



## Water Hyacinth Control Program

DRAFT

# Programmatic Environmental Impact Report

Volume I – Chapters 1 to 7

September 10, 2009



*A program for effective control of Water Hyacinth in  
the Sacramento-San Joaquin Delta and its tributaries.*

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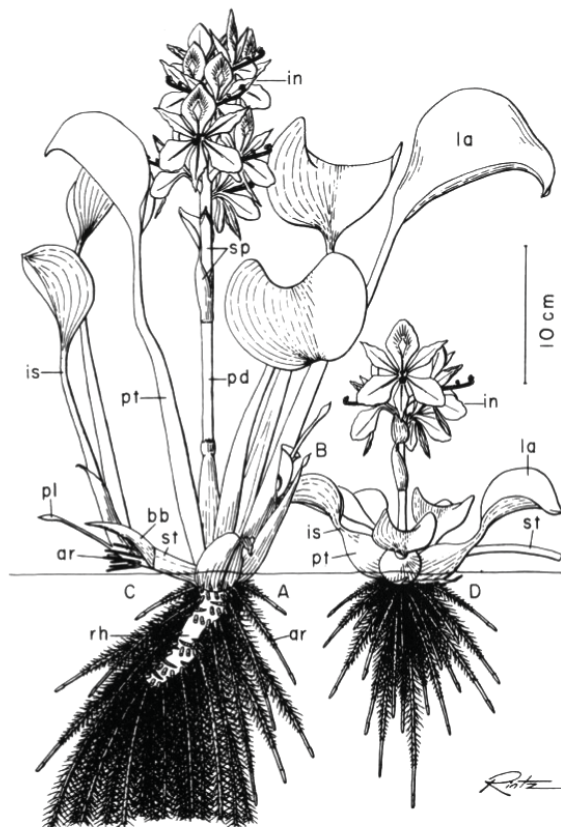
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# DRAFT Programmatic Environmental Impact Report

## Volume I – Chapters 1 to 7

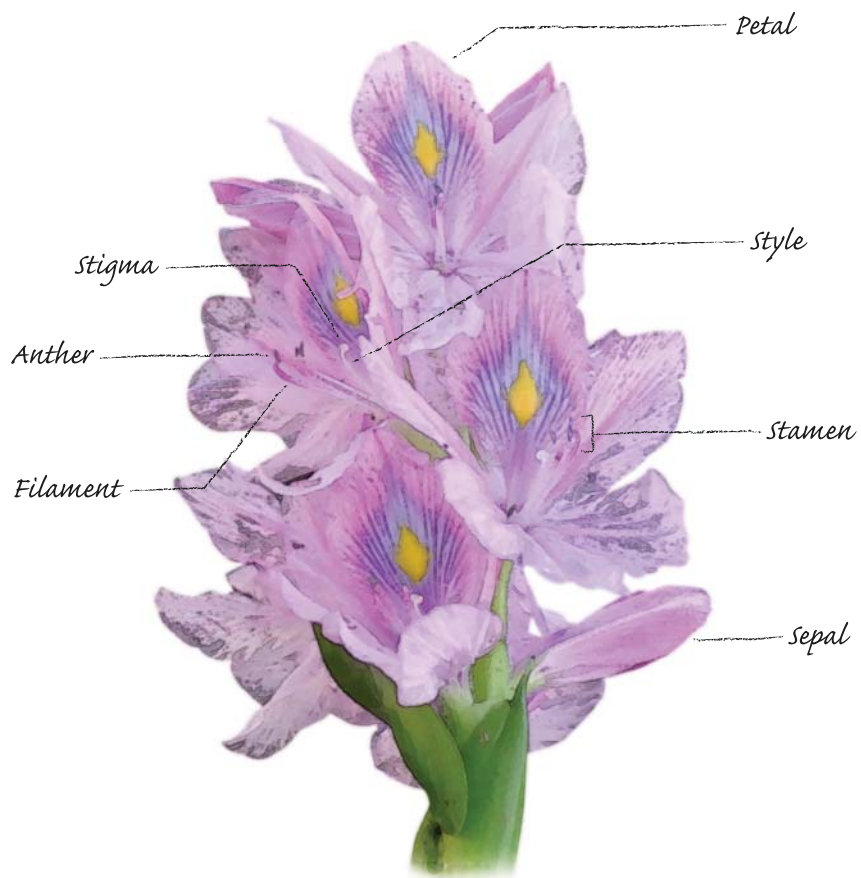
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Prepared by:  
The California Department of Boating and Waterways

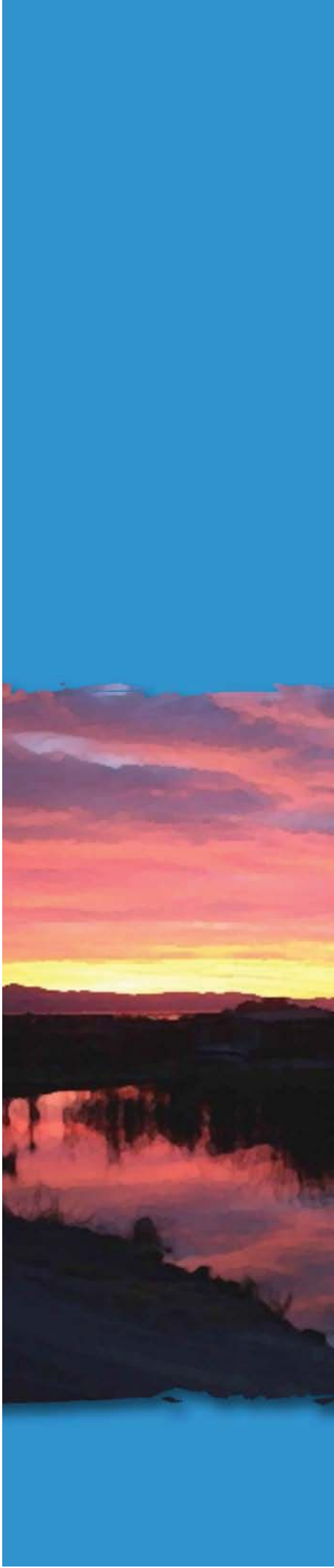
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Water hyacinth (*Eichhornia crassipes*)



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# Acronyms and Abbreviations



# Acronyms and Abbreviations

1. **2,4-D** – 2,4-dichlorophenoxyacetic acid
2. **2,4,5-T** – 2,4,5-trichlorophenoxyacetic acid
3. **ADI** – Acceptable Daily Intake
4. **a.e.** – Active ingredient
5. **AGR** – Agricultural supply (Basin Plan beneficial use)
6. **AHS** – Agricultural Health Study
7. **ALS** – Amyotrophic lateral sclerosis
8. **AMPA** – Aminomethylphosphonic acid
9. **APMP** – Aquatic Pesticide Monitoring Program
10. **Bay-Delta Estuary** – San Francisco Bay and Sacramento-San Joaquin Delta
11. **BA** – Biological Assessment
12. **BDCP** – Bay Delta Conservation Plan
13. **BMP** – Best Management Practices
14. **BO** – Biological Opinion
15. **C** – Centigrade/Celsius
16. **CAC** – County Agricultural Commissioner
17. **CALFED** – California-Federal Bay Delta Program
18. **CCWD** – Contra Costa Water District
19. **CDFA** – California Department of Food and Agriculture
20. **CDFG** – California Department of Fish and Game
21. **CE** – California Endangered
22. **CEQA** – California Environmental Quality Act
23. **CESA** – California Endangered Species Act
24. **cfs** – Cubic feet per second
25. **CI** – Confidence Interval
26. **COA** – Coordinated Operations Agreement
27. **COMM** – Commercial sport fishing (Basin Plan beneficial use)
28. **COLD** – Cold freshwater habitat (Basin Plan beneficial use)
29. **CNDDB** – California Natural Diversity Database
30. **CNPS** – California Native Plant Society
31. **CR** – California Rare
32. **CSC** – California Species of Special Concern



**Acronyms and Abbreviations** *(continued)*

33. **CT** – California Threatened
34. **CVP** – Central Valley Project
35. **CVRWQB** – Central Valley Regional Water Quality Control Board
36. **CWA** – Clean Water Act
37. **dBA** – Decibels
38. **DBW** – California Department of Boating and Waterways
39. **DCC** – Delta Cross Channel
40. **Delta** – Sacramento-San Joaquin Delta
41. **DMA** – Dimethylamine salt
42. **DO** – Dissolved oxygen, measured in mg/l or ppm
43. **DOC** – California Department of Conservation
44. **DPR** – California Department of Pesticide Regulation
45. **DPS** – Distinct Population Segment
46. **DRERIP** – Delta Regional Ecosystem Restoration Implementation Plan
47. **DWSP** – Delta Water Supply Project
48. **DWR** – California Department of Water Resources
49. **EA** – Environmental Assessment
50. **EC50** – Effective concentration for 50 percent of target
51. **EDCP** – *Egeria densa* Control Program
52. **EFH** – Essential Fish Habitat
53. **EIR** – Environmental Impact Report
54. **EIS** – Environmental Impact Statement
55. **ERP** – Ecosystem Restoration Program
56. **ESA** – Endangered Species Act (federal)
57. **EST** – Estuarine habitat (Basin Plan beneficial use)
58. **ESU** – Evolutionary Significant Unit
59. **EWA** – Environmental Water Account
60. **FC** – Federal Candidate (for consideration of endangered or threatened status)
61. **FCH** – Federal Critical Habitat
62. **FCHP** – Federal critical habitat for this species proposed
63. **FE** – Federal Endangered
64. **FETAX** – Frog Embryo Teratogenesis Assay – *Xenopus*
65. **FIFRA** – Federal Insecticide, Fungicide, and Rodenticide Act
66. **FMWT** – Fall Midwater Trawl

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## Acronyms and Abbreviations *(continued)*

67. **FONSI** – Finding of No Significant Impact
68. **FT** – Federal Threatened
69. **GI** – Gastrointestinal
70. **GWR** – Groundwater recharge (Basin Plan beneficial use)
71. **HAPC** – Habitat Areas of Particular Concern
72. **HCP** – Habitat Conservation Plan
73. **HQ** – Hazard Quotient
74. **IARC** – International Agency for Registration of Carcinogens
75. **IEP** – Interagency Ecology Program
76. **IND** – Industrial service supply (Basin Plan beneficial use)
77. **IPM** – Integrated Pest Management
78. **K<sub>oc</sub>** – Soil adsorption coefficient, normalized by organic matter
79. **LC5** – Lethal concentration for 5 percent of subjects
80. **LC10** – Lethal concentration for 10 percent of subjects
81. **LC50** – Lethal concentration for 50 percent of subjects
82. **LD50** – Lethal dose or lethal dietary dose for 50 percent of subjects
83. **LH** – Luteinizing hormone
84. **LOC** – Level of Concern
85. **LOD** – Limit of detection
86. **LOEC** – Lowest Observable Effect Concentration
87. **LOEL** – Lowest Observable Effect Level
88. **MAF** – Million acre feet
89. **MATC** – Maximum Acceptable Toxicant Concentration
90. **MCL** – Maximum Contaminant Level
91. **MCP** – Maintenance Control Practices
92. **MCPA** – 4-chloro-2-methylphenoxyacetic acid
93. **MIGR** – Migration of aquatic organisms (Basin Plan beneficial use)
94. **mM** – millimolar, a concentration of one thousandth of a mole per liter
95. **MOE** – Margin of Error or Margin of Safety
96. **MOU** – Memorandum of Understanding
97. **MRA** – Montane Riverine Aquatic
98. **MRDL** – Maximum Residual Disinfectant Level
99. **MSA** – Magnuson-Stevens Fishery Conservation and Management Act

**Acronyms and Abbreviations** *(continued)*

100. **MSDS** – Material Safety Data Sheet
101. **MUN** – Municipal and domestic supply
102. **NAV** – Navigation (Basin Plan beneficial use)
103. **NBA** – North Bay Aqueduct
104. **NCCP** – Natural Community Conservation Plan
105. **ND** – Non-detectable
106. **NFPE** – Nontidal Freshwater Permanent Emergent
107. **NHL** – Non-Hodgkin lymphoma
108. **NIH** – National Institute of Health
109. **NMFS** – National Marine Fisheries Service
110. **NOAA-Fisheries** – National Oceanic and Atmospheric Administration-Fisheries  
(also previously referred to as NMFS, National Marine Fisheries Service)
111. **NOEC** – Non-observable effect concentration
112. **NOEL** – Non-observable effect level
113. **NOI** – Notice of Intent
114. **NOP** – Notice of Preparation
115. **NPDES** – National Pollution Discharge Elimination System
116. **NPE** – Nonylphenol ethoxylates
117. **NRDC** – Natural Resources Defense Council
118. **NTU** – Nephelometric Turbidity Units
119. **OCAP** – Operations Criteria and Plan
120. **OMP** – Operations Management Plan
121. **OMR** – Old and Middle River
122. **OR** – Odds Ratio
123. **OSHA** – Occupational Safety and Health Administration
124. **PCA** – Pest Control Advisor
125. **PEIR** – Program Environmental Impact Report
126. **PFMC** – Pacific Fisheries Management Council
127. **PG&E** – Pacific Gas and Electric
128. **POD** – Pelagic Organism Decline
129. **POEA** – Polyethoxylated tallowamine
130. **ppb** – parts per billion ( $\mu\text{g/l}$ )
131. **ppm** – parts per million ( $\text{mg/l}$  or  $\text{mg/kg}$ )

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## Acronyms and Abbreviations *(continued)*

- 132. **ppt** – parts per thousand (g/l)
- 133. **PPE** – Personal Protective Equipment
- 134. **PRO** – Industrial process supply (Basin Plan beneficial use)
- 135. **PUR** – Pesticide Use Recommendations
- 136. **QAC** – Qualified Applicator Certificate
- 137. **QAPP** – Quality Assurance Project Plan
- 138. **RARE** – Rare, threatened, or endangered species (Basin Plan beneficial use)
- 139. **RCRA** – Resource Conservation and Recovery Act
- 140. **REC-1** – Water contact recreation (Basin Plan beneficial use)
- 141. **REC-2** – Non-water contact recreation (Basin Plan beneficial use)
- 142. **RfD** – Reference Dose
- 143. **ROD** – Record of Decision
- 144. **RPA** – Reasonable and Prudent Alternative
- 145. **RQ** – Risk Quotient
- 146. **RR** – Risk Ratio
- 147. **RUP** – Restricted Use Permit
- 148. **SDIP** – South Delta Improvement Program
- 149. **SFA** – Seasonally Flooded Agricultural
- 150. **SFEI** – San Francisco Estuary Institute
- 151. **SJRRP** – San Joaquin River Restoration Program
- 152. **SHELL** – Shellfish harvesting (Basin Plan beneficial use)
- 153. **SMR** – Standard Mortality Ratio
- 154. **SMUD** – Sacramento Municipal Utility District
- 155. **SOD** – Superoxide dismutase
- 156. **SPWN** – Spawning, reproduction, and/or early development (Basin Plan beneficial use)
- 157. **STS** – Soft tissue sarcoma
- 158. **SVWMA** – Sacramento Valley Water Management Agreement
- 159. **SWB** – State Water Board (Water Resources Control Board)
- 160. **SWP** – State Water Project
- 161. **SWRCB** – State Water Resources Control Board
- 162. **TDF** – Through-Delta Facility
- 163. **TFE** – Tidal Freshwater Emergent
- 164. **THM** – Trihalomethane

**Acronyms and Abbreviations** *(continued)*

- 165. **TPA** – Tidal Perennial Aquatic
- 166. **UC** – Upland Cropland
- 167. **USBR** – United States Bureau of Reclamation
- 168. **USDA-ARS** – United States Department of Agriculture – Agricultural Research Service
- 169. **USFS** – United States Forest Service
- 170. **USFWS** – United States Fish and Wildlife Service
- 171. **VAMP** – Vernalis Adaptive Management Plan
- 172. **VFR** – Valley/Foothill Riparian
- 173. **VRA** – Valley Riverine Aquatic
- 174. **WARM** – Warm freshwater habitat (Basin Plan beneficial use)
- 175. **WHCP** – Water Hyacinth Control Program
- 176. **WHO** – World Health Organization
- 177. **WILD** – Wildlife habitat (Basin Plan beneficial use)
- 178. **WOE** – Weight-of-evidence
- 179. **X2** – the line at which 2ppt (parts per thousand) saline occurs