Table of Contents

Executive Summary 3

Chapter 1

Introduction 8

Experimental Design Elements 8

Chapter 2

VAMP Hydrologic Planning and Implementation 10

2006 VAMP Summary 10

VAMP Background and Description 11

Hydrologic Planning for 2006 VAMP 12

Implementation 16

Results of Operations 16

Summary of Historical VAMP Operations 17

Chapter 3

Additional Water Supply Arrangements and Deliveries 22

Merced Irrigation District 22

Oakdale Irrigation District 22

Chapter 4

Head of Old River Barrier 24

Background 24

Flow Measurements at and around Head of Old River 25

Old and San Joaquin Rivers Kodiak Trawling 28

Methods and Results 28

Discussion 34

Summary 37

Chapter 5

Salmon Smolt Survival Investigations 38

Merced River Hatchery Coded-Wire Tagging 38

VAMP Fish Releases 38

Water Temperature Monitoring 40

Short-Term Survival Study 40

Health and Physiology 44

Release Number Correction 45

Coded-Wire Tag Recovery Efforts 45

Transit Time 47

VAMP Chinook Salmon CWT Survival 48

Comparison with Past Years 51

The Role of Flow, Exports, and HORB 56

San Joaquin River Salmon Protection 63

Summary & Recommendations 68

Chapter 6

Complimentary Studies Related to the VAMP 72

Review of Juvenile Salmon Data 72

2006 Mossdale Trawl Summary 75

Monitoring the Migration of Juvenile Chinook Salmon Using Acoustic Telemetry 83

Survival Estimated for CWT Releases Made in the San Joaquin River Tributaries 88

Comparison of VAMP Releases with Sacramento River Delta Releases 90

Chapter 7

Conclusions and Recommendations 92

References Cited 94

Contributing Authors 94

Signatories to the San Joaquin River Agreement 95

Useful Web Pages 95

Acronyms and Abbreviations 96

Appendices 97