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Chapter Five

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Other Considerations and Cumulative Impacts

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1 **5.1 Federal Statutes and Policies**

2 In compliance with NEPA, this Draft EIS is intended to provide decision makers and the public
3 with information regarding compliance with other environmental laws, rules, and regulations that
4 are applicable to the proposed federal action as well as the environmental impacts of the
5 proposed federal action, as presented below.

6 **5.1.1 Endangered Species Act of 1973, as Amended (16 U.S.C. §§ 1531-1544)**

7 Section 7 of the ESA requires federal agencies to consult with the FWS to ensure that
8 undertaking, funding, permitting, or authorizing an action is not likely to jeopardize the
9 continued existence of listed species or destroy or adversely modify designated critical
10 habitat, as defined under the law.

11 Adoption of the proposed federal action by the Secretary is a discretionary federal action and
12 it is, therefore, subject to compliance with the ESA. Reclamation will request a species list
13 from the FWS and subsequently prepare a biological assessment to address the potential
14 effects of the proposed federal action on listed species. Once a preferred alternative is
15 identified, the BA will be finalized and formal consultation will be initiated, if appropriate.
16 Reclamation and the FWS will consult during 2007, with the intent of completing a BO for
17 inclusion in the Final EIS.

18 **5.1.2 Fish and Wildlife Coordination Act of 1934, as Amended** 19 **(16 U.S.C. §§ 661-667d)**

20 The Fish and Wildlife Coordination Act of 1934, as amended, requires consultation and
21 coordination with federal and state wildlife agencies to ensure that fish and wildlife are given
22 equal consideration when developing water resources projects. The proposed federal action is
23 not a water resources development project and specific consultation and coordination under
24 the Fish and Wildlife Coordination Act, as amended, is not necessary. FWS is a cooperating
25 agency and has been involved in the preparation of this Draft EIS.

26 **5.1.3 National Wildlife Refuge System Administration Act of 1966** 27 **(16 U.S.C. § 668dd)**

28 The National Wildlife Refuge System Administration Act of 1966 provides for the
29 administration and management of the national wildlife refuge system, including wildlife
30 refuges, areas for the protection and conservation of fish and wildlife threatened with
31 extinction, wildlife ranges, game ranges, wildlife management areas and waterfowl
32 production areas. The study area includes the following four national wildlife refuges on the
33 Colorado River below Hoover Dam: Havasu NWR, Bill Williams NWR, Cibola NWR, and
34 Imperial NWR. Only minor changes in Colorado River flow through these refuges would
35 occur under the action alternatives. No adverse impacts to refuges would result from the
36 proposed federal action; thus, it would be consistent with the National Wildlife Refuge
37 System Administration Act.

5.1.4 Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271-1287)

The Wild and Scenic Rivers Act of 1968 establishes a National Wild and Scenic Rivers System for the protection of rivers with important scenic, recreational, fish and wildlife, and other values. Rivers are classified as wild, scenic or recreational. The Congressional policy behind the National Wild and Scenic Rivers System is not to halt use of a river; instead, the goal is to preserve the character of a river. Uses compatible with the management goals of a particular river are allowed; however, development must ensure the river's free flow and protect its "outstandingly remarkable resources." The Wild and Scenic Rivers Act designates specific rivers for inclusion in the National Wild and Scenic Rivers System and prescribes the methods and standards by which additional rivers may be added. There are no designated wild and scenic rivers within the study area.

However, pursuant to Section 5(d) of the Wild and Scenic Rivers Act, the NPS has compiled and maintains a Nationwide Rivers Inventory (NRI), a register of river segments that potentially qualify as national wild, scenic, or recreational river areas. The NRI is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. Under a 1979 Presidential directive, and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments. Within the study area, the NPS has identified four river segments (with segment lengths provided in parentheses) on the NRI:

- ◆ Colorado River from Paria Riffle (RM 1) to 237-Mile Rapid in Grand Canyon National Park (236 miles);
- ◆ Colorado River from Glen Canyon Dam to Lake Mead (228 miles);
- ◆ Colorado River from upper end Lake Havasu (Blankenship Bend) to Interstate Highway 40 bridge crossing in Topock (11 miles); and
- ◆ Colorado River from gaging station below Cibola Lake to Martinez Lake (Fishers Landing) (31 miles).

The relatively minor changes in flow associated with the proposed federal action would not adversely affect the values for which these Colorado River segments were identified.

5.1.5 Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712)

The Migratory Bird Treaty Act of 1918 protects migratory birds by limiting the hunting, capturing, selling, purchasing, transporting, importing, exporting, killing, or possession of these birds or their nests or eggs. The specific migratory birds covered are identified in separate agreements between the United States and Great Britain, Mexico, and Japan. No significant adverse impacts to migratory birds would result from the proposed federal action; thus, it would be consistent with the Migratory Bird Treaty Act.

5.1.6 Migratory Bird Conservation Act of 1929 (16 U.S.C. § 715)

The Migratory Bird Conservation Act of 1929 protects migratory birds by creating the Migratory Bird Conservation Commission. This Commission's purpose is to consider and approve the purchase, rental, or other acquisition of any areas of land or water that may be recommended by the Secretary for the purpose of establishing sanctuaries for migratory birds. No significant adverse impacts on migratory birds would result from the proposed federal action; thus, it would be consistent with the Migratory Bird Conservation Act.

5.1.7 Bald Eagle Protection Act of 1940 (16 U.S.C. § 668)

The Bald Eagle Protection Act of 1940 imposes criminal and civil penalties on anyone in the United States or within its jurisdiction who, unless excepted, takes, possesses, sells, purchases, barter, offers to sell or purchase or barter, transports, exports or imports at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest or egg of these eagles; or violates any permit or regulations issued under the Bald Eagle Protection Act. No adverse impacts to bald eagles would result from the proposed federal action; thus, it would be consistent with the Bald Eagle Protection Act.

5.1.8 Clean Air Act of 1963, as Amended (42 U.S.C. § 7506)

The primary objective of the Clean Air Act is to establish federal standards for air pollutants from stationary and mobile sources and to work with the states to regulate polluting emissions. The Clean Air Act is designed to improve air quality in areas of the country that do not meet federal standards and to prevent significant deterioration in areas where air quality exceeds those standards. The proposed federal action would not result in any emissions from stationary or mobile sources or violate air quality standards. Therefore the proposed federal action is consistent with the Clean Air Act.

5.1.9 Federal Water Pollution Control Act (Clean Water Act) of 1972, as Amended (33 U.S.C. Chapter 26)

Section 404 of the Clean Water Act, as amended, identifies conditions under which a permit is required for construction projects that result in the discharge of fill or dredged materials into waters of the United States. Section 402 of the Clean Water Act requires a permit for the discharge of pollutants into waters of the United States. No construction activities are associated with implementation of the proposed federal action. Therefore it is consistent with the Clean Water Act.

5.1.10 River and Harbors Act of 1899 (33 U.S.C. §§ 401-403)

The River and Harbors Act of 1899 protects the public's right to free navigation in navigable waters of the United States as described by the USACE Section 10/404 implementing regulations at 33 C.F.R. pt. 329. The River and Harbors Act also prohibits unauthorized construction in navigable waters of the United States. No construction activities are associated with implementation of the proposed federal action. Therefore it is consistent with the River and Harbors Act.

5.1.11 National Historic Preservation Act of 1966, as Amended (16 U.S.C. § 470)

Federally funded undertakings that have the potential to impact historic properties are subject to Section 106 of the NHPA and its implementing regulations under 36 C.F.R. pt. 800. Under the National Historic Preservation Act, as amended, federal agencies are responsible for the identification, management, and nomination to the NRHP of cultural resources and if a proposed undertaking would affect historic properties, the agency must afford the Advisory Council on Historic Preservation the opportunity to comment. Reclamation's compliance with the National Historic Preservation Act, as amended, is described in Section 4.10.

5.1.12 Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. §§ 3001-3013)

Native American Graves Protection and Repatriation Act assigns ownership to Indians of human burials and associated grave goods, which are excavated or discovered on federal or Tribal lands. Implementation of the proposed federal action has no potential to disturb Indian human remains or associated funerary objects; however, Reclamation and the other Department agencies with compliance responsibilities under this act or its implementing regulations are committed to compliance with the inadvertent discovery process in the law and regulations.

5.1.13 Archaeological Resources Protection Act of 1979 (16 U.S.C. § 470)

The Archaeological Resources Protection Act (ARPA) of 1979 provides for the protection of archaeological resources on public and Indian lands. Protection of archaeological resources, under the guidelines of ARPA, includes consideration of excavation and removal of resources, enforcement of ARPA, and confidentiality of information concerning the nature and location of archaeological resources. It also provides substantial criminal and civil penalties for those who violate the terms of ARPA. Should any data recovery be proposed as a result of cultural resources compliance and consultation, Reclamation or its contractors shall seek the appropriate ARPA permits.

5.1.14 Farmland Protection Policy Act of 1981 (7 U.S.C. §§ 4201-4209)

The purpose of the Farmland Protection Policy Act is to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The proposed federal action will not permanently convert any farmland, prime or otherwise. The Farmland Protection Policy Act also stipulates that federal programs be compatible with state, local, and private efforts to protect farmland. While there is a potential under some of the proposed federal action alternatives to result in increased temporary land fallowing during droughts, the proposed federal action would not likely result in the conversion of farmland to nonagricultural uses. Any impact from the storage and delivery mechanism would not result in the permanent conversion of any prime farmland. Therefore the proposed federal action is consistent with the Farmland Protection Policy Act.

5.1.15 Executive Order No. 11988, Floodplain Management, May 24, 1977

This executive order requires avoiding or minimizing harm associated with the occupancy or modification of a floodplain. The proposed federal action would not involve modifications or occupancy of any floodplain, therefore the proposed federal action is consistent with Exec. Order No. 11988.

5.1.16 Executive Order No. 11990, Protection of Wetlands, May 24, 1977

This executive order provides for protection of wetlands through avoidance or minimization of adverse impacts. The proposed federal action would not involve modifications of or construction within jurisdictional wetlands, therefore the proposed federal action is consistent with Exec. Order No. 11990. Minor changes in river flow and its potential effect on backwaters and marsh habitat is discussed in Section 4.8.

5.1.17 Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994

This executive order directs agencies to identify and address, as appropriate, disproportionately high and adverse human health and environmental impacts of their programs, policies, and activities on minority and low-income populations. An analysis of the effects of the proposed federal action on minority and low-income populations is included in Section 4.15 of this Draft EIS. No significant disproportionate impacts on minority or low income populations were identified.

5.1.18 Executive Order No. 13007, Indian Sacred Sites, May 24, 1996

This executive order requires that all Executive Branch agencies that have responsibility for the management of federal lands will, where practicable, permitted by law, and not clearly inconsistent with essential agency functions, provide access to Indian sacred sites for ceremonial use by Indian religious practitioners, and will avoid adversely impacting the integrity of these sites. When possible, federal agencies must also maintain the confidentiality of sacred sites. Implementation of the proposed federal action would not conflict with the requirements of Exec. Order No. 13007.

5.1.19 Executive Order No. 12114, Environmental Impacts Abroad of Major Federal Actions, January 4, 1979

The 1944 Treaty between the United States and Mexico (including its implementing Minutes) establishes the obligations of the United States regarding the delivery of Colorado River water to Mexico.

This Draft EIS incorporates appropriate information regarding potential hydrologic and water quality impacts to Mexico (at the border) that have been prepared after coordination with the USIBWC, as well as with representatives of the Department of State. This Draft EIS complies with Exec. Order No. 12114, and addresses the appropriate treatment of international effects in environmental compliance documents.

This executive order provides among other things that: (1) federal agencies involved in actions with potential significant environmental impacts outside of the United States must provide information to federal decision makers so that the potential effects may be analyzed with other pertinent considerations of national policy; (2) activities involving foreign governments be coordinated through the Department of State; and (3) pertinent information may be withheld from other agencies and nations when necessary to avoid adverse impacts to foreign relations and ensure appropriate reflection of diplomatic factors. Section 1 of Exec. Order No. 12114 provides that it is the United States' "exclusive and complete determination

1 of the procedural and other actions to be taken by the federal agencies to further the purpose
2 of the National Environmental Policy Act, with respect to the environment outside the United
3 States, its territories and possessions.”

4 Reclamation has complied with Exec. Order No. 12114 by informing the Department of State
5 of the proposed federal action and by providing technical support to the USIBWC for its
6 consultation with Mexico.

7 **National Environmental Policy Act.** Reclamation notes that the statutory provisions of NEPA
8 (and the CEQ’s regulations implementing NEPA) do not require assessment of
9 environmental impacts within the territory of a foreign country. However, as a voluntary
10 measure to further the purposes of Exec. Order No. 12114, and for the purpose of efficiency
11 and convenience, this Draft EIS includes information with regard to Colorado River water
12 flowing to the United States-Mexico boundary including deliveries to Mexico pursuant to the
13 1944 Treaty, under all analyzed alternatives.

14 **Endangered Species Act.** Reclamation will analyze potential impacts of the proposed federal
15 action on species listed as endangered or threatened pursuant to the ESA. The FWS has
16 informed Reclamation that neither Section 7 of the ESA, nor the Section 7 consultation and
17 analysis process under the ESA’s implementing regulations address species outside the
18 borders of the United States. Section 8 of the ESA addresses ESA issues beyond the borders
19 of the United States through the mechanisms of financial assistance, encouragement of
20 foreign programs, and “research abroad.” In addition, under Section 8 of the ESA, with
21 appropriate consultation through the Secretary of State, the Secretary of the Interior has the
22 ability to assist in conservation efforts for listed species outside of the United States. In the
23 event that Reclamation identifies any potential impact of its final proposed federal action on
24 United States listed species that are found in Mexico, Reclamation will identify such
25 potential impacts and transmit its analysis of potential impacts, as appropriate, to the FWS, to
26 facilitate consideration of such potential impacts under Section 8 of the ESA.

27 **5.1.20 Secretarial Order No. 3206, American Indian Tribal Rights, Federal-Tribal**
28 **Trust Responsibility, and the Endangered Species Act, June 7, 1997**

29 This Secretarial Order directs that Department of the Interior and its sub-bureaus carry out
30 their responsibilities under the Endangered Species Act in a manner “that harmonizes the
31 Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the
32 Departments, and that strives to ensure that Indian tribes do not bear a disproportionate
33 burden for the conservation of listed species, so as to avoid or minimize the potential for
34 conflict and confrontation.” Implementation of the proposed federal action will be
35 undertaken consistent with the requirements of this Secretarial Order.

36 The CEQ’s regulations (40 C.F.R. pt. 1500 through 1508) implementing the procedural
37 provisions of NEPA defines cumulative impacts as the following:

38 “...the impact on the environment which results from the incremental impact of
39 the action when added to other past, present, and reasonably foreseeable future
40 actions regardless of what agency (Federal or non-Federal) or person undertakes

1 such other actions. Cumulative impacts can result from individually minor
2 but collectively significant actions taking place over a period of time
3 (40 C.F.R. pt. 1508.7).”

4 Cumulative impacts refer to two or more individual impacts that, when considered together,
5 are significant or that compound or increase other environmental impacts. Cumulative
6 impacts can be categorized as additive and interactive. An additive impact results from
7 additions from one kind of source either through time or space. An interactive impact results
8 from more than one kind of source.

9 Generally, other actions that could result in cumulative impacts when considered in tandem
10 with the effects of the proposed federal action (as identified in Chapter 4) have been
11 incorporated into modeling of future system conditions. Such actions include future increases
12 in consumptive use of Colorado River water in the Upper Division states, intrastate water
13 transfers in the Lower Division states (e.g. QSA water transfers), implementation of the LCR
14 MSCP, and various requirements and constraints applied to the operation of the Colorado
15 River system.

16 This section addresses the cumulative impacts of the proposed federal action combined with
17 other regional water supply or closely related projects in the region. Closely related projects
18 that could result in significant cumulative impacts are briefly described below.

19 **5.1.21 SNWA Virgin River and Muddy River Surface Water Development** 20 **Project**

21 As part of an ongoing initiative to protect southern Nevada from drought and augment future
22 water supplies, SNWA proposed a project in 2004 to develop surface flows from the Virgin
23 River and Muddy River for which it holds water rights. The SNWA currently holds water
24 right Permit 58591 for an annual maximum diversion from the Virgin River of 190 kaf, with
25 a not to exceed amount of 113 kaf average annual diversion, with a priority date of 1989; and
26 also owns pre-BCPA water rights in the form of shares which were purchased from irrigation
27 companies on the Muddy River and Virgin River.

28 In October 1, 2004, the SNWA applied for a permanent Right of Way from the BLM to
29 develop Permit 58591 as a diversion and pipeline from the Virgin River and irrigation shares
30 from the Muddy River. Proposed facilities included: a diversion structure across the Virgin
31 River, an associated off-stream reservoir, pump stations, water transmission facilities, brine
32 evaporation ponds, overhead electrical distribution lines, and access roads. The Right of Way
33 application required preparation of an EIS by the BLM, which was initiated in 2004.

34 However, early in 2007, the seven Basin States entered into an agreement, whereby SNWA
35 agreed not to pursue the Right of Way application for the Virgin River diversion project and
36 EIS, so long as SNWA is allowed to utilize pre-BCPA Virgin River and Muddy River rights
37 by diverting them out of Lake Mead, and so long as an interim water supply made available
38 to Nevada is reasonably certain to remain available to Nevada. SNWA also agreed not to
39 seek to pursue the Right of Way application so long as diligent pursuit of system
40 augmentation is proceeding to provide or has provided Nevada with an annual supply of 75
41 kaf by 2020.

5.1.22 SNWA Coyote Spring Well and Moapa Transmission System Project

This project includes a proposal by SNWA for groundwater production and conveyance facilities, and power conveyance facilities for groundwater from Coyote Spring Valley in Clark County, Nevada. The project would develop and convey Coyote Spring Valley groundwater rights to the Moapa Valley, for use by Moapa Valley Water District and future use by SNWA. This project would increase diversification of SNWA's current water resources to include non-Colorado River water resources.

SNWA applied to BLM for a Right of Way for the project facilities in November 2002. The application required BLM to prepare an EA which was initiated in July 2003.

5.1.23 SNWA Clark, Lincoln, and White Pine Counties Groundwater Development Project

This project includes groundwater production, conveyance and treatment facilities, and power conveyance facilities located in central and eastern Nevada. The project as proposed would develop and convey up to 167 kafy of groundwater from Clark, Lincoln, and White Pine Counties to the Las Vegas Valley for use in the SNWA service area to supplement the SNWA water supplies. This project will assist SNWA in meeting southern Nevada's projected future water demands and increase the diversification of SNWA's current water resources to include non-Colorado River groundwater resources.

SNWA applied to BLM for the Rights of Way for the pipelines and other facilities and BLM is the lead federal agency preparing the SNWA groundwater EIS to analyze the environmental issues associated with the SNWA's request for Rights of Way. It is not currently anticipated that this project will be completed prior to 2014. Water from this project will be consumptively used in southern Nevada.

5.1.24 SNWA Lake Mead Intake No. 3 Project

SNWA presently operates two water intakes at Saddle Island on the west shore of Lake Mead, approximately five miles northwest of Hoover Dam and approximately 20 miles east of the center of Las Vegas, within the LMNRA. Drought has caused declining water levels in Lake Mead during recent years. Long-term water supply modeling indicates that the lake elevation is expected to decline even further in future years, even under normal hydrologic conditions in the Colorado River basin, until the system recovers from the recent drought conditions.

SNWA proposes to construct a third deep-water intake, Intake No. 3, in Lake Mead, and other associated project components to protect the existing water system capacity against the potential loss of pumping capability of Intake No. 1 should the lake elevations fall below 1,050 feet msl. An EA is being prepared for NPS, lead federal agency, to grant SNWA's application for an expansion of an existing Right of Way associated with the construction of the proposed Intake No. 3 facilities. The major project components would include a new intake structure and intake tunnel beneath the lake and beneath Saddle Island, Intake Pumping Station (IPS)-3 on Saddle Island, the caverns or forebays beneath Saddle Island and shafts around IPS-3 for construction and connections, a conveyance pipeline from IPS-3 connecting with Alfred Merritt Smith Water Treatment Facility, and a tunnel interconnecting the Intake No. 3 tunnel with the existing Intake No. 2 tunnel beneath Saddle Island.

1 The Intake No. 3 project would:

- 2 ◆ preserve water delivery system capacity;
- 3 ◆ provide reliable water delivery system back-up capability; and
- 4 ◆ provide operational flexibility for accessing the best available water quality for the
- 5 public water supply.

6 The construction of the Intake No. 3, a new intake would provide for SNWA maintaining full
7 system capacity at lake elevations as low as 1,000 feet msl. The Intake No. 3 project does not
8 propose any change or increase in the quantity of Colorado River water authorized for
9 diversion and use by the SNWA. The project is a modification of the location from which
10 SNWA's existing contractual rights to water are withdrawn from the Colorado River at Lake
11 Mead, giving the SNWA flexibility to take water from different elevations and locations in
12 Lake Mead depending on seasonal lake conditions and lake water elevations.

13 **5.1.25 Systems Conveyance and Operations Program**

14 Reclamation and NPS prepared an EIS as joint lead federal agencies to analyze the potential
15 impacts associated with the construction, operation, and maintenance of the SCOP. The
16 Clean Water Coalition (CWC) is comprised of the three agencies currently responsible for
17 wastewater treatment in the Las Vegas Valley: the City of Las Vegas, the City of Henderson,
18 and the Clark County Water Reclamation District. The CWC proposes to implement the
19 SCOP, which would include optimization of the treatment plants, increased treatment (as
20 needed), and a pipeline to discharge the highly treated effluent into Lake Mead, while
21 minimizing impacts to water quality and other natural resources. The SCOP would provide
22 an alternate discharge point for the effluent, which is currently discharged to Lake Mead
23 through the Las Vegas Wash. The purpose of the project is to maintain water-quality
24 standards and NPS recreational and resource values by operating a system that would allow
25 for flexible management of wastewater flow from the Las Vegas Valley (Valley) to Lake
26 Mead. The quantity of effluent treated and discharged in the Valley will increase as the
27 population of the Valley increases. The wastewater facilities must accommodate the
28 additional flows while continuing to meet current or future water quality standards for the
29 Las Vegas Wash, Las Vegas Bay, and Lake Mead.

30 The SCOP EIS analyzed the potential environmental impacts associated with three pipeline
31 alternatives, a Process Improvements Alternative (no pipeline), the No Action Alternative
32 (no pipeline); and the Boulder Islands North (pipeline) alternative, which was identified as
33 the preferred alternative.

34 **5.1.26 Lower Colorado River Multi-Species Conservation Program**

35 This program was developed to address potential effects to listed and other selected special
36 status species (covered species) from identified ongoing and future anticipated federal
37 discretionary actions and non-federal activities on the lower Colorado River (covered
38 actions). The development and implementation of shortage criteria on the lower Colorado
39 River was one of the federal covered actions included in the LCR MSCP and covered under
40 the LCR MSCP BO (FWS 2005). The LCR MSCP BO covered the effects of covered actions

1 for a reduction of Lake Mead reservoir elevations to 950 feet msl and flow reductions of up
2 to 0.845 maf from Hoover Dam to Davis Dam, 0.860 maf from Davis Dam to Parker Dam,
3 and 1.574 maf from Parker Dam to Imperial Dam. The LCR MSCP identified, and it is
4 mitigating for impacts to the covered species and their habitats from the flow reduction
5 conditions described above. These impacts included the potential loss of up to:

- 6 ♦ 2,008 acres of cottonwood-willow habitats;
- 7 ♦ 133 acres of marsh habitat; and
- 8 ♦ 399 acres of backwater habitat.

9 To address these impacts, the LCR MSCP will:

- 10 ♦ restore 5,940 acres of cottonwood-willow habitat;
- 11 ♦ restore 512 acres of marsh habitat;
- 12 ♦ restore 360 acres of backwater habitat;
- 13 ♦ stock 660,000 razorback sucker over the term of the LCR MSCP; and
- 14 ♦ stock 620,000 bonytail over the term of the LCR MSCP.

15 In addition, these habitats will be actively managed to provide habitat values greater than
16 those of the impacted habitats. While the LCR MSCP is geared toward special status species,
17 it is important to understand that all species that use the habitats impacted by the LCR MSCP
18 covered activities benefit by the conservation actions currently being carried out under the
19 LCR MSCP, and are therefore fully mitigated for within the limits of the LCR MSCP
20 analysis. Impacts of the LCR MSCP are addressed in the LCR MSCP documents (LCR
21 MSCP 2004a-e) incorporated by reference into this EIS.

22 **5.1.27 Lower Colorado River Drop 2 Storage Reservoir Project**

23 The proposed lower Colorado River Drop 2 Storage Reservoir Project (Drop 2 Reservoir
24 Project) is one of many potential actions that will be taken to maximize beneficial use of
25 Colorado River water in the United States. Reclamation issued a draft EA on November 30,
26 2006 for public review. The specific objectives of the proposed Drop 2 Reservoir Project
27 include:

- 28 ♦ providing additional storage capacity to reduce non-storable flows of the Colorado
29 River below Parker Dam; and
- 30 ♦ providing additional operational flexibility in the lower Colorado River system for the
31 Imperial Irrigation District, Coachella Valley Water District, and other Colorado
32 River system users.

1 The Drop 2 Reservoir Project has four primary physical components: 1) the reservoir itself;
2 2) an inlet canal; 3) an outlet canal; and 4) a location for storage of silt periodically removed
3 from the reservoir:

4 ♦ **Reservoir.** Two 4,000-af capacity reservoir cells would be formed by excavating
5 below the existing ground surface elevation. The approximate depth of the reservoir
6 would be 20 feet. The reservoir would occupy approximately 621 acres.

7 ♦ **Inlet Canal.** The inlet canal would be from five to seven miles in length depending on
8 alignment. Inlet canal capacity would be 1,700 cfs.

9 ♦ **Outlet Canal.** The outlet canal would be approximately 3,500 feet in length connecting
10 the reservoir to the AAC near Drop 2 Reservoir Project. Outlet canal capacity would
11 be 1,700 cfs.

12 The Drop 2 Reservoir Project operations would be relatively simple: a new inlet canal would
13 convey water from the existing Coachella Canal Turnout to a new storage reservoir, and as
14 needed, water would be returned to the AAC via a new outlet canal. Both the inlet and outlet
15 canals would be designed to use gravity flow. To maintain capacity, silt would have to be
16 periodically removed from the bottom of the reservoir.

17 Recent legislation passed by Congress in late 2006¹ requires that the Secretary proceed
18 “without delay” with the “construction, operation and maintenance” of the Drop 2 Reservoir
19 Project. As this Draft EIS goes to publication, Reclamation is preparing detailed plans and
20 schedules for implementation of the Drop 2 project.

21 **5.1.28 Long-Term Experimental Plan for the Operation of Glen Canyon Dam** 22 **and Other Associated Management Activities**

23 The Upper Colorado Region of Reclamation has filed a NOI to Prepare an EIS regarding
24 experimental actions to benefit resources downstream of Glen Canyon Dam in the GCNRA
25 and the Grand Canyon National Park (71 Fed. Reg. 74556).

¹ The full text of the legislation, contained in Public Law 109-432 provides:
: “SEC. 396. REGULATED STORAGE WATER FACILITY.

(a) CONSTRUCTION, OPERATION, AND MAINTENANCE OF FACILITY.—

Notwithstanding any other provision of law, upon the date of enactment of this Act, the Secretary shall, without delay, pursuant to the Act of January 1, 1927 (44 Stat. 1010, chapter 47) (commonly known as the “River and Harbor Act of 1927”), as amended, design and provide for the construction, operation, and maintenance of a regulated water storage facility (including all incidental works that are reasonably necessary to operate the storage facility) to provide additional storage capacity to reduce nonstorable flows on the Colorado River below Parker Dam.

(b) LOCATION OF FACILITY.—

The storage facility (including all incidental works) described in subsection (a) shall be located at or near the All American Canal.”

1 The purpose of the Long-Term Experimental Plan is to increase understanding of the
2 ecosystem downstream from Glen Canyon Dam and to improve and protect important
3 downstream resources. The NEPA process would analyze the implications and impacts of
4 each of the alternatives on all of the purposes and benefits of Glen Canyon Dam as well as on
5 downstream resources. The Long-Term Experimental Plan would implement a structured,
6 long-term program of experimentation (including dam operations, modifications to Glen
7 Canyon Dam intake structures, and other non-flow management actions, such as removal of
8 non-native fish species) and monitoring in the Colorado River below Glen Canyon Dam.

9 The proposed Long-Term Experimental Plan is intended to ensure a continued, structured
10 application of adaptive management in such a manner as to protect, mitigate adverse impacts
11 to, and improve the values for which Grand Canyon National Park and GCNRA were
12 established, including, but not limited to natural and cultural resources and visitor use,
13 consistent with applicable federal law.

14 The Long-Term Experimental Plan will build on a decade of scientific experimentation and
15 monitoring that has taken place as part of the Glen Canyon Dam Adaptive Management
16 Program, and will build on the knowledge gained by experiments, operations, and
17 management actions taken under the program. Accordingly, Reclamation intends to tier from
18 earlier NEPA compliance documents prepared as part of the Department's Glen Canyon
19 Adaptive Management Program efforts (40 C.F.R. pt. 1500.4(i), 1502.20, and 1508.20(b)),
20 such as the 2002 EA prepared on adaptive management experimental actions at Glen Canyon
21 Dam (Proposed Experimental Releases from Glen Canyon Dam and Removal of Non-
22 Native Fish).

23 The anticipated implementation of a Long-Term Experimental Plan for the operation of
24 Glen Canyon Dam should not contribute to cumulative adverse effects to the resources
25 described below.

26 **5.1.29 Cumulative Impacts by Resource**

27 **5.1.29.1 Hydrologic Resources and Water Delivery**

28 SNWA's development of pre-BCPA water rights on the Virgin River and Muddy River,
29 and the development of Coyote Spring Valley groundwater could potentially result in
30 increased flows into Lake Mead, and increased deliveries from Lake Mead, under the
31 storage and delivery mechanism element of the proposed federal action. These hydrologic
32 effects were included in the modeling conducted for this EIS, and these impacts are
33 already included in the analysis in Sections 4.3 and 4.4. Similarly, the increase in return
34 flows to Lake Mead for the northern Nevada groundwater projects were also included in
35 the hydrologic analysis.
36

37 The LCR MSCP would not result in any cumulative effects because it would not alter
38 water system operations.

1 The Drop 2 Reservoir Project would result in a reduction in over-deliveries to Mexico.
2 These hydrologic effects were included in the hydrologic modeling for Lake Mead
3 conducted for this EIS, and any resulting impacts are already included in the analysis in
4 Sections 4.3 and 4.4.

5 **5.1.29.2 Water Quality**

6 For the reasons described immediately above, the potential cumulative impacts on water
7 quality were included in the modeling assumptions, and are included in the analysis in
8 Section 4.5. The Long-Term Experimental Plan for Glen Canyon Dam could result in
9 some alteration of water quality parameters, particularly temperature, in the Colorado
10 River reach between Glen Canyon Dam and Lake Mead.

11 The SCOP has the potential to affect water quality in Lake Mead. However, the SCOP is
12 intended to accommodate Lake Mead's lowering elevations since the amount of mixing
13 and dilution available in the inner Las Vegas Bay would decrease as Lake Mead
14 elevations decrease. The SCOP also intends to provide flexibility to avoid possible
15 impacts to source water quality at SNWA's intake structure. As a result of these project
16 planning criteria, no significant cumulative impacts are anticipated.

17 **5.1.29.3 Air Quality**

18 SNWA's development of pre-BCPA water rights on the Virgin River and Muddy River
19 and the development of Coyote Springs Valley groundwater could potentially result in
20 annual storage and release of limited quantities of water from Lake Mead under the
21 storage and delivery mechanism element of the proposed federal action. Any effect from
22 these operations was taken into account in the modeling performed for this project, and
23 any impacts of wind blown dust from exposed reservoir shoreline is already included in
24 the analysis in Section 4.6. The slight increase in return flow credits from the northern
25 Nevada groundwater projects would have no cumulative effect on air quality. The LCR
26 MSCP may result in minor reductions in fugitive dust emissions through the creation of
27 habitat on lands that currently may be less vegetated and therefore potentially producing
28 more fugitive dust. The Drop 2 Reservoir Project would not result in any cumulative air
29 quality effects. Although emissions will occur during construction of the project, they are
30 generally separated in time and location from any potential effects of the other actions.

31 **5.1.29.4 Visual Resources**

32 Potential cumulative impacts related to the exposure of the calcium carbonate ring around
33 Lake Mead was included in the modeling for Lake Mead elevations, as described above.

34 Implementation of the LCR MSCP will result in the creation of new habitat areas, which
35 viewers may perceive as attractive. The proposed federal action would not affect the
36 creation of this habitat.

37 The Drop 2 Reservoir Project will result in localized visual impacts during construction,
38 but this project is separated in time and location from any potential effects of the other
39 actions discussed above. The proposed location for the Drop 2 Reservoir Project is a
40 former working farm and the location has no visually unique characteristics.

5.1.29.5 Biological Resources

SNWA's development of pre-BCPA water rights on the Virgin River and Muddy River and development of Coyote Springs Valley groundwater could potentially result in beneficial effects to habitat for sensitive and listed fish species that reside in the lower Virgin River and Muddy River. Potential effects to species within Lake Mead from increased flows from the Virgin River and Muddy River were addressed in the LCR MSCP.

The LCR MSCP will result in substantial habitat creation along the lower Colorado River. This habitat creation will provide benefits to biological resources. There are no cumulative effects anticipated.

The Drop 2 Reservoir Project will reduce the amount of over-deliveries to Mexico, resulting in reduced frequency of these flows in the limitrophe reach of the Colorado River.

The Conservation Before Shortage Alternative and the Reservoir Storage Alternative include periodic releases of water (pulse flows) which are assumed to pass through the limitrophe reach.² If implemented, these two alternatives could have a beneficial effect on the vegetation and wildlife habitat in this reach. The alternatives considered in this Draft EIS also vary slightly in terms of the probability of larger flows (i.e. flood releases) to Mexico. While the same reach of the river may be affected, these impacts are generally not additive, and no significant cumulative impacts are anticipated.

5.1.29.6 Cultural Resources

The proposed federal action's effects on cultural resources result from hydrologic changes in reservoir levels and river flows. As noted above, the projects with potential for cumulative impacts were included in the hydrologic modeling. Therefore, cumulative impacts are already addressed in Section 4.9.

5.1.29.7 Indian Trust Assets

The proposed federal action would not result in any significant effects on ITAs. Therefore, it would not contribute to any cumulative effects.

5.1.29.8 Electrical Power

Effects on electrical power production related to the proposed federal action are described in Section 4.11. The hydrologic effects of the related projects discussed above were included in the modeling assumptions, and are in the analysis.

² These flows were modeled as part of the storage and delivery mechanism under the Conservation Before Shortage Alternative and Reservoir Storage Alternative. These modeling assumptions were utilized in this Draft EIS in order to analyze the potential impacts to environmental resources of the storage and delivery mechanism, particularly with regard to reservoir elevations and river flow impacts. The use of these modeling assumptions does not represent any determination by Reclamation as to whether, or how, these releases could be made under current administration of the Colorado River.

5.1.29.9 Recreation

Effects on recreation activities related to the proposed federal action are described in Section 4.12. To the extent these recreation impacts are reservoir elevation dependent, the effects of the projects listed above are included in the analysis. The LCR MSCP would not contribute to any cumulative effects on recreation.

5.1.29.105.2.6.10 Transportation

Effects on transportation related to the proposed federal action are described in Section 4.13. To the extent these transportation impacts are reservoir elevation dependent, the effects of the projects listed above are included in the analysis. The LCR MSCP would not contribute to any cumulative effects on transportation.

5.1.29.11 Socioeconomics

Effects on socioeconomics related to the proposed federal action are described in Section 4.14. The projects listed above would not contribute to any cumulative effects on socioeconomic conditions. The Drop 2 Reservoir Project and implementation of the LCR MSCP conservation projects will result in short-term economic benefits from the creation of jobs. However, these temporary effects would not contribute to any cumulative effects associated with the proposed federal action.

5.1.29.12 Environmental Justice

Effects on environmental justice communities related to the proposed federal action are described in Section 4.15. The projects listed above would not contribute to any cumulative effects on low-income and minority communities.

5.2 Relationship Between Short-term Uses of the Environment and Long-term Productivity

For purposes of this required regulatory assessment, Reclamation considers the interim period of the proposed federal action (through 2026) short-term, especially when compared with the longer modeling period of 2060 or even longer durations. Within this time frame, Reclamation would implement water management practices that would result in an increased predictability of water operations, particularly under drought and low reservoir conditions. This predictability is expected to have a stabilizing effect on the use of water in the region by ensuring that all parties have a better understanding of how the system would operate and, therefore, what management actions water users may need to undertake under such conditions, thus ensuring long-term productivity.

Thus the tradeoff between short-term uses of the environment and long-term productivity is that Reclamation and state and local water managers and users will gain valuable experience operating under shortage conditions, and this should ultimately result in enhanced long-term productivity throughout the region. Adoption of the proposed federal action would contribute to the long-term predictability of water use through more defined water operations.

1 **5.3 Irreversible and Irretrievable Commitments of Resources**

2 Irreversible commitments are decisions impacting non-renewable resources such as soils,
3 wetlands, and waterfowl habitat or commitments that cannot be reversed. Such decisions are
4 considered irreversible because their implementation would impact a resource to the point that
5 renewal can occur only over a extreme long period of time or at great expense or because they
6 would cause the resource to be destroyed, become extinct, or removed. The term “irreversible”
7 describes the loss of future options and applies to the impacts of using nonrenewable resources
8 or resources that are renewable only over a long period of time. Irretrievable commitments are
9 those that are lost for a period of time.

10 Implementation of the proposed federal action would not result in the irreversible or irretrievable
11 commitment of resources. Managing water supplies in a more structured way will help conserve
12 resources. In addition, the proposed guidelines are intentionally interim to provide opportunities
13 to gain valuable operation experience under a wide range of reservoir conditions.

14