Detailed Study of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage in the Salton Sea Area, California, 1988-90

> U.S. Geological Survey U.S. Fish and Wildlife Service U.S. Bureau of Reclamation U.S. Bureau of Indian Affairs and in cooperation with

Colorado River Basin Region

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# DETAILED STUDY OF WATER QUALITY, BOTTOM SEDIMENT, AND BIOTA ASSOCIATED WITH IRRIGATION DRAINAGE IN THE SALTON SEA AREA, CALIFORNIA, 1988-90

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Contents 44

## U.S. DEPARTMENT OF THE INTERIOR BRUCE BABBITT, Secretary

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## CONTENTS

Abstract 1 Introduction 2 Background 2 Acknowledgments 2 Purpose and scope 2 Description of study area 3 Ecology of Salton Sea årea 4 Previous investigations 13 Considerations in developing a sampling strategy 15 Sample collection and analysis 16 Selection of sampling sites 16 Water and bottom sediment 16 Biota 20 Sampling methods 23 Water and bottom sediment 23 Biota 24 Analytical methods 27 Water and bottom sediment 27 Biota 28 Areal distribution of selected constituents 29 Temporal variation in concentration of selected constituents 30 Processes controlling the concentration of selenium and other constituents 40 Subsurface drainwater 40 Physical characteristics of fields 40 Evaporative concentration 41 Selenium 43 Boron 47 Interaction of subsurface drainwater and shallow ground water 47 Movement and partitioning of selenium in the Salton Sea 54 Effects of selenium and other constituents on biota 56 Selenium 56 Aquatic vegetation 57 Aquatic invertebrates 57 A thing with in Fish 60 Amphibians and reptiles 60 Birds 61 Food-chain relations 64 Boron 64 Aquatic vegetation 67 Aquatic invertebrates 68 Fish 68 Amphibians and reptiles 68 28 Los here 10 bored and Allorida conveninging . We Birds 69 Food-chain relations 71 Organochlorine pesticides 73 DDT and metabolites 73 Aquatic invertebrates 73 Fish 76 Amphibians and reptiles 77 ValleV lancementation (02 and the later (20) in the Terreral Valle)

I was value Value May 1

## Birds 78

Food-chain relations 83

Other organochlorine pesticides 85

Assessment of susceptibility of birds to contaminant effects 87

Summary and conclusions 93 Selected references 95

FIGURES

1. Map showing location of study area 3

- 2,3. Photographs showing:
  - Water birds feeding on pileworms and waterboatmen at the south end of the Salton Sea 4
    Abandoned colonial bird nests at the south end of the Salton Sea 5
- 4.5. Diagrams showing trophic and bioaccumulation relations among organisms of:
  - 4. The Salton Sea 6
    - 5. Rivers and drains in the Imperial Valley 8
- 6,7. Photographs showing:
  - 6. Numerous species of water birds in shallow-water habitat of the Salton Sea 12
  - 7. Dowitchers feeding on invertebrates at the south end of the Salton Sea 13
  - 8. Diagram showing selenium cycle in the Salton Sea 16
- 9,10. Maps showing:
  - 9. Subsurface-drainwater and surface-water sampling sites in the study area 17
  - 10. Biological sampling sites in the study area 21
  - Regression plot of 1988 and 1986 selenium concentrations in subsurface-drainwater samples collected in the Imperial Valley 30
- 12,13. Maps showing areal distribution of concentrations of selected constituents in subsurface-drainwater samples collected in the Imperial Valley, May 1988:
  - 12. Selenium 31
  - 13. Dissolved solids 32
- 14-16. Graphs showing:
  - Temporal variation in instantaneous discharge and in concentrations of selected constituents in subsurface-drainwater samples from 15 fields in the Imperial Valley, May 1988 and August 1988-August 1989 33
  - Daily mean discharge in the Alamo River near Niland and the New River at outlet, near Westmorland, August 1988-August 1989 39
  - 16. Contribution of trench flow to subsurface drainflow 40
  - Schematic showing movement of water and layout of subsurface drains, and configuration of soilsampling sites, in a typical field in the Imperial Valley 42
- 18-20. Regression plots for subsurface-drainwater samples collected in the Imperial Valley, May 1988:
  - 18. Hydrogen- and oxygen-isotope ratios and global meteoric water line 43
  - 19. Hydrogen-isotope ratio and chloride concentration 44
  - 20. Selenium and chloride concentrations 45
  - Graph showing selenium-to-chloride ratios in subsurface-drainwater samples collected at 108 sites in the Imperial Valley, May 1988 45
- 22,23. Regression plots for subsurface-drainwater samples collected in the Imperial Valley, May 1988:
  - 22. Log base 10 boron and chloride concentrations 46
  - 23. Log base 10 boron and dissolved-solids concentrations 46
- 24-29. Graphs showing:
  - Hydrogen- and oxygen-isotope ratios and global meteoric water line for water samples from wells and lysimeters at three sites in the Imperial Valley 48
  - 25. Concentrations of selected constituents, in relation to depth, for water samples collected from wells and lysimeters at the northern site (site 8) in the Imperial Valley 49
  - 26. Concentrations of selected constituents, in relation to depth, for water samples collected from wells and lysimeters at the middle site (site 50) in the Imperial Valley 50

- Concentration of tritium in water samples from lysimeters and wells at three sites in the Imperial Valley 51
- Concentrations of selected constituents, in relation to depth, for water samples from wells and lysimeters at the southern site (site 98) in the Imperial Valley 52
- 29. Concentration of tritium in water samples from the Colorado River, 1977-88 53
- 30. Aerial photograph showing areal distribution of selenium in bottom sediment in the delta area of the Alamo River at the southern end of the Salton Sea, August 1988 55

#### 31-45. Graphs showing:

- 31. Bioaccumulation of selenium in transplanted Asiatic river clams, 1989-90 60
- Concentration of selenium, and probability of embryotoxicity, in black-necked stilt eggs from the Salton Sea, 1988-89 63
- Concentration of selenium in food-chain organisms of the Salton Sea, 1988-90, and dietary thresholds for water birds 65
- Concentration of selenium in food-chain organisms of rivers and drains in the Imperial Valley, 1988-90, and dietary thresholds for water birds 65
- 35. Bioaccumulation of boron in transplanted Asiatic river clams 68
- Concentration of boron in livers of waterfowl and water birds from the Salton Sea area, 1988-90, and threshold for reduced weight gain
- Concentration of boron in black-necked stilt eggs from the Salton Sea area, 1988-90, and threshold for reduced weight gain 70
- Concentration of boron in food-chain organisms of the Salton Sea, 1986-90, and dietary thresholds for waterfowl 71
- Concentration of boron in food-chain organisms of rivers and drains in the Imperial Valley, 1988-90, and dietary threshold for waterfowl 72
- 40. Concentration of total-DDT in transplanted Asiatic river clams 76
- Concentration of total-DDT for three species of fish from the Salton Sea, 1988-90, and dietary thresholds for fish-eating birds and mammals 78
- 42. Concentration of p,p'-DDE in black-necked stilt eggs from the Imperial Valley, 1988-90, and reproductive-impairment thresholds for selected bird species 81
- Regression plot of log p,p'-DDE concentration and log eggshell thickness for black-necked stilts in the Imperial Valley, 1988-89 82
- Concentration of p,p'-DDE in food-chain organisms of the Salton Sea, 1988-90, and dietary threshold for predators 84
- 45. Concentration of p,p'-DDE in food-chain organisms of rivers and drains in the Imperial Valley, 1988-90, and dietary threshold for predators 84

## TABLES

- 1. Subsurface-drainwater sampling sites in the Imperial Valley 18
- 2. Biological sampling sites and constituents analyzed 23
- 3. Samples collected at biological sites, 1988-90 26
- 4. Summary of laboratories, analyses performed, and mediums analyzed for biological samples 28
- Acceptable accuracy and precision guidelines, and reporting limits, for chemical analyses of biological samples 29
- Summary statistics for selected constituents in monthly samples of water from 15 subsurface drains in the Imperial Valley, August 1988-August 1989 37
- Summary statistics for selected constituents in monthly samples of water from six sites in the Imperial Valley, August 1988-August 1989 38
- 8. Selenium concentration in biota, Salton Sea area, 1988-90 58
- 9. Selenium concentration in biota from the Salton Sea area and other locations 59
- 10. Selenium concentration in aquatic-bird livers collected from the Imperial Valley, 1986-90 62
- 11. Boron concentration in biota from the Salton Sea area, 1986-90 66
- Boron concentration in filamentous algae and submerged aquatic vegetation from the Salton Sea area and other locations, 1988-90 67

- 13. Total-DDT concentration in biota from the Salton Sea area, 1986-90 74
- 14. p,p'-DDE concentration in biota from the Salton Sea area, 1986-90 75
- p,p'-DDE concentrations in mosquitofish from California drainwater areas and in fish sampled in the National Contaminant Biomonitoring Program 76
- p,p'-DDE concentrations in cormorant tissues from the Salton Sea area and from contaminated sites in the Southern and Western United States 80
- 17. Active nests of colonial water birds at major rookeries along the Salton Sea shoreline, 1986-91 81
- p,p'-DDE concentration in black-necked stilt eggs from neighborhoods in the Imperial Valley, 1988-89 83
- Concentrations of selected organochlorine pesticides in biotic samples collected from the Salton Sea area and the Imperial Valley, 1986-90 85
- Summary of agriculture-related contaminants of concern for birds subject to potential adverse effects in the Salton Sea area 88
- Number of bird species by category (resident, migratory, federally endangered) in the Salton Sea area actually or potentially adversely affected by selenium, boron, or DDE 93

## CONVERSION FACTORS, VERTICAL DATUM, ABBREVIATIONS, AND DEFINITIONS OF TERMS

#### Conversion Factors

Multiply	Ву	To obtain	
acre	0.4047	hectare	a series of
acre-foot (acre-ft)	1,233	cubic meter	
acre-foot (acre-ft)	0.001233	cubic hectometer	
cubic foot per second (ft <sup>3</sup> /s)	0.02832	cubic meter per second	
foot (ft)	0.3048	meter	
foot per year (ft/yr)	0.3048	meter per year	
inch (in.)	25.4	millimeter	
mile (mi)	1.609	kilometer	
ounce, avoirdupois (oz)	28.35	gram	1
pound, avoirdupois (lb)	0.4536	kilogram	
ton, short	0.9072	megagram	

Temperature is given in degrees Celsius (°C), which can be converted to degrees Fahrenheit (°F) by the following equation:

## °F=1.8(°C)+32. €

#### Vertical Datum

Sea Level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929--a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

#### Abbreviations

CTSMP	California Toxic Substances Monitoring Program
NCBP	National Contaminant Biomonitoring Program (U.S. Fish and Wildlife Service)
NIWOP	National Irrigation Water-Quality Program (U.S. Department of the Interior)
NWR	National Wildlife Refuge
WA	Wildlife Area
WMA	Wildlife Management Area
PVC	polyvinyl chloride
kg/ha	kilogram per hectare
mø/kø	milligram per kilogram
mg/I	milligram per liter
110/0	microgram per gram
ng/kg	microgram per kilogram
ug/I	microgram per liter
μg/L	micromatar
μm	micronieter
μS	microsiemen
µS/cm	microsiemen per centimeter at 25°C
ррь	part per billion
ppm	part per million
ppt	part per thousand
TU '	tritium unit

#### **Definitions of Terms**

- Bioaccumulation—A process by which chemicals are taken up by an organism directly (from water, for example) or through consumption of food containing the chemicals (modified from Rand and Petrocelli, 1985, p. 652).
- Biomagnification—An increase in tissue concentration of a bioaccumulated constituent as the constituent passes upward through two or more trophic levels in a food chain.
- Biominification—A decrease in tissue concentration of a bioaccumulated constituent as the constituent passes upward through two or more trophic levels in a food chain.
- Depuration—A cleansing or purification process. For example, the elimination of contaminant burdens in clams through flushing.
- Detection limit—The minimum concentration of a substance that can be identified, measured, and reported with 99-percent confidence that the analyte concentration is greater than zero (Pritt and Jones, 1989).

Reference site—As used in this report, a site that is not significantly affected by agricultural drainwater. Reporting limit (reporting level)—The lowest measured concentration of a constituent that can be reliably

- reported using a given analytical method. Because of unpredictable matrix effects on detection limits, the reporting limit is set somewhat higher than the detection limit (Pritt and Jones, 1989).
- Shorebirds—A diverse group of mostly migratory wading or swimming birds of the suborder Charadrii that feed primarily on invertebrates along shorelines. Most have long pointed wings, long legs, and webbed toes. [Examples in this study area are black-necked stilt (*Himantopus mexicanus*) and long-billed dowitcher (*Limnodromus scolopaceus*).]
- Water birds—A general term for swimming, diving, or wading birds with lobate toes. [Examples in this study area are American coot (Fulica americana), eared grebe (Podiceps nigricellis), and white-faced ibis (Plegadis chihi).]
- Waterfowl—Specialized swimming or diving birds of the order Anseriformes. Characteristics include long necks, narrow and pointed wings, short legs, and webbed toes. They are well insulated with down feathers, and have flattened bills with serrated edges to strain their food. [Examples in this study area are northern shoveler (Anas clypeata) and ruddy duck (Oxyura jamaicensis).]
- Water year—The water year starts October 1 and ends September 30; it is designated (water year 1989, for example) by the calendar year in which it ends.

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