S MOTION FOR SUMMARY JUDGMENT **ATTACHED**

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INTRODUCTION

The endangered humpback chub has survived in the lower basin of the Colorado River and the Grand Canyon for three-to-five million years. It evolved over time to the specific environmental and habitat conditions found in the River's deep river canyons. Yet, in just the last 45 years, Glen Canyon Dam and its operation have caused the chub to become threatened with extinction on the lower Colorado River. In fact, the U.S. Fish and Wildlife Service (FWS) concluded in a Biological Opinion that Defendants U.S Bureau of Reclamation and Commissioner Robert Johnson's (collectively "Reclamation") operations of the Dam are jeopardizing the chub and adversely modifying its critical habitat in violation of the Endangered Species Act (ESA) because, among other things, the chub cannot spawn or rear and feed their young in the Colorado River. Reclamation could operate the Dam in a manner that complies with the law and limits the adverse impacts to the chub and its critical habitat. However, Reclamation refuses to comply with the ESA and the National Environmental Policy Act (NEPA) and operate the Dam to ensure the chub's survival and recovery.

Through this Motion, Plaintiff Grand Canyon Trust moves for summary judgment on the liability phase of its five Claims for Relief.[1] Plaintiff's first three claims stem from Reclamation's failure to adhere to the requirements of FWS's Biological Opinion and the resulting violations of the ESA. ESA Section 7(a)(2) mandates that Reclamation's Glen Canyon Dam operations neither jeopardize the endangered humpback chub in the Colorado River nor destroy or adversely modify the chub's designated critical habitat in the Grand Canyon. 16 U.S.C. § 1536(a)(2). In its Biological Opinion, FWS determined that Reclamation's existing Dam operations, which involve water releases under a "Modified Low Fluctuating Flow" regime, violate these ESA section 7(a)(2) prohibitions. Moreover, Reclamation has not implemented the seven-month water release program called "Seasonally-Adjusted Steady Flows," as FWS required in the Biological Opinion. The

[1] As appropriate, Plaintiff will pursue remedies after the Court rules on the present Motion.

result: Reclamation's operations are adversely impacting river flows, sediment loads, and temperatures, which, in turn, harm the chub and degrade its habitat by eliminating seasonal flows, destroying shoreline habitats, and preventing river warming. Not only is Reclamation violating these ESA section 7(a)(2) requirements, but the agency's failure to comply with the Biological Opinion also means it is violating ESA section 9's prohibition against actions that "take" the endangered humpback chub.

Plaintiff's last two claims address Reclamation's failure to follow mandatory procedures in preparing Annual Operating Plans for Glen Canyon Dam. ESA section 7(a)(2) requires Reclamation to consult with FWS on all agency actions, including Annual Operating Plans, impacting endangered species. 16 U.S.C. § 1536(a)(2). NEPA requires Reclamation to evaluate and disclose to the public the environmental impacts of its Annual Operating Plans. 42 U.S.C.§ 4332(C). Reclamation has ignored both environmental review processes prior to issuing its Annual Operating Plans despite impacts to the chub, its habitat and other Grand Canyon resources.

STATUTORY BACKGROUND

I. ENDANGERED SPECIES ACT

Before the ESA operates for the benefit of an imperiled species, FWS must list them as "threatened" or "endangered," within the meaning of the ESA, and concurrently designate their critical habitat. 16 U.S.C. § 1533. Once listed, the ESA provides several procedural and substantive protections for imperiled species and their habitat. These include: (1) the section 7 duty on federal agencies to "consult" with FWS before undertaking any action that may affect a listed species or critical habitat, Id. § 1536(a)(2); (2) the section 7 prohibition against federal activities that jeopardize the continued existence of listed species, id; (3) the section 7 prohibition against federal activities that adversely modify or destroy critical habitat, id; and (4) the section 9 prohibition against "taking" individual members of a listed species which applies comprehensively to all "persons." Id. § 1538(a)(1)(B).

Under section 7(a)(2) of the ESA, a federal agency cannot undertake any action that is "likely to jeopardize the continued existence" of any listed species or "result in the destruction or adverse modification of" critical habitat. 16 U.S.C. § 1536(a)(2). To ensure compliance with these prohibitions, the "action agency" must consult with the FWS upon proposing to authorize, fund, or carry out an action that may affect a species or its critical habitat. Id. At the conclusion of the consultation process, FWS provides the action agency with a "biological opinion" as to whether jeopardy or adverse modification is likely to occur due to the action and, if so, sets forth the "reasonable and prudent alternatives" that could avoid such ESA violations. Id. § 1536(b)(3)(A). FWS must use the best scientific and commercial data available in assessing the proposed action under these standards and drafting a biological opinion. Id. § 1536(a)(2). The agencies must reinitiate consultation when (1) the action changes in a manner that was not considered by the FWS during the initial consultation, (2) the amount or extent of "take" is higher than expected, (3) the manner or extent of the action's effects were not previously considered, or (4) if a new species is listed or critical habitat designated that may be affected by the identified action. 50 C.F.R. § 402.16.

Section 9(a)(1) of the ESA makes it unlawful for anyone to "take" a threatened or endangered species of fish or wildlife. 16 U.S.C. § 1538(a)(1)(B) & (G); 50 C.F.R. § 17.31(a). Congress broadly defined "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect." 16 U.S.C. § 1532(19). The term "harm" is further defined to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." 50 C.F.R. § 17.3.

Congress created two "incidental take" exceptions to section 9's take prohibition. In addition to ESA section 10 incidental "take permits," which do not cover federal agencies, Congress also created incidental "take statements" for federal agencies. 16 U.S.C. § 1536(o)(2). As part of the section 7 consultation process, FWS provides a "take statement" to an action agency, but only after finding the agency's action does not result in jeopardy or

adverse modification or, alternatively, offering a reasonable and prudent alternative that avoids jeopardy and adverse modification. Id. § 1536(b)(4)(A).

II. NATIONAL ENVIRONMENTAL POLICY ACT

Congress enacted NEPA to "promote efforts which will prevent or eliminate damage to the environment." 42 U.S.C.§ 4321. Thus, NEPA requires federal agencies to analyze the environmental impacts of a particular action. In addition, agencies must notify the public of its actions and allow for public comment on their environmental impacts. Agencies must comply with NEPA prior to initiating an action so that the environmental impacts can be considered and disclosed to the public during the decision-making process. 40 C.F.R. §§ 1501.2, 1502.5.

The cornerstone of NEPA is the environmental impact statement ("EIS") that must be prepared for all "major federal actions significantly affecting the quality of the human environment." 42 U.S.C.§ 4332(C). Federal agencies may first prepare an environmental assessment ("EA") to determine whether a project's environmental impacts are significant. Id. § 1508.9. If the EA concludes that a project "may" have a significant impact on the environment, then an EIS must be prepared. If not, the federal agency must provide a detailed statement of reasons why the project's impacts are insignificant and issue a finding of no significant impacts ("FONSI"). Id. 1508.13.

In either an EIS or EA, federal agencies must broadly evaluate and disclose the environmental impacts of their actions. Federal agencies must not only review the direct impacts of their actions, but also analyze indirect and cumulative impacts. Indirect effects are those "caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b). Cumulative impacts include impacts of "other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. NEPA regulations also provide that significant impacts are likely present when wetlands, National Parks, or endangered and threatened species or their critical habitat will be impacted or when the project violates law or is controversial. 40 C.F.R. § 1508.27(b).

FACTUAL BACKGROUND

I. HUMPBACK CHUB AND ITS RIVER HABITAT

The humpback chub is a three-to-five million-year-old fish native only to the Colorado River Basin. Exh. 9 (2002 Recovery Goals) at A-1. The chub gets its name from the dorsal hump that develops behind its head as it matures. With its "prominent hump," chub can survive in fast moving water; the hump "cause[s] the fish to be pushed to the bottom [of the river] where water velocities are lower and less energy is required to hold [its] position." Exh. 2 (1990 Recovery Plan) at 2.

The humpback chub evolved in a unique desert river environment. Chub live in river canyons, characterized by both fast-moving waters with rapids, and sheltered shoreline areas. Exh. 9 (2002 Recovery Goals) at A-4. High spring run-off builds sandbars and eddies that support shoreline habitats, maintains channel and habitat diversity, flushes sediments from spawning areas, rejuvenates food production, and forms the gravel and cobble deposits used for spawning. Id. at viii. High springtime flows also signal the spawning season for the chub. Exh. 3 (1994 BO) at 10. Low flows during the summer and fall distribute sediments and allow them to settle and form shoreline habitats. Exh. 11 (SCORE) at 18, 19, 26. Shoreline habitats with low flow velocities and warm water are extremely important because they act as nurseries for young chub. Exh. 3 (1994 BO) at 11, 23, 27. Sufficient sediment in the river system is necessary to build beaches and create shoreline habitats. Exh. 11 (SCORE) at 19, 26.

Historically, the chub's habitat range extended throughout the Colorado River Basin, from the Flaming Gorge on the Green River in Wyoming to below the Grand Canyon on the Colorado River in Arizona. Exh. 9 (2002 Recovery Goals) at A-1 - A-3. The chub's current range, however, represents a fraction of that and is limited to approximately six isolated populations, including one in the Grand Canyon below the Glen Canyon Dam. Id. at 10, 20. The primary cause of this reduced range is dam construction and operations. Id.

at 19 (FWS finding "[s]treamflow regulation and associated habitat modification" are "primary threats to humpback chub populations.").[2]

As a result, the chub was first recognized as imperiled in 1967 (32 Fed. Reg. 4001) and is now protected as an endangered species under the ESA. 38 Fed. Reg. 106 (June 4, 1973). As a mandatory requirement under ESA section 4(f), FWS prepared a Recovery Plan for the chub on August 22, 1979, which has been revised twice -- in 1984 and 1990. FWS drafted Recovery Goals in 2002. Exh. 9.[3]

In 1994, FWS designated the chub's critical habitat. 59 Fed. Reg. 13374 (March 21, 1994). By definition, designated areas are "essential to the conservation," or recovery, of the chub. 16 U.S.C. § 1532(5); id. § 1532(3) (defining "conservation"). Chub critical habitat includes the lower Colorado River: portions of the Colorado River within Grand Canyon National Park, from Nautiloid Canyon west to Granite Park, and eight miles of the Little Colorado River upstream from its confluence with the Colorado River. 58 Fed. Reg. at 13398. This portion represents 48% of the total amount of all chub critical habitat. Exh. 13 (2007 BO) at 19.

II. RECLAMATION'S OPERATIONS OF GLEN CANYON DAM

Construction of Glen Canyon Dam caused several adverse impacts to the humpback chub.[4] Sediment and the movement of sand within the Colorado River system ensure the formation of shoreline habitats the chub needs for spawning, rearing and feeding. The Dam's presence blocks the transportation of upstream sediments and, consequently, has eliminated up to 99% of the sediment load in the Grand Canyon. Exh. 9 (2002 Recovery Goals) at 20; Exh. 13 (2007 BO) at 20 (noting "more than 95 percent of sediment input is

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[2] Although nonnative fish introductions by federal and state agencies have slowed considerably in recent years (Exh. 3 (1994 BO)), existing introduced fish, such as brown trout, rainbow trout, and channel catfish, still compete with and prey on humpback chub and are also a threat to the chub.

[3] Although the Goals themselves are currently being revised, as FWS admits, that document "provides a complete discussion of the taxonomy, distribution and life history of the species." Exh. 13 (2007 BO) at 15.

[4] Congress authorized the construction of Glen Canyon Dam through the 1956 Colorado River Storage Act, which states that the Dam's primary purpose is to store and conserve water for use by the Upper Colorado River Basin states. 43 U.S.C. § 620. A secondary function of the Dam is to generate hydropower. Id.

now trapped behind the dam"). Absent the upstream sediment load, the lower Colorado River depends on tributary sand inputs to provide the shoreline sanctuaries for young chub. Exh. 11 (SCORE) at 18; Exh. 3 (1994 BO) at 22.[5]

Reclamation's operation of Glen Canyon Dam -- specifically, how water is released -- is adversely impacting critical habitat for the humpback chub in the Colorado River. Operations affect river flows, shoreline habitats, and temperatures. Exh. 3 (1994 BO) at 21-24; 26-31. Before Glen Canyon Dam was built, Colorado River "[f]low[s] varied greatly between seasons, from peak flood flows in May or June . . . to low flows in January." Exh. 13 (2007 BO) at 20. At the same time, the "daily variation in [flows] was relatively small." Id. Further, river temperatures were warm before the Dam. Id.

Today, Dam operations are disrupting the timing and volume of seasonal river flows, destroying shoreline habitats, and keeping water temperatures cold. They provide "a more stable environment in all ways except for daily variation in discharge." Exh. 13 (2007 BO) at 20. Rather than seasonal flows, Reclamation's operations have "reduced the magnitude of spring peak flows and increased the magnitude of summer-winter base flows." Exh. 9 (2002 Recovery Goals) at 19 ("Spring peak flows have been reduced by about 80% and summer-winter base flows have been increased by about 30%."). Daily fluctuating flows, which maximize revenues associated with the demand for "peaking" power, cause river flows to vary greatly during the day. Exh. 13 (2007 BO) at 20 ("to maximize the value of hydropower generation, releases from Glen Canyon Dam are typically lowest in the morning and peak in the early evening."). Specifically, the "daily change in discharge (8,580 cfs [cubic-feet per second]) is now approximately 15 times greater than pre-dam (542 cfs)," which causes dramatic rises in the river of up to over six feet a day. Id. (emphasis added).

[5] The Dam's presence has also fragmented habitat in the Colorado River system and isolated remaining chub populations, which prevents chub movement between populations and the exchange of genetic material that could allow the species to adapt to a changing environment. 59 Fed. Reg. at 13374.

III. ADMINISTRATIVE AND STATUTORY RESPONSES TO RECLAMATION'S DAM OPERATIONS

A. FWS's 1978 Biological Opinion

Between 1963 and 1991, Reclamation operated the Dam under an extremely high fluctuating flow regime to promote hydropower revenues. In 1978, FWS reviewed these operations and prepared an ESA section 7(a)(2) biological opinion, concluding Dam operations "jeopardize" the humpback chub. According to FWS, "[p]ast, present and proposed future operations of Glen Canyon Dam . . . [are] jeopardizing the continued existence of the species by limiting its distribution and population size." Exh. 1 (1978 BO) at 5. FWS based its conclusion on "abnormal water conditions that result from the operation of Glen Canyon Dam." Id. at 2. These conditions altered the natural fluctuations of the river's levels and introduced cold water. Id. at 2-3.[6] Reclamation did not modify operations as a result of FWS's findings and biological opinion.

B. Grand Canyon Protection Act of 1992

Dissatisfied with degraded conditions that were manifested by, among other things, the loss of four of eight fish native to the Grand Canyon, Congress enacted the Grand Canyon Protection Act of 1992 (GCPA). Congress intended that this new legislation would compel Reclamation to change its Glen Canyon Dam operations in a manner that protects downstream natural resources. GCPA requires Reclamation to:

> exercise other authorities under existing laws in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established, including, but not limited to natural and cultural values and visitor use.

GCPA, Public Law No. 102-575, § 1802(a). The primary purpose of the Grand Canyon Protection Act "is to take immediate and lasting steps to protect the resources of the Grand Canyon." H.R. Rep. No. 102-114 Part 1, at 85-86 (1991); S. Rep. No. 102-267 at 135 (1992) ("The primary purpose of this title is to authorize changes in the operation of Glen

[6] In 1978, FWS had not yet designated critical habitat for the chub. As a result, FWS did not determine whether Dam operations adversely modify chub critical habitat in the 1978 Biological Opinion.

Canyon Dam to prevent damage to downstream resources, principally the dam's power operations.").

To facilitate achieving the Grand Canyon Protection Act's mandate, Reclamation was required to prepare a NEPA environmental impact statement on Dam operations, wherein the agency would assess impacts from current Dam operations as well as alternative operations that protect Grand Canyon resources. GCPA § 1804(a). Reclamation completed a Final Environmental Impact Statement for Dam operations in 1995 (1995 FEIS). Exh. 4 (1995 FEIS). In its subsequent 1996 Record of Decision (1996 ROD), Reclamation responded to the Grand Canyon Protection Act by modifying its streamflow regulation at Glen Canyon Dam to "Modified Low Fluctuating Flows" (MLFF). Exh. 5 (1996 ROD) at G-3; id. at G-11 (Reclamation stating its goal was to "permit recovery and long-term sustainability of downstream resources"). MLFF operations, however, still involve dam releases that fluctuate up to 8,000 cfs per day. Exh. 11 (2005 SCORE) at 7; Exh 5 (1996 ROD) at G-3. MLFF also involves seasonal flows that are the opposite of natural Colorado River flows -- lower flows in the spring and higher in late summer. Finally, Reclamation's 1996 ROD included "beach habitat building flows" or BHBF, which are specially-scheduled high water releases of short duration designed to rebuild beaches and restore shoreline habitat. Exh. 5 (1996 ROD) at G-3.[7]

In addition to mandating a NEPA process to address long-term operations, the Grand Canyon Protection Act requires Reclamation to prepare annual operating plans (AOPs) that establish how the Dam will be operated during the upcoming year. GCPA §

[7] Beach habitat building flows release up to 45,000 cfs from Glen Canyon Dam compared to flows between 5,000 and 25,000 cfs under Modified Low Fluctuating Flows. These releases do not contribute to the generation of hydropower as they occur away from the Dam's turbines. Perhaps for this reason, Reclamation has only undertaken beach habitat building flows twice since the 1996 ROD -- in Spring 1996 and Fall 2004. Recently, immediately after Plaintiff filed this lawsuit, Reclamation announced its intent to conduct another beach habitat building flow in March 2008. Exh. 15 (2007 Biological Assessment). The benefits of beach habitat building flows are limited by operating Glen Canyon Dam with daily fluctuating and high summer flows. Id. at 63 ("newly created habitats [by building flows in 1996] disappeared within two weeks"); Exh. 18 (2008 EA) at 5 ("sandbars and backwaters reverted to their previous [degraded] state"); Exh. 11 (2005 SCORE) at 19.

1804(c)(1)(A).[8] Previously, Reclamation operated Glen Canyon Dam in accordance with the Colorado River Basin Project Act of 1968 (1968 Act), which establishes the amount of water to be stored in the Colorado River reservoirs. The 1968 Act mandated the preparation of AOPs for all Colorado River dams administered by Reclamation, including Glen Canyon Dam. 43 U.S.C. § 1552(b). However, the Grand Canyon Protection Act requires AOPs that are "separate and in addition to" the AOPs required for all Colorado River dams under the 1968 Act. GCPA § 1804(c)(1)(A). Based on projections for the upcoming year and other relevant factors, Glen Canyon Dam AOPs determine how water is to be released each month.

C. FWS's 1994 Biological Opinion And The Seasonally-Adjusted Steady Flow Requirement

1. The Jeopardy And Adverse Modification Finding

As part of the decision-making process spawned by the Grand Canyon Protection Act, Reclamation underwent a second ESA consultation on Dam operations in 1994. Despite the changes in Dam operations set forth in the 1996 ROD, FWS concluded Modified Low Fluctuating Flows cause jeopardy to the chub and adversely modify chub critical habitat in the Grand Canyon and, therefore, violate the ESA. Exh. 3 (1994 BO) at 3; id. at 32 ("the likelihood of recovery in the mainstem Colorado River is still appreciably reduced").

FWS's conclusion and analysis in its December 1994 Biological Opinion focused on the Dam's impacts to chub habitat in the Grand Canyon and Colorado River from altered river flows, sediment load, and river temperatures. As set forth in FWS's Biological Opinion, MLFF eliminates natural seasonal high and low flows, causes daily flows to rise and fall dramatically, and prevents the deposition of the limited supply of sediment that would otherwise build and maintain the chub's shoreline habitat. Exh. 3 (1994 BO) at 21-24; 26-31. Further, daily fluctuating flows prevent shoreline habitat areas from warming,

[8] The Grand Canyon Protection Act also required Reclamation to develop operating criteria for Glen Canyon Dam. GCPA § 1804(c)(1)(A). On March 3, 1997, Reclamation adopted specific operating criteria for Glen Canyon Dam. 62 Fed. Reg. 9447.

leaving the River too cold for spawning and rearing. Id. at 19, 23 & 27. As a result, the chub is dependent on the Little Colorado River for all its life stages below Glen Canyon Dam, even though this Colorado River tributary is "extremely vulnerable to chronic or catastrophic threats." Exh. 11 (2005 SCORE) at 42 (below Glen Canyon Dam, chub "relies on the Little Colorado River as the primary spawning and juvenile-rearing habitat"); Exh. 3 (1994 BO) at 32. Notably, FWS expressly recognized that while other factors may be involved, Reclamation's Dam operations are responsible for impacts that have resulted in jeopardy and adverse modification. Exh. 3 (1994 BO) at 33. In short, FWS determined MLFF operations violate the ESA in its Biological Opinion

2. The Reasonable And Prudent Alternative

Under the ESA, FWS must provide a Reasonable and Prudent Alternative (RPA) when finding an agency's action results in jeopardy and/or adverse modification. 16 U.S.C. § 1536(b)(3)(A). The RPA included in FWS's 1994 Biological Opinion is designed to ensure Reclamation avoids violating the ESA section 7(a)(2) and does not jeopardize the chub or adversely modify chub critical habitat. FWS made this clear in the 1994 Biological Opinion,

> [S]uccessful completion of the reasonable and prudent alternative is necessary to remove jeopardy to the humpback chub [] from the proposed action. The reasonable and prudent alternative will be accomplished when all elements of the selected alternative have been effected and studies confirm compatibility between th[is] species requirements and the operation of Glen Canyon Dam.

Exh. 3 (1994 BO) at 34. FWS required Reclamation to comply with the RPA because "[a]ttainment of riverine conditions that support all life stages of endangered and native fish is essential to the Colorado River ecosystem." Id. at 35.

FWS's Reasonable and Prudent Alternative addressed the adverse river flows and cold water temperatures. Id. at 34-38. RPA 1B, which concerns river temperatures, does not impose specific requirements or deadlines on Reclamation, but simply requests that Reclamation determine whether a "selective withdrawal program" can alleviate coldwater releases from Glen Canyon Dam. Id. at 36-37.

In contrast, in Reasonable and Prudent Alternative 1A, FWS imposed detailed

requirements with specific deadlines to address flows, a condition over which Reclamation has total control. RPA 1A requires Reclamation to operate Glen Canyon Dam under a "Seasonally Adjusted Steady Flow" regime, or SASF, during all low water years.[9] To ensure Dam operations mimic natural river flows and support all life stages of the chub in the Colorado River, RPA 1A requires high and steady flows in the spring, and low and steady flows in the summer and fall.[10]

RPA 1A offered two options for Reclamation to achieve seasonal steady flows and ensure ESA compliance. One alternative was for Reclamation to design its own flow pattern that achieved Seasonally Adjusted Steady Flows by October 1996 and to test this program by April 1997. Exh. 3 (1994 BO) at 35. The testing period had to be sufficient to allow for "biological processes to function and for variability inherent in riverine ecosystems to be expressed." Id. at 36. However, if Reclamation had not sufficiently designed or tested its program by April 1998, FWS required Reclamation to operate the Dam according to the Seasonally Adjusted Steady Flow program described in RPA 1A. Id. at 35. Reclamation, however, has never implemented the requirements of RPA 1A since the 1994 Biological Opinion.

As part of the 1994 Biological Opinion, FWS also provided an incidental take statement. An incidental take statement protects Reclamation from section 9 take liability. 16 U.S.C. § 1536(o). In the incidental take statement, FWS stated that implementing RPA 1A's Seasonally Adjusted Steady Flows requirement would "minimize take of the humpback chub" because it would redistribute sediment to "establish and maintain habitats for use of young life stages of humpback chub in the mainstem [of the Colorado River]." Exh. 3 (1994 BO) at 40. Accordingly, Reclamation's "safe harbor" from take liability was predicated on implementation of RPA 1A and protection and restoration of chub habitat in

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[9] A low water year is when no more than 8.23 million acre-feet of water is released from Glen Canyon Dam, which is the minimum amount required to satisfy water supply delivery mandates between the Upper Basin and Lower Basin states.

[10] Steady flows also create beneficial conditions for the chub because they are more adapted to high steady flows than nonnative fish. Exh. 3 (2007 BA) at 84 (steady flows provide "16 to 34 percent more habitat [for chub] than non-native fish").

the Colorado River.

STANDARD OF REVIEW

A motion for summary judgment must be granted when "there is no genuine issue as to any material fact and . . . the moving party is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c); Anderson v. Liberty Lobby, 477 U.S. 242, 247-48 (1986). Courts review an agency's failure to take actions required by the ESA and NEPA under the Administrative Procedure Act's standards of review. Western Watersheds Project v. Matejko, 468 F.3d 1099, 1107 (9th Cir. 2006) (ESA citizen suit claims); Pit River Tribe v. U.S. Forest Serv., 469 F.3d 768, 778 (9th Cir. 2006) (NEPA claims). Upon finding an agency fails to comply with mandatory ESA and NEPA duties, "[t]he reviewing court shall . . . compel agency action unlawfully withheld or unreasonably delayed." 5 U.S.C. § 706(1). Further, agency actions "not in accordance with law" must be set aside. 5 U.S.C. § 706(2)(A); High Sierra Hikers Ass'n v. Blackwell, 390 F.3d 630, 640 (9th Cir. 2004).

ARGUMENT

I. RECLAMATION'S DAM OPERATIONS UNDER "MODIFIED LOW FLUCTUATING FLOWS" VIOLATE THE ENDANGERED SPECIES ACT

Plaintiff is entitled to summary judgment on its first three claims for relief.[11] Through its MLFF operations of Glen Canyon Dam, Reclamation is violating (1) the ESA section 7 mandate to avoid jeopardizing species, (2) the ESA section 7 mandate to avoid destroying or adversely modifying critical habitat, and (3) the ESA section 9 prohibition against the taking of listed species. FWS makes this clear in the 1994 Biological Opinion, which concluded that operating Glen Canyon Dam under a Modified Low Fluctuating Flow regime violates the ESA. MLFF operations, according to FWS, eliminate the required habitat conditions and features necessary for the chub's survival and recovery in the Colorado River and the Grand Canyon and is taking humpback chub. To avoid jeopardy, adverse modification, and taking in violation of the ESA, Reclamation must comply with the Biological Opinion's RPA 1A -- Seasonally Adjusted Steady Flows. The best available

[11] The declarations of Richard Johnson and Nikolai Lash have been submitted concurrently with this Motion and demonstrate Plaintiff's standing in this case.

science continues to show adverse effects from MLFF operations. Yet, since 1996, Reclamation has operated Glen Canyon Dam under MLFF and, in doing so, has not complied with RPA 1A's Seasonally Adjusted Steady Flow requirement.

A. Fluctuating Flows Jeopardize The Chub, Adversely Modify Its Critical Habitat And Unlawfully Take Humpback Chub

FWS makes section 7(a)(2) jeopardy and adverse modification determinations based on standards set forth in the ESA and its regulations. According to the regulations, "jeopardy" results when an action would "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. The jeopardy analysis includes consideration of the agency's impact on a species' recovery. National Wildlife Federation v. NMFS, 481 F.3d 1224 1236-38 (9th Cir. 2007). FWS found Reclamation's MLFF operations violate this jeopardy standard in the Biological Opinion.

ESA regulations define "destruction or adverse modification of critical habitat" as:

> a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

50 C.F.R. § 402.02. In designating critical habitat, FWS provides an inventory of habitat areas "essential" for the species' recovery that contain vital "physical or biological features." 16 U.S.C. § 1532(5)(A); 50 C.F.R. § 424.12(b). These essential features include the space needed for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover, or shelter; sites for breeding, reproduction, rearing of offspring, germination or seed dispersal; and habitat representative of historic geographical and ecological distributions. 50 C.F.R. § 424.12(b). The primary purpose of consulting on critical habitat is to ensure actions do not interfere with species recovery or "conservation." Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service, 378 F.3d 1059, 1071-75 (9th Cir. 2004); 16 U.S.C. § 1532(3) (ESA definition equating "conservation" with recovery). FWS determined that Reclamation's MLFF operations violate the adverse modification standard as well.

Meanwhile, the ESA section 9 "take" prohibition is violated when there is a reasonably certain threat of "actual" and "imminent" harm. Forest Conservation Council v. Rosboro Lumber, 50 F.3d 781, 784-87 (9th Cir. 1995). In addition to actions that directly kill a listed species, "[t]ake can be expressed also as a change in habitat characteristics affecting the species (e.g., for an aquatic species, changes in water temperature or chemistry, flows, or sediment loads) where data or information exists which links such changes to the take of the listed species." Arizona Cattle Growers v. U.S. Fish and Wildlife Service, 273 F.3d 1229, 1250 (9th Cir. 2001), (quoting with approval Section 7 Consultation Handbook at 4-47 to 4-48). Habitat modification that "significantly impairs the breeding and sheltering of a protected species" is a taking. Marbled Murrelet v. Babbitt, 83 F.3d 1060, 1067 (9th Cir. 1996); Rosboro, 50 F.3d at 788. Notably, "'take' is concerned with the effect on individual species members, not necessarily on the survival of the species as a whole." Westlands Water District v. Dep't of Interior, 275 F. Supp. 2d 1157, 1225 (E.D. Cal. 2002), aff'd in part and rev'd in part on other grounds, 376 F.3d 853 (9th Cir. 2004). Federal agencies may be exempt from ESA section 9 violations upon receipt of an incidental take statement that serves as a "safe harbor." Arizona Cattle Growers, 273 F.3d at 1239.

As detailed below, Reclamation is violating all three ESA requirements. As FWS concluded in its Biological Opinion, Reclamation's MLFF operations adversely affect the timing and volume of river flows, the transport and deposition of sediment loads, and temperatures in the Colorado River. Consequently, Reclamation's operations eliminate natural seasonal flows, cause unnatural daily fluctuations in river flows, prevent the building of shoreline habitats while destroying existing ones, and keep water temperatures too cold for spawning, rearing and feeding from late spring through fall.

1. Jeopardy

Reclamation's operations jeopardize the chub's survival and recovery by reducing (1) reproduction, (2) distribution, and (3) numbers in the Colorado River. See 50 C.F.R. § 402.02 (jeopardy definition). Several factors have caused this reduction, as FWS detailed

in the 1994 Biological Opinion. First, MLFF adversely impacts chub reproduction and distribution because Reclamation's operations eliminate the natural flooding of the Colorado River each spring. Absent springtime high flows, adult chub have lost their cue for spawning. Exh. 3 (1994 BO) at 28; id. at 10 (finding "humpback chub [] spawn when the hydrograph of the river was at its peak or descending").

Second, MLFF destroys the chub's ability to spawn and rear and feed its young in the Colorado River because these operations eliminate shoreline habitats, characterized by sheltered, slow-moving warm water. Id. at 11; id. at 23; id. at 26 ("operation of Glen Canyon Dam continues to prohibit, or at least limit, [Colorado River] mainstem spawning of humpback chub"). These "nearshore areas, particularly backwaters, provide habitats with little or no velocities that are utilized by larval and young-of-year humpback chub." Id. at 27 (shoreline areas are "more productive in [supplying] food resources required of these life stages"); Exh. 11 (2005 SCORE) at 44 ("During summer, the young humpback chub that survive in the [Colorado River] mainstem occupy low-velocity, talus, and vegetated shoreline habitats, including backwaters"). Shoreline habitat was historically created and maintained when sediments accumulated on the bottom of the main channel during periods of low flows in late summer and fall and were then redistributed during the higher spring flows. Exh. 11 (2005 SCORE) at 18; Exh. 3 (1994 BO) at 23 ("backwaters are formed from fine-grained sediments . . . when river stage decreases, eddies often become backwaters").

Under MLFF, however, the highest volumes of water are released in late summer, which prevents sediments from accumulating and settling. Exh. 11 (2005 SCORE) at 19, 26. Similarly, pulsating river flows caused by daily fluctuations limit, if not entirely prevent, the formation of shoreline habitats "because the stage of the river would overtop the sediment forming the return channel." Exh. 3 (1994 BO) at 24. Fluctuating flows also "flush organisms and nutrients important as food resources, and force earlier life stages of [humpback chub] out of quiet protected waters into unfavorable [Colorado River] mainstem conditions." Id. at 23. Furthermore, high summer flows and fluctuating flows

prevent the warming of remaining shoreline habitats in the Colorado River. Id. at 19 (graph depicting cooling temperatures); id. at 23 (fluctuating flows "limit solar warming of backwaters"). Such flows result in "[c]old mainstem waters [that] limit or slow growth of young-of-year and juvenile native fish." Id. at 27; id. at 23 (MLFF increases "exposure to . . . [the] debilitating effects of exposure to cold water").[12]

In sum, as FWS concluded in the 1994 Biological Opinion, Reclamation's MLFF operations reduce the chub's distribution, reproduction and number in the Colorado River, jeopardizing the humpback chub. As summarized in FWS's Biological Opinion:

> The 470km reach of the mainstem Colorado River downstream of Glen Canyon Dam apparently does not provide for survival of all age classes nor an environment for successful spawning and recruitment of young to adult humpback chub.

Exh. 3 (1994 BO) at 32. By continuing to operate under MLFF, Reclamation is violating ESA section 7(a)(2).

2. Adverse Modification Of Critical Habitat

For the same reasons that Dam operations and resulting flows cause jeopardy, MLFF adversely modifies the chub's critical habitat in the Colorado River. FWS determined that under MLFF, "the likelihood of recovery [of the chub] in the mainstem Colorado River is still appreciably reduced." Id. at 32; see Gifford Pinchot, 378 F.3d at 1071-75. Dam operations are causing "direct . . . alteration[s]" to the "physical or biological features" that warranted designating habitat in the Grand Canyon portion of the Colorado River as critical habitat. See 50 C.F.R. § 402.02 (defining adverse modification). FWS designated the Colorado River critical habitat because it contains the features necessary for the chub's survival and recovery: (1) water in the quantity and quality needed for all the chub's life stages, (2) the physical river habitat features that are suitable for spawning, nursing, feeding and rearing, and (3) the biological environment which provides sufficient food supply and includes a natural balance of predation and competition from

[12] The hatching success of chub eggs are directly dependent on water temperature. Exh. 3 (1994 BO) at 10. Before Glen Canyon, Colorado River temperatures reached 25-29 °C in July and August. Id. at 24. Water releases now are only 7-12 °C during the entire year. Id. This is significantly below the accepted minimum water temperature of 16 °C required for successful chub reproduction. Exh. 11 (2005 SCORE) at 42.

nonnative species. 59 Fed. Reg. at 13378. However, as a result of MLFF operations, the Colorado River through the Grand Canyon no longer provides these essential elements of chub critical habitat due to the timing and volume of flows released from Glen Canyon Dam. Exh. 3 (1994 BO) at 21-24; 26-31. As the best available science demonstrated at the time FWS prepared the 1994 Biological Opinion, and as the evidence continues to demonstrate, Dam operations prevent chub reproduction and limit its distribution in the Colorado River. Id. at 32. Unless Dam operations change to comply with RPA 1A, the chub cannot recover to healthy population levels in the Colorado River.

In sum, Reclamation is operating Glen Canyon Dam in a manner that adversely modifies the chub's critical habitat, in violation of ESA section 7(a)(2) and FWS's Biological Opinion. Plaintiff is thus entitled to summary judgment on its Second Claim.

3. Unlawful Taking

Reclamation is also violating ESA section 9 because its Dam operations are taking the endangered chub and the agency is not complying with RPA 1A.

MLFF operations cause the taking of humpback chub. Under MLFF, Reclamation is destroying habitat for young chub in the Colorado River, preventing its use for spawning, rearing, and feeding. See Marbled Murrelet, 83 F.3d at 1067 (holding habitat modification that "significantly impairs the breeding and sheltering of a protected species" is taking). Fluctuating flows force out water warmed by solar radiation and replace it with cold water, flush out food resources, and cause young chub to move out into the unfavorable mainstem conditions where predators await. Exh. 3 (1994 BO) at 23. Moreover, "research and monitoring have conclusively demonstrated a net loss of fine sediment from the Colorado River ecosystem under the MLFF." Exh. 11 (2005 SCORE) at 214. With daily fluctuations under MLFF, sediments cannot settle and create new sandbars and shoreline habitat; instead, established sandbars are eroded. Id. at 17 and 19. Similarly, Reclamation's large monthly releases during the late summer months -- as opposed to low flows in the summer and fall under natural conditions -- correspond to the period of greatest tributary sediment input. Id. at 19. This means that instead of settling and forming shoreline habitat needed

for chub spawning, rearing and feeding, the sediments are exported out of the Grand Canyon and the Colorado River's sand resources suffer from a systematic, long-term pattern of erosion. Id. at 21. Further, because MLFF operations have caused the River's temperatures to become much colder than historic conditions, successful spawning is restricted to the Little Colorado River and is not occurring in the Colorado River. Exh. 3 (1994 BO) at 22; id. at 28 (cold temperatures substantially reduce overall chub spawning and rearing areas).

The best available science also shows that the presence of the chub in the Colorado River is reduced. Reclamation's MLFF operations "correlates closely to the decline in the humpback chub recruitment." Exh. 11 (2005 SCORE) at 46. "Mortality is extremely high in the mainstem" for young humpback chub. Id. at 44. "Low survivorship over the year virtually eliminates the YOY [young-of-year] in the mainstem." Id.; id. at 42 ("Mortality of larval and post-larval humpback chub emerging from the warm waters of the Little Colorado River has been attributed to thermal shock.").

Reclamation is not exempt from the section 9 take prohibition by the incidental take statement FWS included in the 1994 Biological Opinion. Because FWS determined that MLFF operations will jeopardize the chub and adversely modify critical habitat, the take statement accompanied FWS's Reasonable and Prudent Alternative and was effective upon implementation of Seasonally Adjusted Steady Flows. Exh. 3 (1994 BO) at 39-40. Notably, FWS found MLFF operations cause a taking of chub due to changes in habitat conditions, and not as a result of the number of individuals taken, because of the difficulty of detecting and estimating take. Id. at 39-40. FWS concluded that take could be lawfully "minimized" under Seasonally Adjusted Steady Flows because river sediment will be redistributed "to establish and maintain habitats for use of young life stages of humpback chubs in the [River's] mainstem." Id. at 40.

Reclamation's MLFF Dam operations, however, have rendered the incidental take statement ineffective. Reclamation is not complying with the RPA and is not implementing Seasonally Adjusted Steady Flows. Reclamation is thus not exempt from the

take prohibition. See Ramsey v. Kantor, 96 F.3d 434, 441 (9th Cir. 1996) ("any taking - whether by a federal agency, private applicant, or other party - that complies with the conditions set forth in the incidental take statement is permitted"). Accordingly, Reclamation's operations are violating the ESA section 9 take prohibition and Plaintiff is entitled to summary judgment on its Third Claim for Relief.

B. The Scientific Basis For FWS's 1994 Biological Opinion Has Remained Constant For Thirty Years

FWS's Biological Opinion and Reclamation's continuation of MLFF operations warrant a finding that Reclamation is violating the ESA and that Plaintiff is entitled to summary judgment on its first three claims. The underlying scientific basis for FWS's conclusions in the Biological Opinion -- that Dam flows are destroying chub habitat, which prevents chub spawning, rearing and feeding in the Colorado River -- has not changed over time. In fact, FWS's findings before and after the Biological Opinion have been consistent, identifying the same problems since Reclamation began operating Glen Canyon Dam. This is true despite Reclamation's likely claim that it has taken actions to improve downstream resources. However, at bottom, none of these actions have lessened the harmful impacts caused by MLFF operations because none involve the legally-required Seasonally Adjusted Steady Flows called for in the Biological Opinion. Accordingly, absent seasonal, steady flows, Reclamation's Dam operations are reducing and limiting chub distribution, reproduction and population in the Grand Canyon and directly altering the biological and habitat features that warranted designating critical habitat in the Colorado River.

FWS first documented impacts from Reclamation's Dam operations in its 1978 Biological Opinion. FWS's 1978 Biological Opinion concluded "[t]he operation of Glen Canyon Dam is modifying a major portion of the known [humpback chub] habitat and is limiting the ability of this endangered species to recover from its presently reduced state." Exh. 1 (1978 Biological Opinion) at 5 (finding daily fluctuating flows "will have an adverse effect on the essential habitat of the endangered humpback chub").

FWS maintained the same position in 1990 when it prepared the chub Recovery Plan. According to the Recovery Plan, daily flow fluctuations "produce cycles of inundation and dewatering in backwaters of the mainstem Colorado River, in Grand Canyon." Exh. 2 (1990 Recovery Plan) at 11. It also forces young chubs from their protected backwater habitat areas into cold mainstem of the Colorado River. Id.

Congress passed the Grand Canyon Protection Act in 1992 due to the adverse effects of Reclamation's Dam operations on Grand Canyon resources. As Congress bluntly put it, "[a]fter over 25 years of dam operations. . . the harm resulting from such dam operations has become painfully apparent." H.R. Rep. No. 102-114 Part 1, at 88 (1991) (noting that previously "[i]t was not known, for example, that the use of the dam of the maximum possible production of 'peaking' power would damage and degrade the fragile environment of the Grand Canyon along the Colorado River."). Among other things, Congress was motivated by the 1988 Glen Canyon Environmental Studies Final Report, which found "two aspects of current operations have substantial impacts on downstream resources: flood releases and fluctuating releases." Id. at 87.[13] Notably, this 1988 Report also found that if modified, Reclamation's Dam operations "could reduce the resource losses occurring under current operations." Exh. 11 (2005 SCORE) at 5 (emphasis added).

Responding to purported changes in Dam operations as a result of the Grand Canyon Protection Act, FWS's 1994 Biological Opinion concluded that MLFF would not slow the adverse impacts or comply with the ESA. FWS confirmed its findings in a letter to Reclamation in 1999. Exh. 7 (1999 Insufficiency Letter) at 3. There, FWS reiterated that by continuing with MLFF operations, Reclamation, even after a 1996 beach habitat building flow release, was not complying with the ESA because Seasonally-Adjusted Steady Flows were not being implemented. Id.

[13] Reclamation established the Glen Canyon Environmental Studies in 1982. Exh. 11 (2005 SCORE) at 4-5. The Glen Canyon Environmental Studies is now known as the Grand Canyon Monitoring and Research Center. Id. at 5.

Subsequent Reclamation actions, none of which implemented the required Seasonally Adjusted Steady Flows, have similarly failed to alleviate the impacts caused by the non-seasonal, fluctuating flows that characterize MLFF. Reclamation initiated a four-month steady flow experiment in 2000. However, that experiment was wholly inadequate because it was not implemented for a sufficient time to allow "biological processes to function and for variability inherent in riverine ecosystems to be expressed." Exh. 3 (1994 BO) at 36. Recognizing as much, FWS sent Reclamation an "insufficiency letter" in 2002 because Reclamation was still not implementing Seasonally Adjusted Steady Flows, as called for in the 1994 Biological Opinion. Exh. 8 (2002 Insufficiency Letter) at 3. In the letter, FWS urged Reclamation to change its MLFF operations quickly. Id. ("additional delays in developing a program of experimental flows for native fish should not occur").

Reclamation's 2004 beach habitat building flows and three-year (2002-2004) nonnative fish program also did not change habitat conditions for the chub in the Colorado River. In its 2005 Report, the U.S. Geological Survey offered evidence that the same habitat problems were continuing more than a decade after FWS's 1994 Biological Opinion due to Reclamation's MLFF operations. This State of the Colorado River in the Grand Canyon report (SCORE Report) "presented evidence that dam operations during the last 10 years under the preferred alternative of the MLFF have not restored fine-sediment resources or native fish populations in the Grand Canyon." Exh. 11 (2005 SCORE) at 208. The report finds that "the current MLFF operation has not resulted in increased survival and recruitment of humpback chub, despite the prediction of the EIS." Id. ("[I]t is clear that the restrictions on dam operations since 1991 have not produced the hoped-for restoration and maintenance of this endangered species."); Exh. 18 (2008 EA) at 2 ("Monitoring and research . . . since 1996 have shown that some of the expected benefits of dam operations under the [1996] record of decision have not occurred or have occurred to a lesser degree than expected.").

The 2005 SCORE Report provides a ringing indictment of MLFF operations. It concludes that habitat conditions in the Colorado River remain inadequate for the chub.

According to the 2005 SCORE Report, "research and monitoring have conclusively demonstrated a net loss of fine sediment from the Colorado River ecosystem under MLFF." Exh. 11 (2005 SCORE) at 214 (all evidence "point[s] to a decrease in fine-sediment resources in Glen, Marble, and Grand Canyons in the time since the EIS was implemented"). "[R]estoration of sand-based, nearshore habitats, termed 'backwaters,' has also not been realized under the strategy of MLFF and hydrologically triggered experimental high flows." Id. at 214. Further, "[o]n the basis of current scientific information, the MLFF operating alternative has not effectively mitigated the influence of [streamflow] regulation with respect to either the thermal (temps) or hydrologic (flow patterns) changes or the fine sediment supply limitation of the downstream ecosystem." Id. at 215. "[W]henever the monthly flow regime from the dam forces daily peak discharges significantly above 10,000 cfs for extended periods, new and existing sand and finer sediments are being exported relatively quickly (weeks to months) rather than accumulating in the main channel over multiple years." Id. at 215; id. at 19 ("[H]igh summer releases coincide with tributary inputs, leading to rapid export instead of accumulation"); id. (fluctuating flows "lead to transport of new sand inputs through these [Grand and Marble Canyons] reaches or erosion of sand from these reaches"). Finally, habitat building flows, as performed in 1996 and 2004, have limited utility if not followed by Seasonally-Adjusted Steady Flows. Id. at 19, 21; see also Exh. 18 (2008 EA) at 5 ("sandbars and backwaters reverted back to their previous state"); Exh. 15 (2007 Biological Assessment) at 63 ("newly created habitats [by 1996 building flows] disappeared within two weeks").

FWS made similar findings in a recent 2007 Biological Opinion. In that opinion, which addressed the amount of Colorado River water to be delivered from the Upper Basin to the Lower Basin, FWS found "[p]ost dam large scale fluctuations in daily discharge [] result in stage changes that are thought to reduce the availability and quality of nearshore habitats" for the chub. Exh. 13 (2007 BO) at 21.[14] FWS maintained that a fluctuating flow

[14] This biological opinion did not concern "how" water is released, only the quantity of

regime "causes remaining sediment to be lost continually." Id. at 20. "Fluctuations also increase the degree to which young humpback chub must move to find suitable habitats, increasing energy demands and vulnerability to predation." Id. at 21. MLFF operations "eliminate[] flow and temperature needs for spawning and successful recruitment" in the Colorado River. Id. at 14.

FWS revealed another problem with MLFF in the 2007 Biological Opinion. Absent the ability to spawn and rear in the Colorado River, the chub relies on the Little Colorado River for these life histories. However, the chub is not always able to remain in the Little Colorado. "Daily fluctuations in the mainstem river may reduce the quality of nearshore habitat for juvenile humpback chub, which may be particularly important during the monsoon period (July to November) when summer storms cause the LCR (Little Colorado River) to flood, displacing large number of juvenile humpback chub into the mainstem." Exh. 13 (2007 BO) at 14. As FWS determined, "more larval and juvenile humpback chub are likely transported into a now-harsher mainstem river while still at a size that is more vulnerable to thermal shock [low water temperatures] and predation." Id.

In sum, both before and after the 1994 Biological Opinion, the impacts from Reclamation's non-seasonal, fluctuating flows on the chub and its critical habitat have remained the same. Despite the overwhelming evidence indicating MLFF operations violate the ESA and are causing significant adverse impacts to the chub, Reclamation refuses to implement the one solution that FWS required to comply with the ESA and protect the chub -- seasonal, steady flows. Instead, Reclamation has chosen to dance around the edges of what is required and undertaken isolated actions that alone have been insufficient. At bottom, absent the seasonal, steady flows prescribed by the 1994 Biological Opinion, none of these other actions ensure Dam operations do not jeopardize or unlawfully take the chub, or adversely modify chub critical habitat in the Grand Canyon, in violation of the ESA. Accordingly, Plaintiff is entitled to summary judgment on its first three claims.

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water to be discharged from Glen Canyon Dam under the 2007 Interim Guidelines.

II. RECLAMATION VIOLATED THE ENDANGERED SPECIES ACT BY FAILING TO CONSULT ON ITS ANNUAL OPERATING PLANS

Reclamation must consult under section 7(a)(2) of the ESA on its Annual Operating Plans for Glen Canyon Dam, including the current year's 2008 AOP. AOPs, wherein Reclamation determines yearly Dam operations, are "agency actions" that "may affect" the endangered humpback chub and its designated critical habitat. Reclamation has never undergone consultation prior to issuing an AOP for Glen Canyon Dam. Accordingly, Plaintiff is entitled to summary judgment on its Fourth Claim.[15]

A. The AOPs Constitute Agency Actions

The ESA section 7 consultation duty applies to all "agency actions." 16 U.S.C. § 1536(a)(2). Actions include "any action authorized, funded, or carried out" by a federal agency. Id. (emphasis added). ESA regulations define "action" comprehensively to mean "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies." 50 C.F.R. § 402.02 (emphasis added); see also Nat'l Ass'n of Home Builders v. Defenders of Wildlife, 127 S. Ct. 2518, 2535-36 (2007) (holding ESA applies to "every discretionary agency action"). The Ninth Circuit interprets the consultation duty "broadly." Natural Resources Def. Council v. Houston, 146 F.3d 1118, 1125 (9th Cir. 1998); Pac. Rivers Council v. Thomas, 30 F.3d 1050, 1054-55 (9th Cir. 1994); Conner v. Burford, 848 F.2d 1441, 1453 (9th Cir. 1988).

Glen Canyon Dam Annual Operating Plans are "agency actions." Reclamation is tasked with their preparation by the Grand Canyon Protection Act of 1992. GCPA § 1804(c)(1)(A); § 1804(c)(2) (also requiring annual reports to Congress after preparing AOPs "on the projected year operations"). According to the Grand Canyon Protection Act, Reclamation's AOPs govern Glen Canyon Dam operations for the upcoming year. Id. § 1802(a) ("The Secretary shall operate Glen Canyon Dam in accordance with . . . operating plans specified in section 1804"). As described by Reclamation, AOPs "detail specific

[15] As with Plaintiff's first three claims, jurisdiction over Plaintiff's Fourth Claim is derived from the ESA citizen suit provision, 16 U.S.C. § 1540(g)(1)(A), and satisfied by Plaintiff's 60-day notice letter sent on September 10, 2007. Exh. 12 (Notice Letter).

reservoir operations for the next water year." 70 Fed. Reg. 15873, 15874/2. They specifically establish Glen Canyon Dam's monthly water releases. Exh. 17 (2008 AOP) at 19 (table detailing month-by-month release volumes); Exh. 18 (2008 EA) at 8 ("monthly release volumes would continue to be projected for different hydrologic conditions prior to the beginning of the water year and described in annual operating plans").

Reclamation takes in to consideration a variety of factors before making these annual discretionary decisions. One factor Reclamation considers is the upstream hydrologic conditions within the Colorado River watershed. Exh. 17 (2008 AOP) at 19, Table 6 (scheduled monthly releases from Lake Powell in Water Year 2008 under most probable inflow conditions). "Based on projected hydrologic conditions, monthly and annual release volumes for Glen Canyon Dam . . . are established by the annual operating plan (AOP) at the beginning of the water year." Exh. 11 (2005 SCORE) at 170. Similarly, as FWS recognized in the 1994 Biological Opinion, "[m]onthly volumes of releases vary depending on the type of water year and the Annual Operating Plan." Exh. 3 (1994 BO) at 5. Reclamation may modify their AOPs in the event of "changes in forecast conditions." Exh. 17 (2008 AOP) at 10 ("modifications to monthly operation plans may be based on other factors in addition to changes in streamflow forecasts").

Another important factor that Reclamation must consider are the impacts of Dam operations on the downstream resources, including the humpback chub. For instance, through the AOPs, Reclamation can achieve compliance with the Grand Canyon Protection Act's mandate "to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established." GCPA § 1802(a). Similarly, Reclamation acknowledges that AOPs provide the means for adjusting operations in response to "section 7 consultations under the Endangered Species Act." Exh. 17 (2008 AOP) at 10 (listing factors considered in AOPs). As Reclamation explained:

> The plan of operation [AOPs] shall . . . reflect appropriate consideration of the uses of the reservoirs for all purposes, including . . . enhancement of fish and wildlife, and other environmental factors.

70 Fed. Reg. at 15874/3; id. at 15877/2 ("National Park protection is already currently considered in the annual plan of operation"). In fact, through AOPs, Reclamation decides whether the Dam releases will mimic the natural hydrograph and comply with the 1994 Biological Opinion's Seasonally Adjusted Steady Flow requirement -- with higher volumes released in the spring and lower amounts in the summer and fall -- or whether the agency will continue releases according to MLFF.

AOPs also provide Reclamation the opportunity to correct mistaken assumptions about Dam operations. In 1996, Reclamation predicted MLFF would "permit recovery and long-term sustainability of downstream resources." Exh. 5 (1996 ROD) at G-11. In 2005, however, the U.S. Geological Survey noted that "research and monitoring . . . have led to several findings that refute the [1995] EIS predictions for sand conservation and suggest that the implementation of this [MLFF] strategy has not led to sustainable restoration and maintenance of sandbars in either Marble or Grand Canyons. Instead the canyons' sandbars continue to erode." Exh. 11 (2005 SCORE) at 22. Through AOPs, Reclamation is able to respond to this information and operate Glen Canyon Dam accordingly.

In addition to responding to downstream environmental conditions, AOPs also provide the mechanism to implement the recently completed 2007 Interim Guidelines. Due to ten years of drought in the Colorado River Basin and increasing water demands by the Upper Basin states, Reclamation adopted the Interim Guidelines to ensure Lower Basin States receive an appropriate amount of Colorado River water from the Upper Basin States. Exh. 17 (2008 AOP) at 1. The Interim Guidelines set the parameters for the amount of water annually released downstream based on a variety of factors. Id. at 2. Reclamation is using the AOPs to implement the Interim Guidelines in the upcoming year. Exh. 17 (2008 AOP) at 16 (ensuring AOP is consistent with Interim Guidelines).

The Adaptive Management Working Group, which provides technical input and policy recommendations on yearly dam operations, is also part of the process to develop AOPs. Exh. 17 (2008 AOP) at 1, 29. Reclamation created the Adaptive Management Working Group in response to the Grand Canyon Protection Act and as a part of its 1996

ROD. Exh. 11 (2005 SCORE) at 5-6 ("the effects of dam operations on downstream resources would be assessed [by the Adaptive Management Working Group] and the results of those assessments would form the basis of future modifications of dam operations"); GCPA § 1805. Each year, Reclamation considers the Group's input before completing the AOPs. See S. Rep. No. 102-267 at 137 (1992) (input intended to assist Reclamation in exercising its discretion and fulfilling its legal responsibilities).

Of particular significance is the Adaptive Management Working Group's input on hydropower demand. Reclamation sets monthly release volumes based on the anticipated yearly demand for hydropower. Exh. 11 (2005 SCORE) at 169 (describing how power demand is determined); id. at 170 (recognizing monthly volumes as established in AOPs are "single most important determinant of hydropower production and economic value"). Representatives of power interests are part of the Adaptive Management Working Group for this purpose. Exh. 13 (2007 BA) at 18.

Courts have recognized that similar annual decisions on dam operations are agency actions requiring ESA consultation. As described in Idaho Dep't of Fish and Game v. Nat'l Marine Fisheries Serv., federal agencies consulted on AOPs that govern dams on the Columbia River. 850 F. Supp. 886, 889 (D. Or. 1994) ("challenging the validity of biological opinions issued for 1992 hydropower operations"), vacated as moot, 56 F.3d 1071 (9th Cir. 1995). A recent case from the Eastern District of California is also instructive. Pac. Coast Fed'n of Fisherman's Ass'n v. Gutierrez, 2007 WL 1752289 (E.D. Cal. June 15, 2007). There, the court noted that Reclamation's 2004 Operating Criteria and Plan (OCAP), which govern the annual operation of two large water diversion projects (California's Central Valley Project (CVP) and State Water Project (SWP)), was an agency action that required ESA section 7 consultation. Id. at * 3 ("Because endangered and/or threatened species . . . reside in the area affected by the CVP and SWP, the 2004 OCAP, administered on behalf of the federal government by the Bureau of Reclamation ("Bureau") must comply with various provisions of the ESA."). And, in fact, Reclamation did undergo ESA consultation for the 2004 OCAP. Id. * 4 ("In order to fulfill its obligations under the

ESA, Reclamation prepared a biological assessment and initiated both formal and early consultation with the United States Fish and Wildlife Service"); see also O'Neill v. U.S., 50 F.3d 677, 681 (9th Cir. 1995) (describing "biological opinion which concluded that the Bureau's [of Reclamation] continued operation of the CVP in the water year 1992-1993" ensured ESA compliance).

Accordingly, after considering projected hydrologic conditions upstream, the status of downstream resources, how to comply with the Grand Canyon Protection Act, and input from the Adaptive Management Working Group concerning power demand, Reclamation issues an AOP for the upcoming year that determines how water is released from Glen Canyon Dam. As such, Reclamation's AOPs, including the 2008 AOP, are "agency actions" within the meaning of the ESA.

B. Reclamation's Annual Operating Plans "May Affect" The Humpback Chub And Its Critical Habitat

The ESA consultation duty applies to agency actions that "may affect" a listed species or critical habitat. 50 C.F.R. § 402.14(a). The "may affect" threshold is low, requiring only that a listed species or designated critical habitat "may be present" in the "action area." Lockyer v. U.S. Dep't of Agriculture, 459 F. Supp.2d 874, 909 (N.D. Cal. 2006). Pac. Rivers Council, 30 F.3d at 1055 (agency actions "may affect" protected salmon because actions take place "within the salmon's habitat"); see also 51 Fed. Reg. 19,926, 19,949 (June 3, 1986) (explaining action "may affect" if it has "[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character" on listed species). FWS regulations define "action area" as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." 50 C.F.R. § 402.02. "Indirect effects" include effects "that are caused by the proposed action and are later in time, but still are reasonably certain to occur." Id.

The "may affect" test is easily satisfied here. As described above, it is well-documented that the humpback chub and its critical habitat are present in the Colorado River and Grand Canyon and that the Dam's operations cause impact to the chub and its

habitat. See, e.g., Exh. 13 (2007 BO) at 13 ("Activities that continue to adversely affect the humpback chub and its habitat throughout its range include dam operations."). The 2008 AOP, like previous AOPs, sets monthly release volumes that vary between a low of 555,000 acre-feet in April and May to a high of 820,000 acre-feet in August. Exh. 17 (2008 AOP) at 19. These flow patterns bear little resemblance to historic seasonal flows and the natural hydrograph, which are the flows required in the 1994 Biological Opinion; natural seasonal flows are characterized by large floods in the spring and low flows in late summer and fall. Exh. 3 (1994 BO) at 30 (comparing pre-dam flows to current Dam operations). Accordingly, the AOP's seasonal monthly flows not only "may affect" the chub, but, as detailed above, adversely affect the chub and its critical habitat in several ways.

In sum, because AOPs are "agency actions" that "may affect" the endangered humpback chub and its designated critical habitat, Reclamation must consult on the 2008 AOP for Glen Canyon Dam operations. The agency's failure to do so violates section 7(a)(2) of the ESA and Plaintiff is therefore entitled to summary judgment on its Fourth Claim for Relief.

III. RECLAMATION FAILED TO COMPLY WITH THE NATIONAL ENVIRONMENTAL POLICY ACT BEFORE ISSUING ANNUAL OPERATING PLANS

A. The Court Has Jurisdiction Over Plaintiff's Fifth Claim

The APA provides courts with jurisdiction over NEPA violations. A plaintiff must challenge a "final agency action" to establish APA jurisdiction. 5 U.S.C. § 704. Final agency action means: (1) "the action must mark the 'consummation' of the agency's decisionmaking process -- it must not be of a merely tentative or interlocutory nature;" and (2) "the action must be one by which 'rights or obligations have been determined,' or from which 'legal consequences will flow.'" Bennett v. Spear, 520 U.S. 154, 177-178 (1997); Neighbors of Cuddy Mountain v. Alexander, 303 F.3d 1059, 1066 (9th Cir. 2002). "The core question is whether the agency has completed its decisionmaking process and whether the result of that process is one that will directly affect the parties." Franklin v. Massachusetts, 505 U.S. 788, 797 (2005).

Here, as described above, Reclamation considers various factors and then finalizes an AOP each year, which dictates how water will be released from Glen Canyon Dam. Much like "annual operating instructions" (AOIs) for federal grazing permittees, an AOP is a "final agency action" because it determines the monthly water releases, represents the agency's "last word" on the operation of the Dam, and has legal effects on Reclamation and hydropower production as well as practical consequences on Grand Canyon natural resources. See Oregon Natural Desert Ass'n v. U.S. Forest Service, 465 F.3d 977, 990 (9th Cir. 2006) (holding AOIs are "action" and "final agency action").

B. AOPs Are Major Federal Actions

NEPA requires federal agencies to assess and disclose to the public the environmental impacts of all "major federal actions." 42 U.S.C.§ 4332. Major federal actions are those "actions with effects that may be major and which are potentially subject to Federal control and responsibility." 40 C.F.R. § 1508.18. These actions include "new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies." 40 C.F.R. § 1508.19(a).

AOPs are "major federal actions." As detailed above in demonstrating AOPs are "agency actions" under ESA section 7, Reclamation determines annual Dam operations and sets monthly water releases in the AOPs based on current hydrologic conditions upstream, environmental conditions downstream, input from the Adaptive Management Working Group, and applicable legal requirements. It is the "single most important determinant of hydropower production and economic value" of the Dam. Exh. 11 (2005 SCORE) at 170. Whereas the Operating Criteria for Glen Canyon Dam "generally refer to the planning of reservoir operations over several decades," the AOP "details specific reservoir operations for the next water year." 70 Fed. Reg. at 15874/2.

Reclamation's annual decision on monthly streamflows has never been evaluated in a NEPA document. The 1995 FEIS on overall long-term Dam operations did not provide the relevant analysis. While suggesting a range of monthly flows, it never performed the analysis of any particular flows. Indeed, that analysis could not have occurred because

Reclamation lacked timely and relevant information about the upstream hydrologic conditions and the status of downstream resources. Moreover, the best available science now shows that Reclamation had miscalculated the impacts of the Modified Low Fluctuating Flows on the Grand Canyon's resources in the 1995 FEIS. For example, the 2005 SCORE Report found that the Colorado River is in a "sediment deficit," which "directly contradicts the critical [1995] EIS assumption that sand will accumulate on the bed of the Colorado River over multiple years under the MLFF operating alternative." Exh. 11 (2005 SCORE) at 28; see also Salmon River Concerned Citizens v. Robertson, 32 F.3d 1346, 1357 (9th Cir. 1994) (recognizing impacts evaluated in prior broader document may change once agency determines specific details of particular project).

In short, because AOPs make specific determinations regarding Dam operations -- determinations that are made nowhere else -- based on current information previously unavailable, Reclamation's 2008 AOP is a "major federal action" under NEPA.

B. AOPs May Significantly Affect The Downstream Environment In The Grand Canyon

To demonstrate a federal agency's action requires an environmental impact statement, Plaintiffs "need not show that significant impacts will in fact occur, but raising 'substantial questions' that a project may have significant impacts is sufficient." Ocean Advocates v. U.S. Army Corps of Engineers, 402 F.3d 846, 865 (9th Cir. 2005) (emphasis in original). Based on NEPA's "significance" factors, AOPs and Dam operations may have significant impacts. As detailed above, the amount of water released on a monthly basis will adversely impact the humpback chub and its critical habitat. See 40 C.F.R. § 1508.27(b)(9). Relatedly, significant impacts are present when there is a violation of federal law, such as the ESA violations described above. See 40 C.F.R. § 1508.27(b)(10).

The NEPA analysis is broader than impacts to the humpback chub. AOP impacts may be significant because they concern Grand Canyon National Park's world-class cultural, archaeological, and recreational resources, which include all downstream riparian vegetation and wildlife. See 40 C.F.R. 1508.27(b)(3) (agencies must consider "[u]nique

characteristics of the geographic area such as proximity to historic or cultural resources, park lands. . ., or ecologically critical areas" in determining significance). In addition, significant impacts are likely because the action proposed in the AOP is "highly controversial." 40 C.F.R. 1508.27(b)(4). For all these reasons, Reclamation's AOPs may have a significant impact on the environment. See Ocean Advocates, 402 F.3d at 865

There is no need to speculate whether AOPs may have significant impacts on Grand Canyon resources. The 2005 SCORE Report documented many of the impacts caused by implementing Reclamation's AOPs. Seasonal flows, as established in the AOPs, are significant factors in moving Grand Canyon's riparian vegetation closer to the river and onto the River's beaches. Exh. 11 (2005 SCORE) at 112. The River's "riparian area has declined quantitatively in some aspects (less spatial coverage, fewer numbers of species) and has changed qualitatively (denser, more mature)." Id. These changes affect imperiled species and some riparian-dependent birds. Id. at 115; id. at 112-114 (describing riparian wildlife habitat), id. at 116-18 (describing decline of riparian-dependent leopard frog). Recreational use of the Canyon and the River's beaches has also been significantly affected. Id. at 162 and 195-96, 198-99 (loss of beaches); id. at 103 (describing recreationists' use of shade).

Further, Grand Canyon National Park is home to more than 2,600 documented prehistoric ruins spanning thousands of years. Exh. 11 (2005 SCORE) at 2; id. at 186-87 (identifying "culturally valued plants and plant gathering locations, traditionally valued mineral resources, landscape features, traditional use areas, and archaeological sites"). Sand in the Grand Canyon is critical to their preservation. Id. at 187 (sand is likely "contributing to and exacerbating the rate and amount of erosion"); id. at 17 ("abundant sand and silt deposits near and above the elevation of typical predam floods contain archeological resources and protect those resources from weathering and erosion"). Monthly flows affect sediment distribution in the canyon and therefore the 2008 AOP may have significant impacts on a world-class "natural and cultural treasure." See 40 C.F.R. § 1508.27(b)(8) (agencies must consider "[t]he degree to which the action. . . may cause loss

or destruction of significant scientific, cultural, or historical resources"); Exh. 11 (2005 SCORE) at 2.

In sum, because AOPs are major federal actions that may significantly affect the environment, Reclamation must complete a NEPA analysis. Reclamation has never considered, however, alternative actions or evaluated and disclosed to the public these adverse impacts from an AOP. As a result, Plaintiff is entitled to summary judgment on its Fifth Claim because Reclamation has failed to comply with NEPA

CONCLUSION

For the foregoing reasons, Plaintiff respectfully requests that the Court grant it summary judgment on its five Claims for Relief.

Respectfully submitted,

Dated: February 15, 2008

s/ Neil Levine
Neil Levine
McCrystie Adams

Attorneys for Plaintiff

CERTIFICATE OF SERVICE

I hereby certify that on February 15, 2008, I filed a true and exact copy of MEMORANDUM IN SUPPORT OF PLAINTIFF'S MOTION FOR SUMMARY JUDGMENT, DECLARATIONS OF NIKIOLAI LASH AND RICHARD JOHNSON, AND EXHIBITS IN SUPPORT with the Court's CM/ECF system, which will generate a Notice of Filing and Service on the following:

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