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Natural Environment Study

TOTAL MAXIMUM DAILY LOAD (TMDL) AND IMPLEMENTATION PLAN FOR DISSOLVED OXYGEN IN THE NEW RIVER AT THE INTERNATIONAL BOUNDARY IMPERIAL COUNTY, CALIFORNIA

The purpose of this Natural Environment Study (NES) is to provide biological studies and biological-related information necessary for the environmental review process of a proposed amendment to the Water Quality Control Plan for the California Regional Water Quality Control Board, Colorado River Basin Region (Basin Plan). This amendment will establish a Total Maximum Daily Load (TMDL) and Implementation Plan for Dissolved Oxygen (DO) in the New River at the International Boundary (IB) (TMDL Staff Report), Imperial County, California, as required by Section 303(d) of the federal Clean Water Act (CWA). Full disclosure of environmental impacts of proposed projects is required to satisfy legal mandates of various California and federal statutes and regulations. The NES includes documentation of project area biological resources and an impact assessment of project alternatives on those resources.

PROJECT DESCRIPTION

The New River originates in Mexicali Valley, Mexico. It flows approximately 20 miles (32.2 km) through the city of Mexicali, Mexico, crosses the IB, continues through the city of Calexico, California, in the U.S., and travels northward about 60 miles (96.56 km) until it empties into the Salton Sea. The Salton Sea is California's largest inland surface water. The New River watershed is approximately 500,000 acres (202,350 hectares) in size: 200,000 acres (80,940 hectares) of Imperial Valley farmland in the U.S.; and 300,000 acres (121,410 hectares) in Mexico, including the Mexicali metropolitan area and agricultural land in Mexicali Valley. The climate of the New River watershed is hot with dry summers, occasional thunderstorms, and gusty high winds. Average annual rainfall is less than 3 inches (76.2 mm), and temperatures are in excess of 100 °F (38 °C) for more than 100 days per year. Major soils associations in the New River watershed are within the "wet" series of poorly drained soils.

Sources of flows to the New River are urban and agricultural runoff, and treated municipal and industrial wastes from the Mexicali Valley, Mexico, and the Imperial Valley, California, U.S. In 2008, average flows for the New River at the IB and at the outlet to the Salton Sea were about 3.36 and 15.61 cubic meters per second (cms), respectively. Treated wastewater from the municipality of Mexicali accounts for about 30% of the New River's flow in Mexico. The remaining 70% of the flow is from agricultural and urban runoff in the Mexicali Valley, which discharges to the New River via agricultural tributary drains.

The CWA requires states to adopt water quality standards (WQSS) for navigable waters to

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protect the public health or welfare, enhance the quality of water and serve other specified purposes of the CWA, including taking into consideration the navigable waters' use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation. (CWA Section 303(c)(2)(A); 40 CFR 131.10-131.11.) Water quality standards (WQSs) consist of designated uses (or beneficial uses), water quality criteria (or objectives) (WQOs) to protect the beneficial uses, and an anti-degradation (non-degradation) policy. (*Ibid.*, 40 CFR 131.12.)

The DO WQO for the New River is a minimum of 5.0 (five) milligrams per liter (mg/l) at any time. Accordingly, this TMDL proposes this DO WQO as the numerical target to be met. DO is not considered a pollutant, but is an indicator parameter for water quality. The main pollutants of concern that cause in-stream low DO are biochemical oxygen demand (BOD) and ammonia (NH₃). This TMDL identifies the maximum amount (or loads) of BOD and NH₃ that can be discharged to the New River at the IB without violating the New River's applicable WQSs for DO. The load allocations for all discharges from Mexico to the New River at the IB established by the TMDL are 5.0 mg/l or 1529 kg/day of BOD and 0.5 mg/l or 153 kg/day of NH₃. The mass per unit time values indicated are based on a flow rate of 125 cfs (3.54 cms), which was the average annual flow rate in the New River at the IB in 2007. (See Table 2.2, TMDL Staff Report.)

Average annual DO concentrations for the New River at the IB ranged from 0.8 to 2.8 mg/l from 1997 to 2002. The Las Arenitas Wastewater Treatment Plant (WWTP), in Mexico, which started operations in March 2007, was designed to prevent the city of Mexicali's remaining untreated sewage from discharging into the New River. As a result, DO levels in the impaired section of the New River improved significantly. However, the DO concentrations continue to violate the DO WQO of 5.0 mg/l at any time, especially during the summer months.

The TMDL Implementation Plan proposes to eliminate New River low DO impairment in two phases. Phase 1 of TMDL implementation (first three years after USEPA approval) requests that the federal government (USIBWC and USEPA) take the following three Actions:

1. develop and submit to the Regional Board a New River DO TMDL Implementation Report that describes measures taken or proposed to ensure Mexico does not cause or contribute to violations of this TMDL;
2. continue to conduct water quality and DO monitoring in the New River at the IB, and to submit monitoring data and reports to the Regional Board; and
3. develop and submit to the Regional Board a New River DO TMDL Final Implementation Report that describes progress in completing implementation measures identified in Actions 1 and 2.

Phase 1 of TMDL Implementation also requests that third party cooperating agencies and organizations with interests in the New River:

1. develop, sign, and submit to the Regional Board a memorandum of understanding (MOU) to ensure coordination of New River IB projects; and
2. develop and submit progress reports (through a coordination committee) to the Regional

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Board describing the status of projects and recommended actions to address pollution in the New River at the IB.

Phase 2 of the TMDL Implementation Plan (second three years after USEPA approval) will be implemented if Phase 1 does not result in the New River attaining DO WQSSs. Several actions will be considered for Phase 2. A New River wastewater treatment plant in the U.S. could be one of these actions, if feasible and appropriate.

Regional Board staff will track TMDL implementation and monitor water quality progress in both phases, enforce provisions, and propose modifications of the TMDL to the Regional Board, if necessary, in accordance with a time schedule.

STUDY METHODOLOGY

Literature Review Methods

Research was done on wildlife, vegetation, and habitats in and near the New River/IB area. Literature sources included field guides, research papers, websites, government publications, and the California Natural Diversity Database (California Department of Fish and Game, 2005a). Information specifically cited within this report is recorded in the "References Cited" section. Background information not specifically cited within the text is recorded in the "References Relied Upon" section.

Special status species recorded as "accidental" in the literature are not included in this report since project area habitat generally is not considered suitable for these species.

Special Status Definitions

The California Department of Fish and Game and the U.S. Fish and Wildlife Service designate the status of a species. "Special" is defined for this report as plants, animals, or natural communities whose populations are of concern, including those that are endangered, threatened, special concern species, and otherwise rare/sensitive. This definition is consistent with the California Natural Diversity Database, which tracks such animals (California Department of Fish and Game, 2004), plants (California Department of Fish and Game, 2005b), and natural communities (California Department of Fish and Game, 2003). Special status species are categorized and defined as follows:

1. "Endangered" species are those that have such limited numbers that they are in imminent danger of extinction throughout all or a significant portion of their range.

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2. "Threatened" species are those that are likely to become endangered in the foreseeable future.
3. "Special Concern Species" are those that have declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. (State-listed Special Concern Species that are "Fully Protected" are those that may not be taken or possessed without a state permit. Federally-listed Special Concern Species are no longer tracked by the U.S. Fish and Wildlife Service, and thus are not discussed in this study.)
4. "Rare/Sensitive" species are those that are biologically rare, very restricted in distribution, declining throughout their range, in danger of local extirpation, are closely associated with a rapidly declining habitat, or have a critical, vulnerable stage in their life cycle that warrants monitoring.
5. "Fully Protected" was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Please note that most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

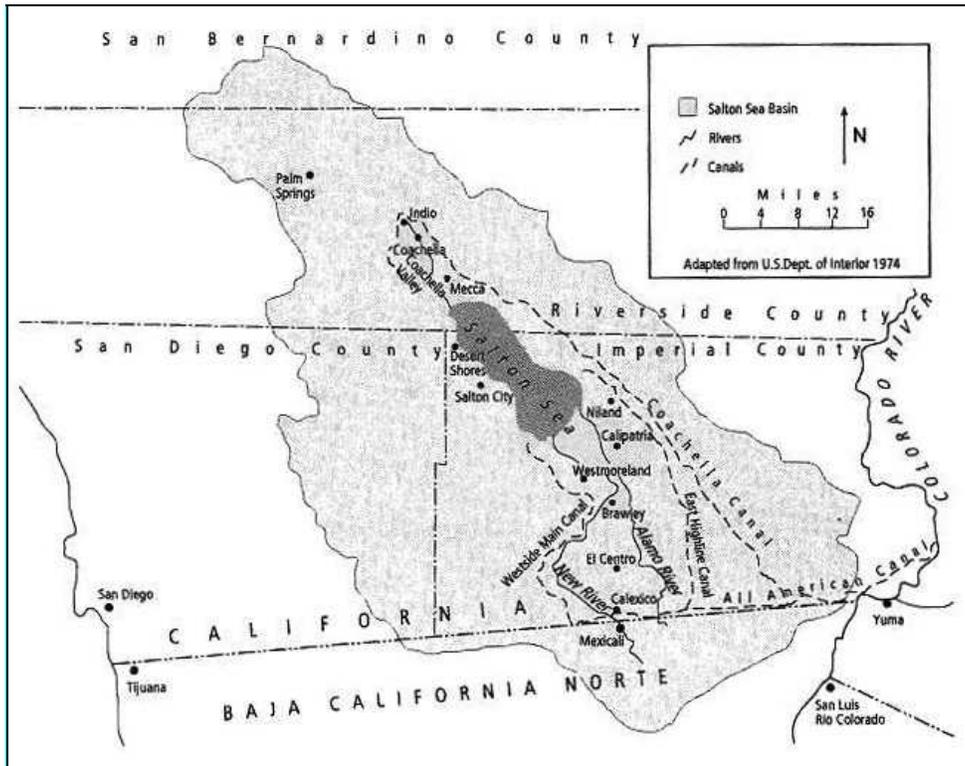
Endangered and threatened species have the highest level of protection, followed by special concern species, then rare/sensitive species. When a species is listed in more than one category in the California Natural Diversity Database (e.g., State Special Concern Species and Rare/Sensitive), the species is recorded in this Natural Environment Study only in the category offering the highest level of protection.

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ENVIRONMENTAL SETTING

Affected Environment

The area affected by the project includes the New River at the IB. This U.S. section of the New River is located in southeastern California. Figure 1 shows a map of the New River within the Salton Sea Transboundary Watershed.

Figure 1: New River within the Salton Sea Transboundary Watershed (Cohen et al., 1999)



The New River channel at the IB is V-shaped, and three to four feet deep. Flow from Mexico at the IB is urban and agricultural runoff, and treated municipal and industrial wastes from the Mexicali Valley.

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Land Uses

The U.S. section of the New River at the IB is located in Imperial County. The county covers about 4,597 square miles (2,942,080 acres) (County of Imperial, 2008). About 74% of county lands are undeveloped desert and mountain areas, mostly under federal or state ownership. About 18% of county lands are irrigated for agriculture, totaling about 534,000 acres located mostly in the Imperial Valley. The Salton Sea covers about 7% of the county. Developed areas (e.g., cities, communities, and support facilities) occupy less than 1% of county land. Table 1 shows Imperial County land use distribution.

Table 1. Imperial County Land Use Distribution (in acres) [Source: Planning & Development Services Department (County of Imperial), 2008]

Land Use	Acres
Irrigated (Agriculture)	
Imperial Valley	512,163
Bard Valley	14,737
Palo Verde	7,428
TOTA	534,328 (18.2%)
Developed	
Incorporated	9,274
Unincorporated	8,754
TOTAL	18,028 (0.60%)
Desert and Mountains	
Federal	1,459,926
State	37,760
Indian	10,910
Private	669,288
TOTAL	2,177,884 (74.0%)
Other	
Salton Sea	211,840 (7.2%)
IMPERIAL COUNTY	2,942,080 Acres
TOTAL	2,942,080 Acres

Imperial County has an agricultural-based economy, and produces over \$1.5 billion dollars annually (Imperial County Agricultural Commissioner, 2008). Imperial Valley contains about 500,000 acres of irrigated land in production. Imperial Irrigation District (IID) distributes up to 3.1 million acre-feet/year of irrigation water from the Colorado River to Imperial County irrigated lands (<<http://www.iid.com/Water>>). Major Valley crops are alfalfa, wheat, bermuda grass, sudan grass, and sugar beets, based on amount of land in production (Imperial County Agricultural Commissioner, 2008). One in three Imperial Valley jobs is agriculture-related (<<http://www.iid.com/Water/IrrigationDrainageServices>>).

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Some fishing occurs in downstream reaches, although the contaminated water makes the New River unfit for any recreational use.

Historical Setting

The New River, along with the Salton Sea and Alamo River, was formed due to a catastrophic flood event in 1905, when a temporary diversion for irrigation water from the Colorado River to the Imperial Valley failed during flood conditions (Gruenberg, 1998). The entire flow of the Colorado River diverted to the Salton Basin. The dike breach was repaired sixteen months later, and the Colorado River then resumed its former course across the IB into the Gulf of California.

The Salton Sea's accidental creation coincided with agricultural development in the Coachella, Imperial, and Mexicali valleys. Since then, agricultural return flows and domestic/municipal wastewater have sustained the New River, Salton Sea, and Alamo River.

Ecological Setting

Downstream reaches of the New River provide important habitat for many kinds of wildlife. However, the New River at the IB is so polluted by multiple constituents that many species no longer exist there or occur in very low numbers. Poor water quality at the IB continues to impact the New River all the way to the Salton Sea due to constituents (e.g., pathogens) carried by organic matter.

The New River pollutant problem is most severe at the IB. Very few bottom-dwelling invertebrates can survive in the New River from the IB to nearly nine miles downstream—only three species, sometimes represented by only one organism, were detected in one study (Setmire, 1984). Invertebrate populations continue to increase in numbers and diversity downstream (Setmire, 1984).

Low invertebrate populations at the IB lead to low fish populations, as many fish consume invertebrates. Low fish populations have negative impacts on fish-eating species, especially birds, at the IB. About 20 miles downstream of the IB, near the community of Seeley, the DO and health of the New River begins to improve substantially, although the river is still impaired by a number of pollutants.

Downstream reaches of the New River exhibit more intricate food webs than are present at the IB. In downstream reaches, food webs incorporate many terrestrial and aquatic elements, including plants, invertebrates, fish, mammals, reptiles, amphibians, and birds. Organisms at the food web base are consumed by organisms at the next highest trophic level. These organisms then are consumed by the next highest trophic level, and so on until the top of the food web is reached. The base of the New River food web in downstream reaches includes

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plankton, detritus, and aquatic vegetation, which are consumed by aquatic invertebrates such as snails, waterboatmen, and insect larvae. The aquatic invertebrates are consumed by crayfish, river clams, and fish. Some fish also may consume plankton directly. Birds and turtles are at the top of the food web, feeding on aquatic invertebrates, aquatic vegetation, crayfish, river clams, and fish. Generally, waterfowl and shorebirds are seen where the New River meets the Salton Sea. Birds are the most diverse wildlife group using the New River as indicated by abundance and species richness, and are most concentrated in downstream reaches. Relatively few bird species are present in the New River at the IB.

Riparian habitat is found along some parts of the New River, especially in downstream reaches. These riparian areas provide important habitat for songbirds. Riparian corridors are potential wildlife movement corridors, and thus are important aspects of habitat. The dominant plant species along these corridors is tamarisk (also known as salt cedar), an introduced species that has suffocated native vegetation (Montgomery Consulting Engineers Inc., 1987).

The New River empties into the Salton Sea, which is a critical stop for migrating birds on the ecologically important Pacific Flyway, a major migratory route connecting Canada and the U.S. to Mexico and Central America. Millions of birds, representing more than 350 species, winter at the Sea in one of the few remaining wetland environments along the Pacific Flyway (U.S. Fish and Wildlife Service, 1997). Salton Sea bird communities represent a significant proportion of the breeding populations of many species (Tetra Tech Inc., 2000).

The New River supports a substantially different ecosystem than that of the Salton Sea, into which the River empties, despite the Sea receiving agricultural discharges and other relatively freshwater flows from the New River, Alamo River, and agricultural drains. This is due to physical and chemical differences, the most important being the Salton Sea's high salinity level. The interface between the New River and the Salton Sea contains elements of both ecosystems, and serves as a transition zone where fresh and salt water intermix to form brackish water.

Federal and state refuges are near the Salton Sea. The Salton Sea National Wildlife Refuge and the Wister Wildlife Management Unit are located at the southern end of the Salton Sea, where the New River and Alamo River form the Salton Sea's delta. The federal Salton Sea National Wildlife Refuge was established in 1930 to preserve wintering habitat for migratory birds, and to provide forage areas to limit crop damage caused by migratory and resident birds. The state Wister Wildlife Management Unit was established in the 1950s as a way station for migratory waterfowl. Both refuges contain state and federally endangered and threatened species.

Habitats

Available habitat is intricately associated with wildlife diversity and abundance. Environmental impacts to habitat have direct impacts on the wildlife dependent upon that particular habitat. The habitats near the New River at the IB, which are highly disturbed due to urban development, U.S. Border Patrol maintenance of New River banks, and dredging, are described

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below. Habitat diversity is low here with only two types of habitat present: tamarisk scrub and open water. Other non-natural habitats (e.g., agricultural land, urban land) are near the project area.

Tamarisk scrub is common in the project area, along the banks of the New River, and further out into the desert. This habitat is fairly open, and consists mainly of introduced Tamarix species in combination with desert scrub. Tamarisk commonly replaces native vegetation, especially in riparian areas, and reduces water available for wildlife. Some tamarisk grows along the River's banks (U. S. National Park Service, 2005)

Open water occurs in the New River and some of its tributaries. This habitat is always flooded and may support submerged or emergent vegetation, especially in downstream reaches.

Agricultural land occurs near the New River at the IB in outlying areas on both the east and west sides of the river. Agricultural land is not considered natural habitat, but is used by wildlife because planted vegetation provides food and cover.

Urban land occurs near the IB, on the U.S. side about four miles downstream of the IB at the city of Calexico. Urban land is not considered natural habitat, but is used by wildlife because buildings and planted vegetation provide food and cover.

Other habitats are outside of the project area, far from the New River at the IB. Wetland (i.e., freshwater marsh, saltwater marsh) and mudflat habitats are located on the southern end of the Salton Sea, associated largely with delta areas where the New River and Alamo River meet the Salton Sea. Palm oasis, fine sand, and cave/mine/cliff habitats occur in isolated areas away from the New River channel.

Representative Plants

Table 2 lists plant species that occur or potentially occur in the project vicinity. Although not all plants are listed, the list is representative of plants in the area.

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Table 2. Representative List of Plant Species in the Project Vicinity

Common Name	Scientific Name	Special Status
Chamise	<i>Adenostoma fasciculatum</i>	No
Western ragweed	<i>Ambrosia psilostachya</i>	No
Quail bush	<i>Atriplex canescens</i>	No
Slender wild oat	<i>Avena barbata</i>	No
Black mustard	<i>Brassica nigra</i>	No
Brome	<i>Bromus rubens</i>	No
Yellow-star thistle	<i>Centaurea solstitialis</i>	No
Bull thistle	<i>Cirsium vulgare</i>	No
Common horseweed	<i>Conyza canadensis</i>	No
Smoke tree	<i>Dalea spinosa</i>	No
Jimsonweed	<i>Datura wrightii</i>	No
Doveweed	<i>Eremocarpus setigerus</i>	No
Western sunflower	<i>Helianthus annuus</i>	No
Cow parsnip	<i>Heracleum sphondylium</i>	No
Telegraph weed	<i>Heterotheca grandiflora</i>	No
Prickly lettuce	<i>Lactuca serriola</i>	No
Creosote bush	<i>Larrea tridentate</i>	No
Alfalfa	<i>Medicago sativa</i>	No
Bristly ox-tongue	<i>Picris echioides</i>	No
Arrowweed	<i>Pluchea sericea</i>	No
Rabbitfoot grass	<i>Polypogon monspeliensis</i>	No
Golden dock	<i>Rumex maritimus</i>	No
Willow	<i>Salix hindsiana</i>	No
Russian thistle	<i>Salsola tragus</i>	No
Tamarisk	<i>Tamarix spp.</i>	No
Stinging nettle	<i>Urtica holosericea</i>	No

IMPACT TO BIOLOGICAL RESOURCES

Impact Assessment for Special Status Species and Natural Communities

Fifteen special status wildlife and plant species (including one that is endangered and/or threatened) were identified in the literature review as occurring or potentially occurring in the New River IB vicinity (Table 3). However, some identified species occur only outside of this impaired area because of a lack of suitable habitat (e.g., fine sand and wetlands) on-site and thus, will not be impacted by this TMDL (the project). No special status communities were identified in the literature search. Table 3 presents information regarding special status species,

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including common name, scientific name, status, habitat (used for nesting, roosting, and/or foraging), local seasonal presence (regardless of abundance), and potential for being impacted by the project. The impact assessment is based on species' sensitivity to project impacts, species' natural history requirements, site proximity to known occurrences, species' range, seasonal abundance, consultation with local resource managers, and professional judgment.

Table 3. Impact Assessment for Special Status Species

Common Name	Scientific Name	Status	Habitat	Local Seasonal Presence	Potential for Being Negatively Impacted
Wildlife = 10					
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	SSC	Sand	Sp, S, F	None
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	FE, ST	Wetland	Y	None
Mountain plover	<i>Charadrius montanus</i>	SSC	Ag	Sp, F, W	None
Burrowing owl	<i>Athene cunicularia</i>	SSC	Ag	Y	None
Short-eared owl	<i>Asio flammeus</i>	SSC	Ag	F, W	None
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	R/S	Scrub	Y	None
Crissal thrasher	<i>Toxostoma crissale</i>	SSC	Scrub, Riparian	Y	None
Yellow warbler	<i>Dendroica petechia brewsteri</i>	SSC	Riparian, Urban	Sp, F, W	None
California gray-headed junco	<i>Junco hyemalis caniceps</i>	SSC	Scrub, Ag	Sp, F, W	None
Colorado Valley woodrat	<i>Neotoma albigula venusta</i>	R/S	Scrub	Y	None
Plants = 5					
Chaparral sand-verbena	<i>Abronia villosa var. aurita</i>	R/S	Scrub	Y	None
Abrams's spurge	<i>Chamaesyce abramsiana</i>	R/S	Scrub	Y	None
Rock nettle	<i>Eucnide rupestris</i>	R/S	Scrub	Y	None
Brown turbans	<i>Malperia tenuis</i>	R/S	Scrub	Y	None
Hairy stickleaf	<i>Mentzelia hirsutissima</i>	R/S	Scrub	Y	None

Legend:

Status:

FE = Federal Endangered

FT = Federal Threatened

R/S = Rare or Sensitive

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SE = State Endangered

ST = State Threatened

SSC = State Special Concern

FP = Fully Protected (an additional State designation)

Habitat:

Ag = agricultural land

Cave = cave, mine, cliff

Mudflat = mudflat, beach

Open Water = open water (e.g., New River, drain channels)

Riparian = shrubby vegetation (e.g., willow, tamarisk) along waterways

Sand = fine sand

Scrub = desert scrub

Urban = human residential and industrial areas

Wetland = emergent wetlands (e.g., freshwater marsh, saltwater marsh)

Local Seasonal Presence:

Sp = Spring (about April through May)

S = Summer (about June through August)

F = Fall (about September through October)

W = Winter (about November through March)

Y = Year-round (resident, or visitors throughout the year)

Special Status Wildlife

Twelve special status wildlife species, including one that is threatened and/or endangered, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 3). The following bullet statements discuss project impacts on these threatened and/or endangered species, and other special species.

- The Yuma clapper rail will not be impacted by the project. This species is federally endangered and state threatened, and uses wetland habitat that occurs only outside of the project area. Yuma clapper rails are found locally on the south and east sides of the Salton Sea, and also occur on the New River near the community of Seeley, about 20 river-miles downstream of the IB, where New River water quality begins to improve.
- The Flat-tailed horned lizard will not be impacted by the project. This species is a special species (not threatened and/or endangered) that uses fine sand habitat that occurs only outside of the project area (in isolated areas away from the New River channel).

Eight other species will also not be impacted by the project. These species are special species (not threatened and/or endangered), and include the Mountain Plover, Burrowing owl, Short-eared owl, Black-tailed gnatcatcher, Crissal thrasher, Yellow warbler, California gray-headed junco, and Colorado Valley woodrat. These species use habitats (e.g., desert scrub, agricultural

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land, urban land) within the project area, but will not be impacted by reduced organic matter in the New River at the IB.

Special Status Plants

Five special status plant species, none of which are threatened and/or endangered, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 3). These five species, which use desert scrub habitat within the project area, include the Chaparral sand-verbena, Abram's spurge, Rock nettle, Brown turbans, and Hairy stickleaf. However, these species will not be impacted by reduced organic matter in the New River at the IB.

Special Status Natural Communities

No special status natural communities were identified in the literature review as occurring or potentially occurring in the project vicinity. Therefore, the project will not impact any special status natural communities.

SPECIAL LAWS

The Federal Endangered Species Act of 1973 (16 U.S.C. Section 1531 et seq.) provides for the conservation of endangered and threatened species listed pursuant to Section 4 of the Act (16 U.S.C. Section 1533) and the ecosystems upon which they depend. Section 7 of the Act (16 U.S.C. Section 1536) requires federal agencies to ensure that actions they authorize, fund or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U.S. Fish and Wildlife Service administers this federal program.

The California Endangered Species Act (CESA) (Fish & Game Code Section 2050 et seq.) requires the California Department of Fish and Game to establish a list of endangered and threatened species (Section 2070) and to prohibit the incidental taking of any such listed species except as allowed by the Act (Sections 2080-2089). The Act also requires the Department to comply with the California Environmental Quality Act when evaluating incidental take permit applications (Fish & Game Code Section 2081(b); Cal. Code Regs., Title 14, Section 783.0 et seq.), and the potential impacts the project or activity for which the application was submitted may have on the environment. The Department's CEQA obligations include consultation with other public agencies that have jurisdiction over the project or activity (Cal. Code Regs., Title 14, Section 783.5(d)(3)). But in no event may the Department issue an incidental take permit if such issuance would jeopardize the continued existence of the species (Fish & Game Code Section 2081(c); Cal. Code Regs. Title 14, Section 783.4(b)).

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The California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) requires identification of potentially significant adverse environmental effects of proposed projects. Significant effects are to be mitigated by avoidance, minimization, rectification, or compensation whenever possible. Where a proposed project could result in the taking of a species listed under the CESA, an analysis of the impacts of the proposed taking must be conducted in addition to the environmental analysis of the project itself (Fish & Game Code, Section 2081; California Code of Regulations, Title 14, Sections 783.2-783.5).

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. Sections 703-712) is a federal law that implements international treaties and conventions held to protect migratory birds. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10. This includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Part 21). The MBTA requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (1 February to 31 August, annually) to avoid nest abandonment and/or loss of eggs or young. The loss of habitat upon which the birds depend could constitute a violation of the MBTA.

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