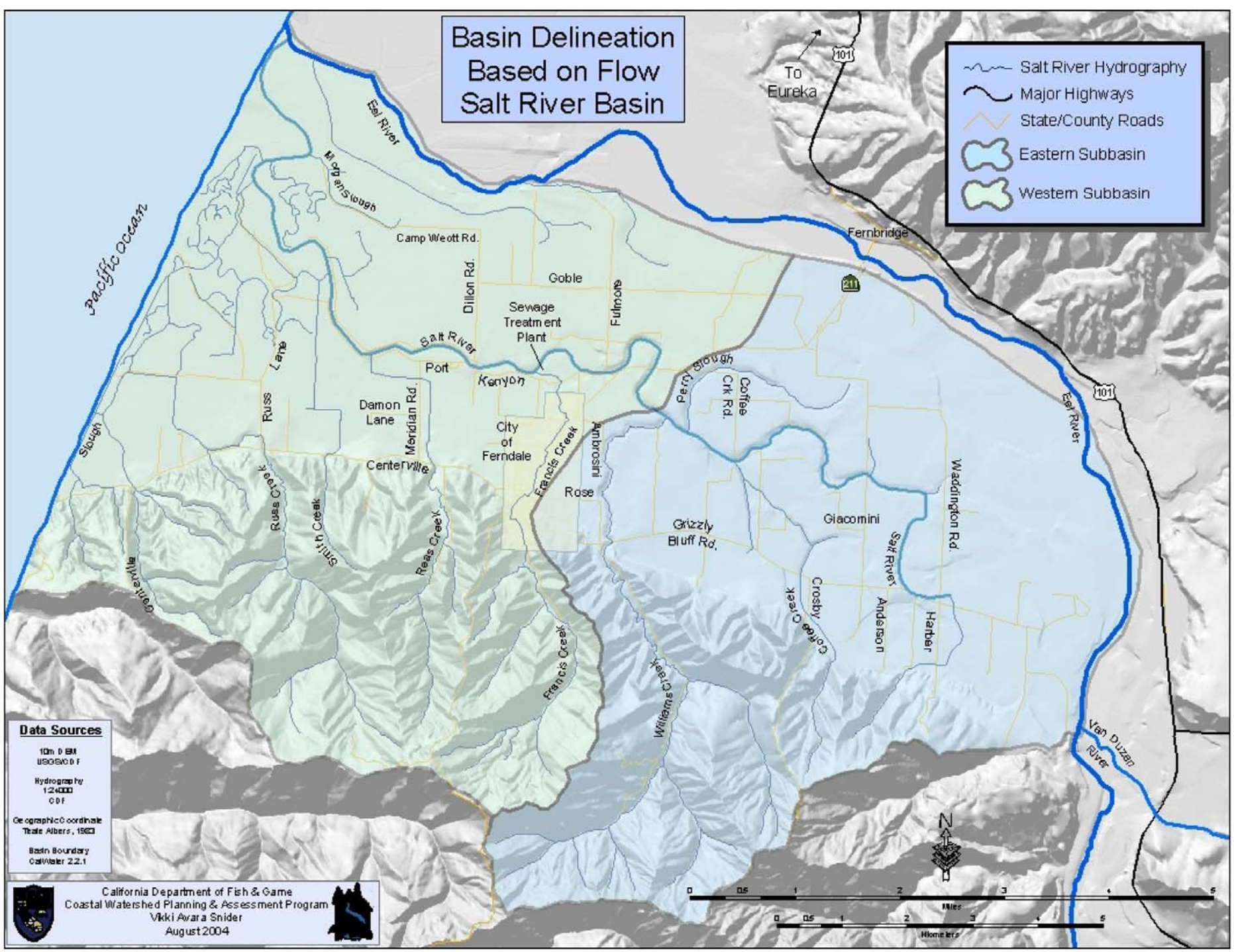
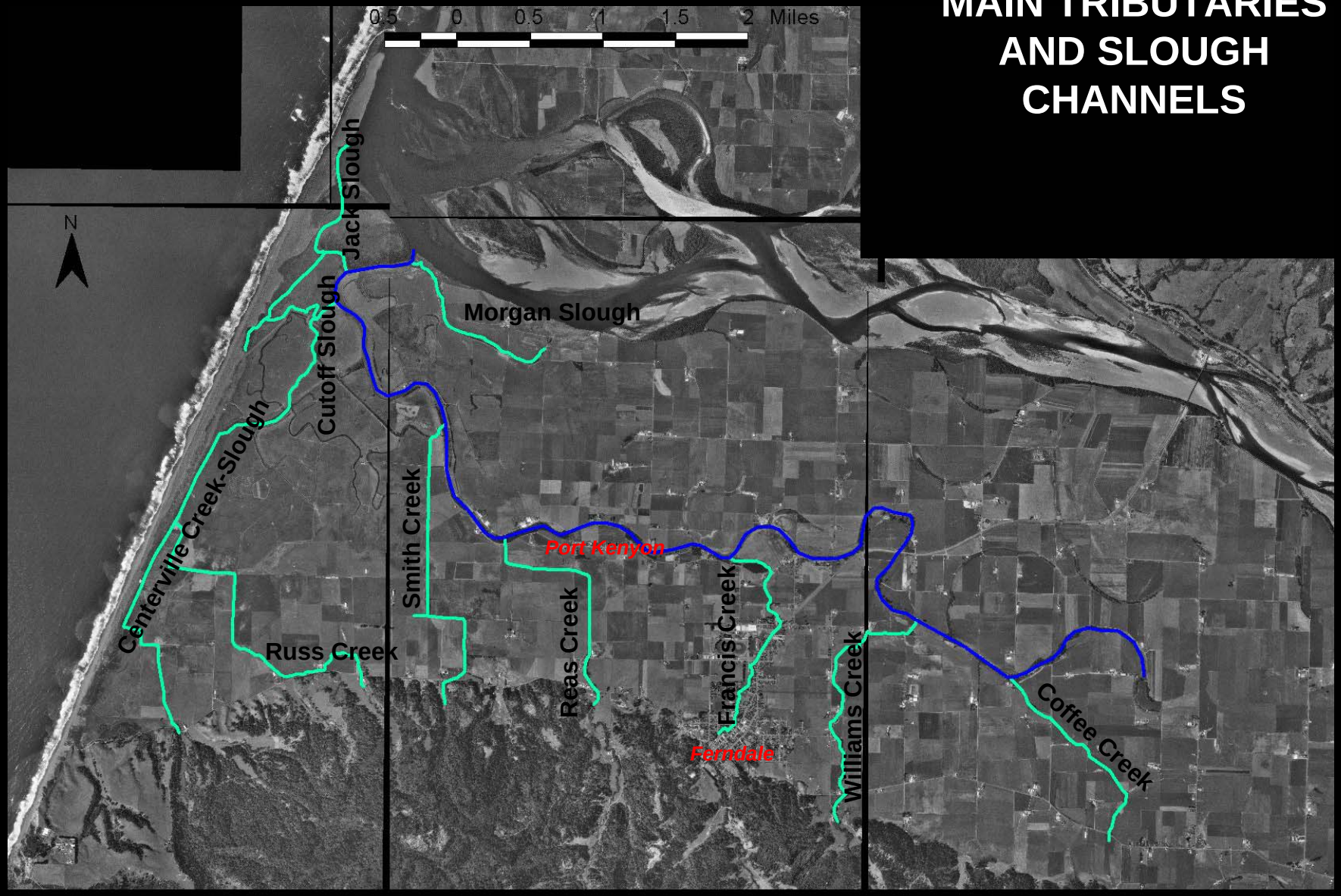
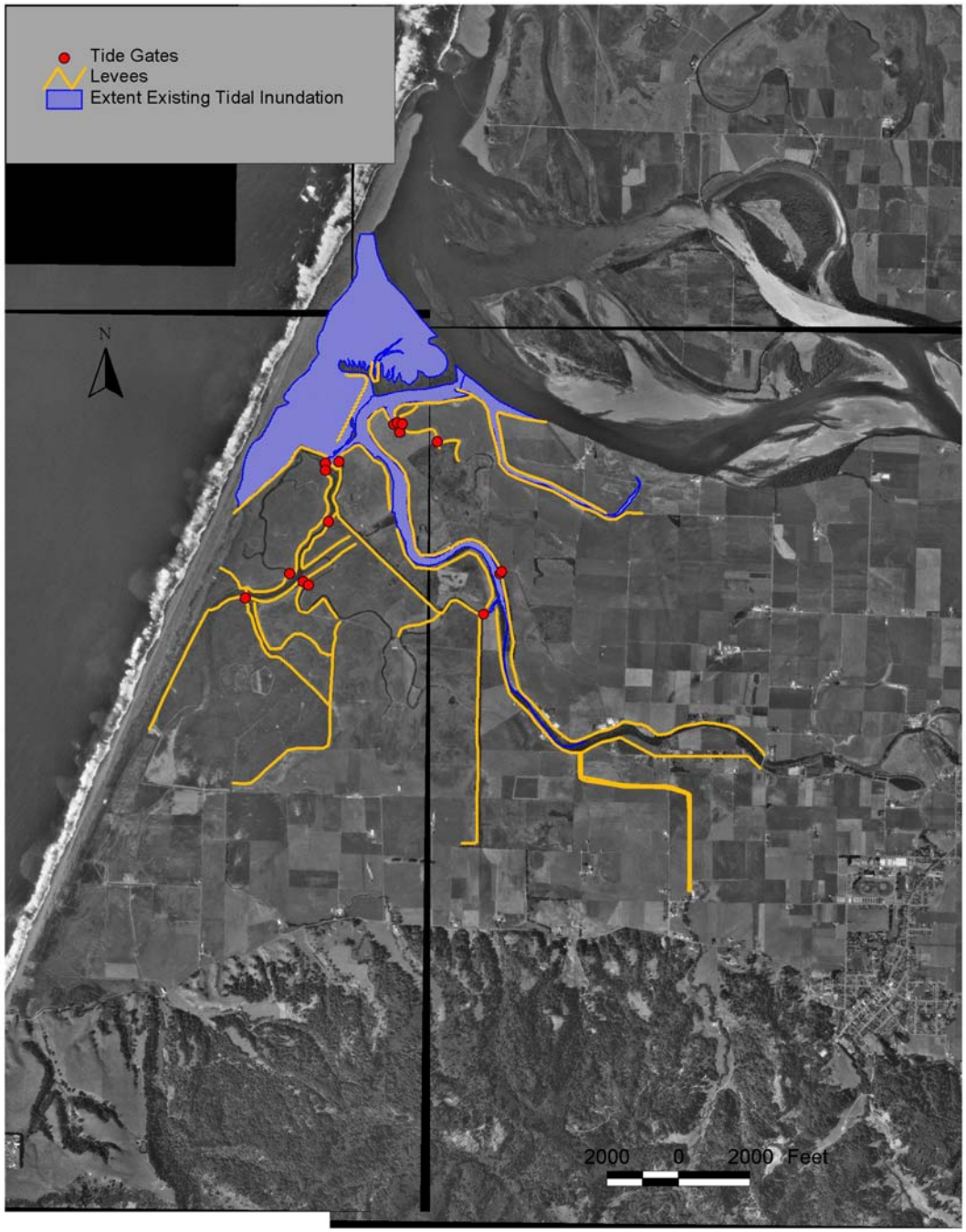
Salt River Restoration Project


Basin Delineation
Based on Flow
Salt River Basin
Salt River Hydrography
Major Highways
State/County Roads
Eastern Subbasin
Western Subbasin
To Eureka
101
Fernbridge
211
Eel River
Morgan Slough
Pacific Ocean
Camp Weott Rd.
Dillon Rd.
Goble
Sewage Treatment Plant
Fulmore
Salt River
Port Kenyon
Russ Lane
Damon Lane
Meridian Rd.
City of Ferndale
Francis Creek
Ambrosini
Rose
Perry Slough
Coffee Crk Rd.
Centerville
Russ Creek
Smith Creek
Reas Creek
Grizzly Bluff Rd.
Giacomini
Salt River
Waddington Rd.
Crosby
Coffee Creek
Anderson
Harber
Williams Creek
Francis Creek
Van Duzen River
Data Sources
10m DEM
USGS/CDF
Hydrography
1:24000
CDF
Geographic Coordinate
Albers, 1983
Basin Boundary
CalWater 2.2.1
California Department of Fish & Game
Coastal Watershed Planning & Assessment Program
Vikki Avara Snider
August 2004
N
Miles
Kilometers

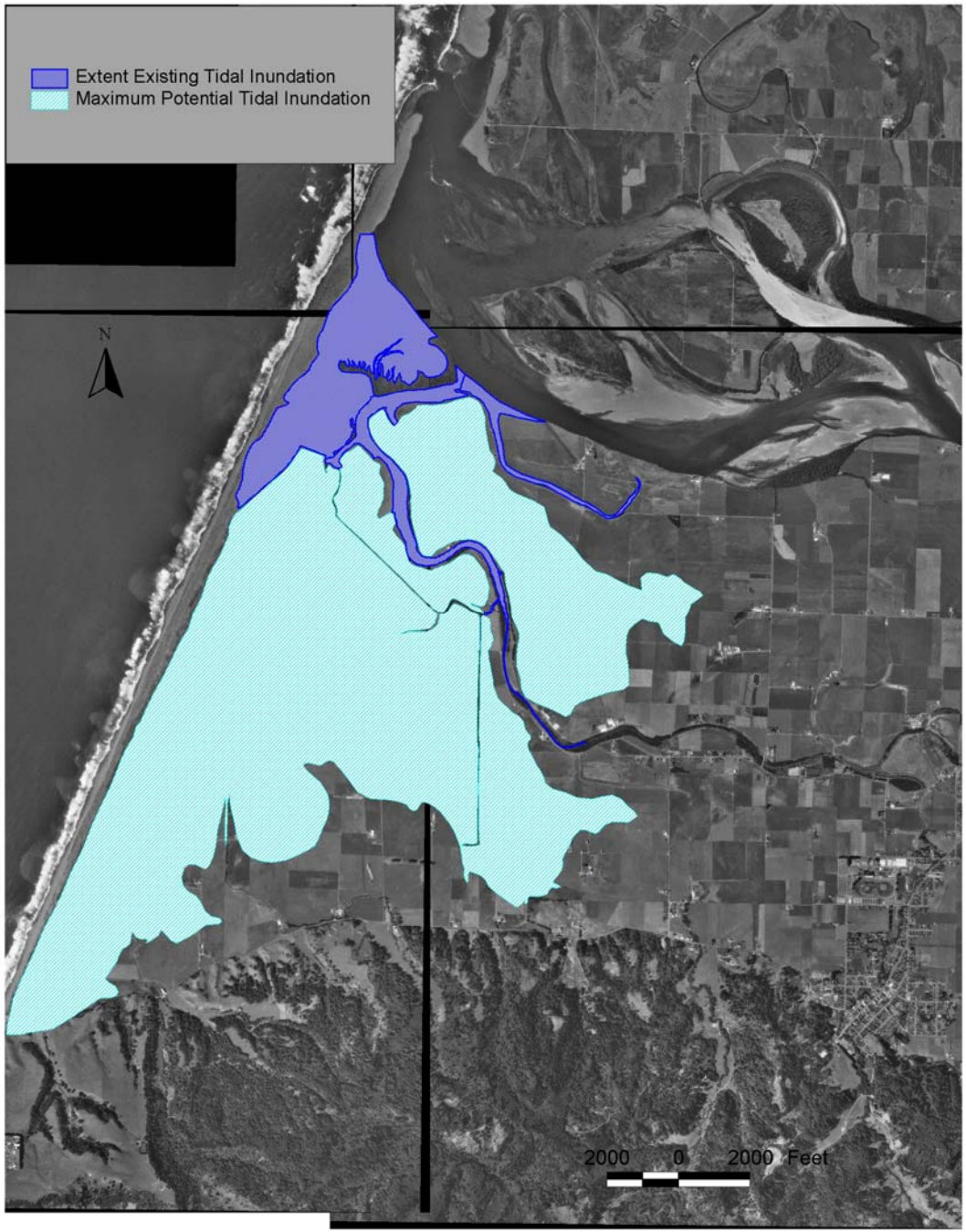
MAIN TRIBUTARIES AND SLOUGH CHANNELS



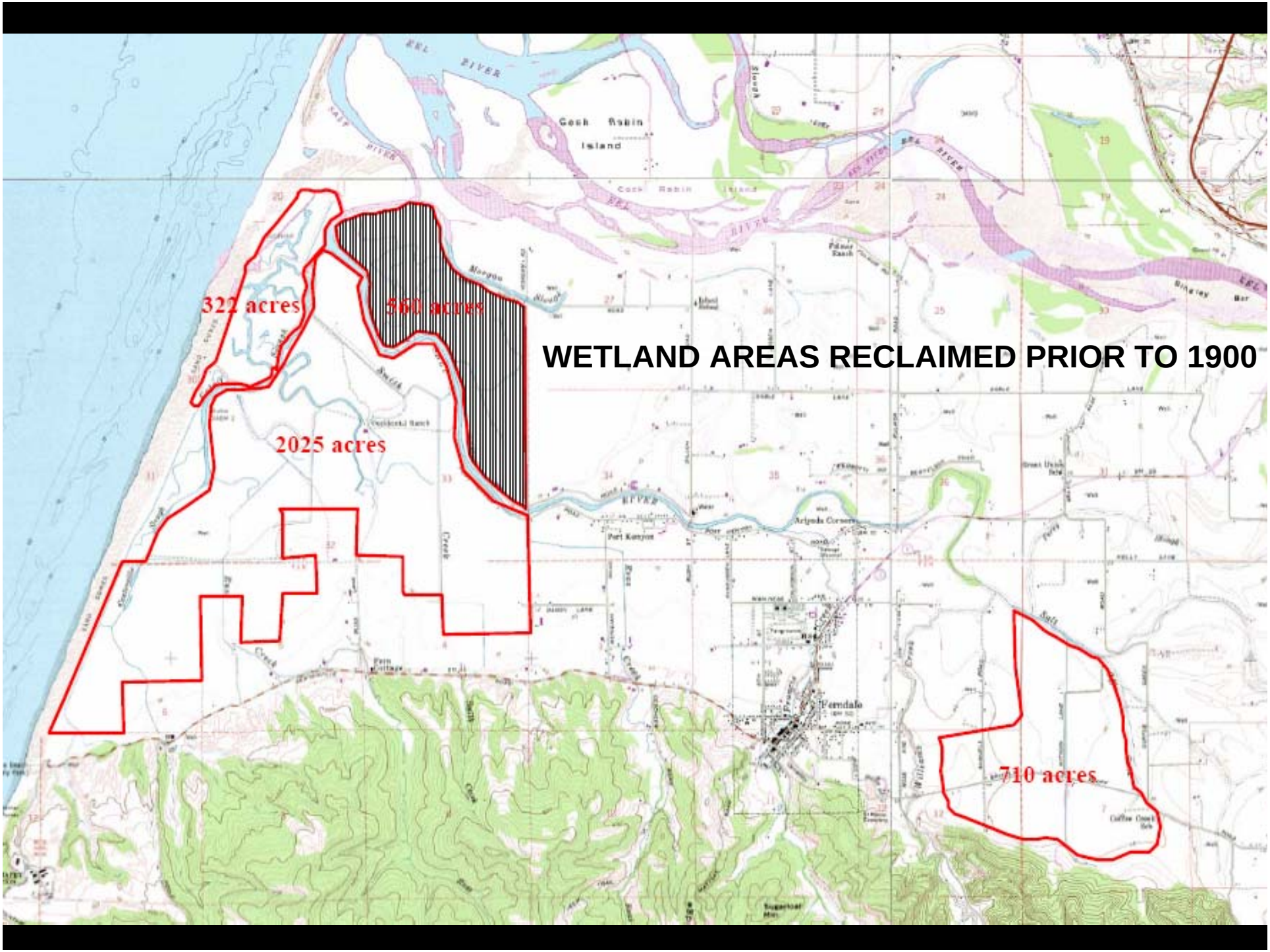


DRAINAGE ASSESSEMENT

(PLUMBING)



EXTENT OF EXISTING AND POTENTIAL TIDAL INFLUENCE

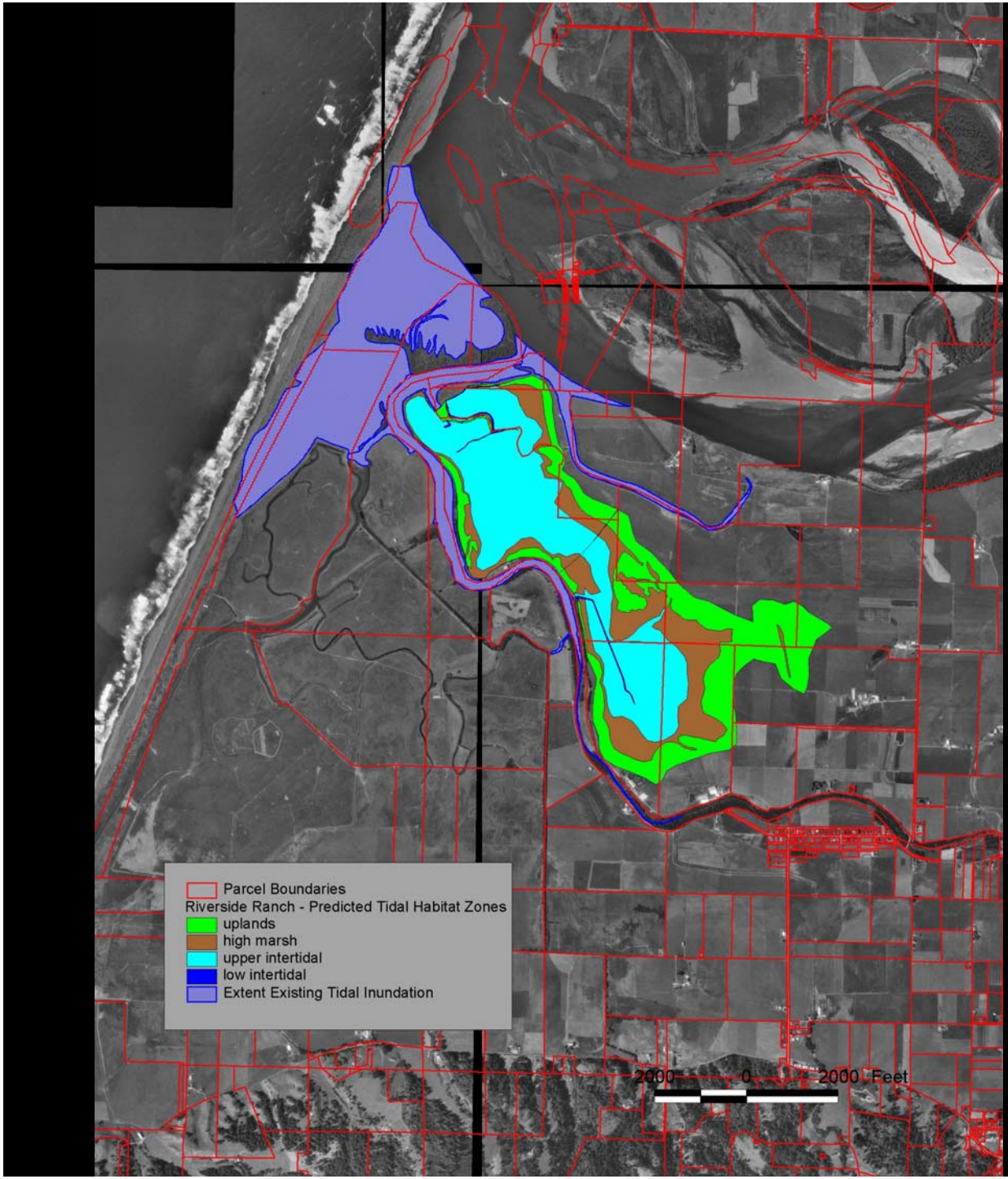

WETLAND AREAS RECLAIMED PRIOR TO 1900
322 acres
560 acres
2025 acres
710 acres
EEL RIVER
Cock Robin Island
Ferndale

TIDAL DATUMS FOR NORTH SPIT, HUMBOLDT BAY
Tidal Epoch: 1983-2001

	MLLW Datum (feet)	NGVD29 Datum (feet)
Highest Obs. (1/26/83)	9.72	**6.02**
MHHW	6.86	**3.16**
MHW	6.15	**2.45**
MTL	3.70	**0.00**
MLW	1.26	**-2.44**
MLLW	0.00	**-3.70**
Lowest Obs. (1/19/88)	-2.90	**-6.60**

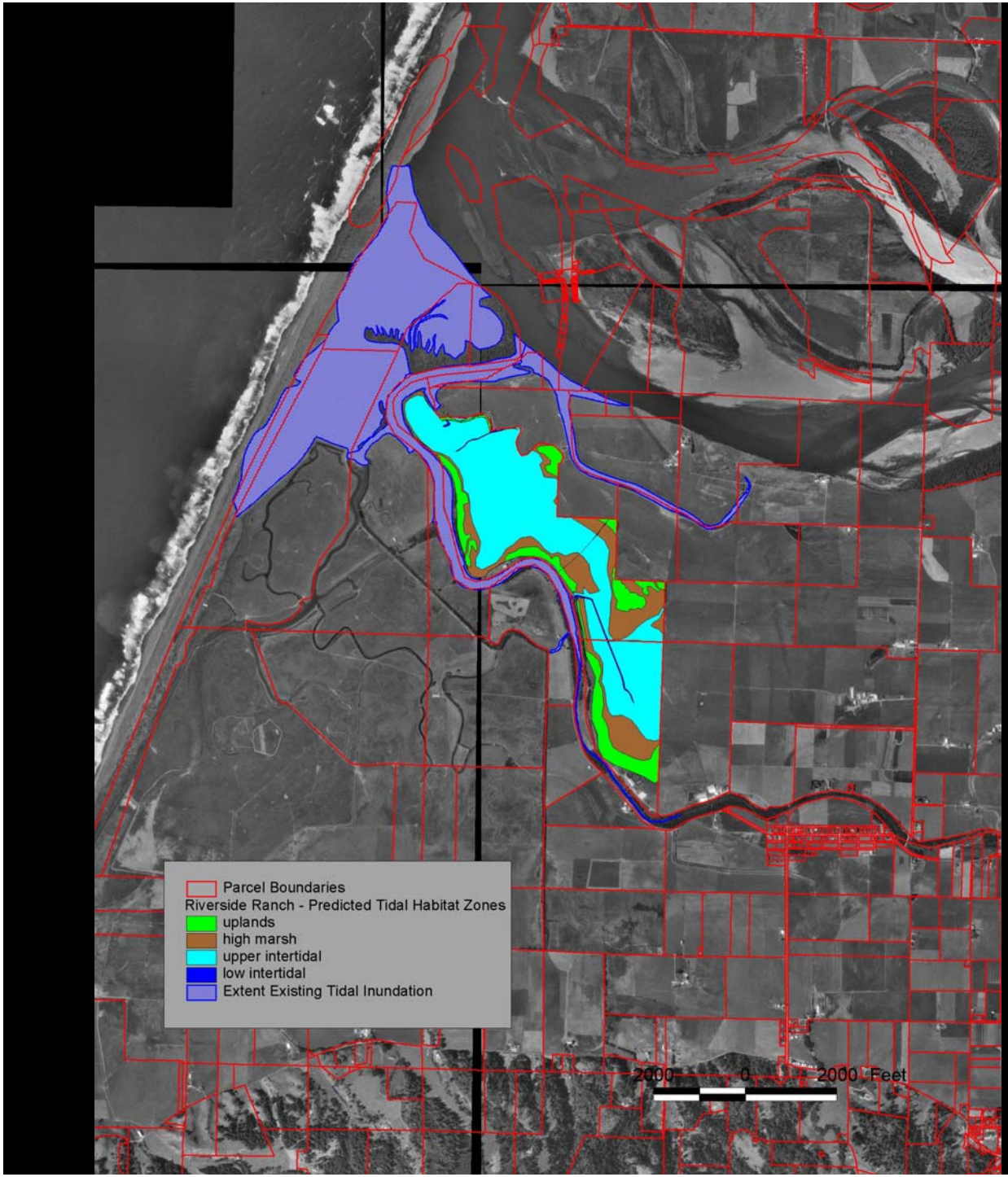
Tidal Inundation and Habitat Zones

7	**UPLANDS**
6	Greater than MHHW+1.5'
5	**HIGH MARSH**
4	MHHW - MHHW+1.5'
3	
2	**UPPER INTERTIDAL**
1	MTL - MHHW
0	
-1	
-2	**LOWER INTERTIDAL**
-3	MTL - MLLW
-4	
-5	**SUBTIDAL**
-6	Less than MLLW
-7	



RIVERSIDE RANCH VICINITY

RIVERSIDE RANCH PARCEL



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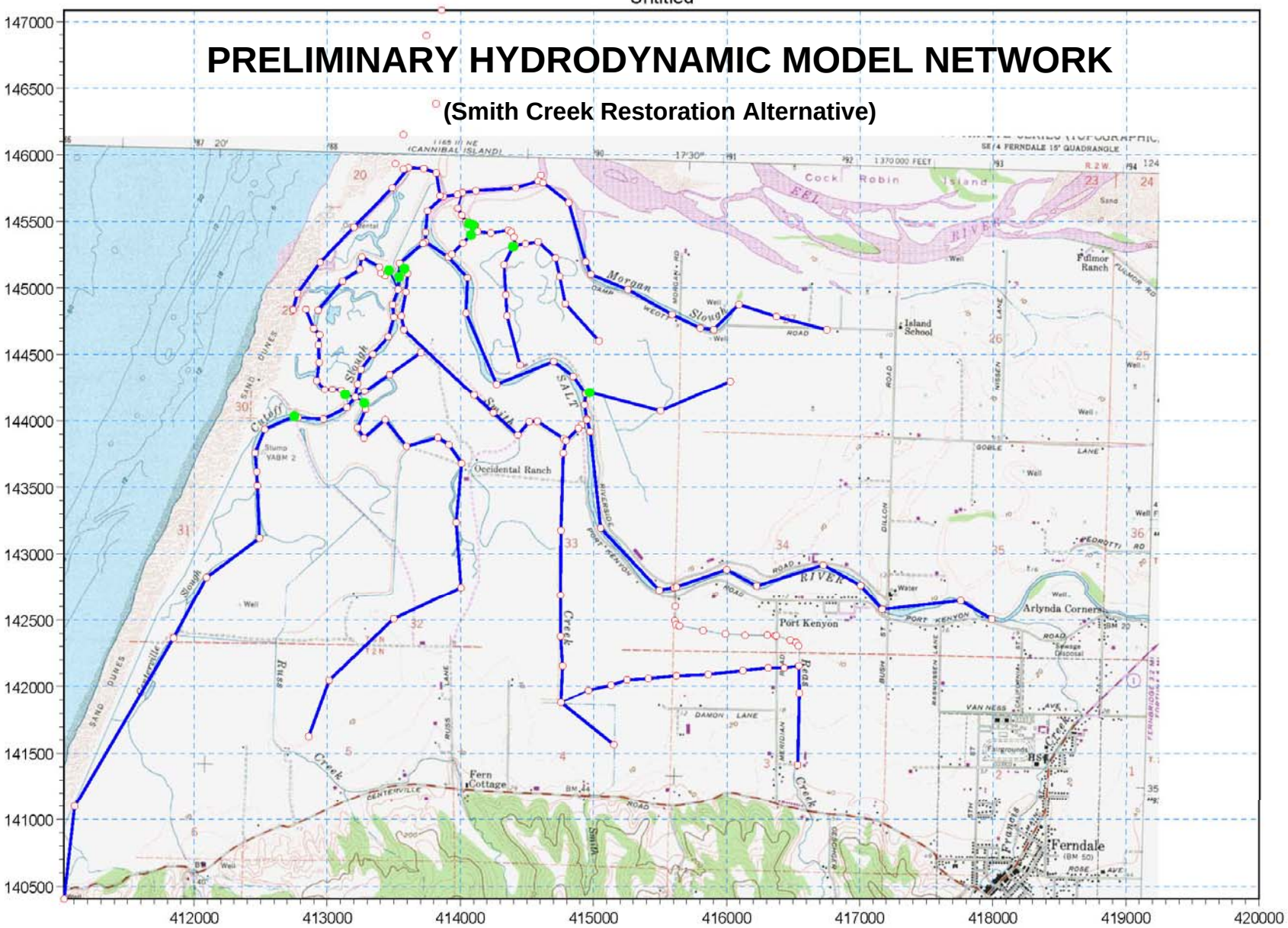
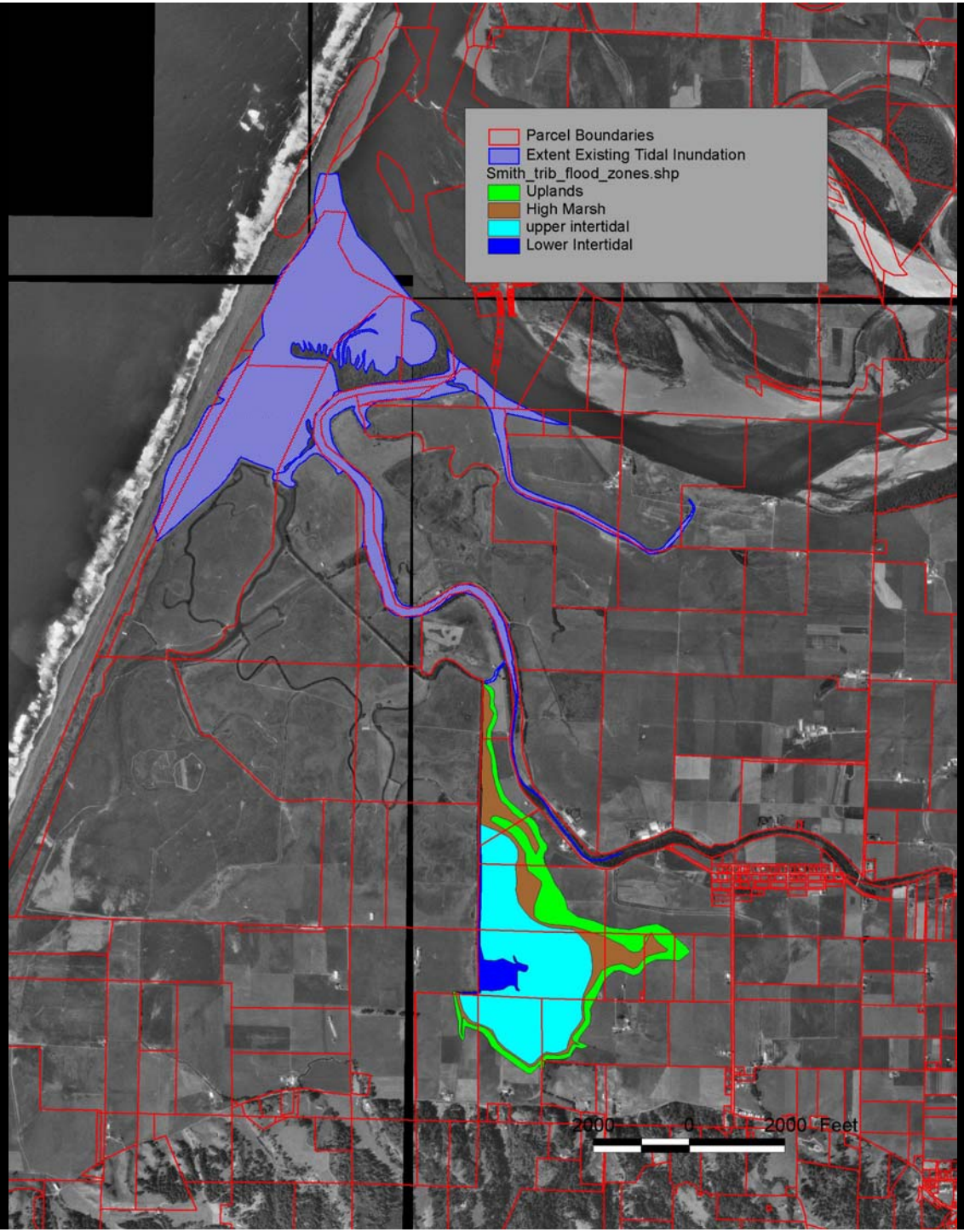
PRELIMINARY HYDRODYNAMIC MODEL NETWORK

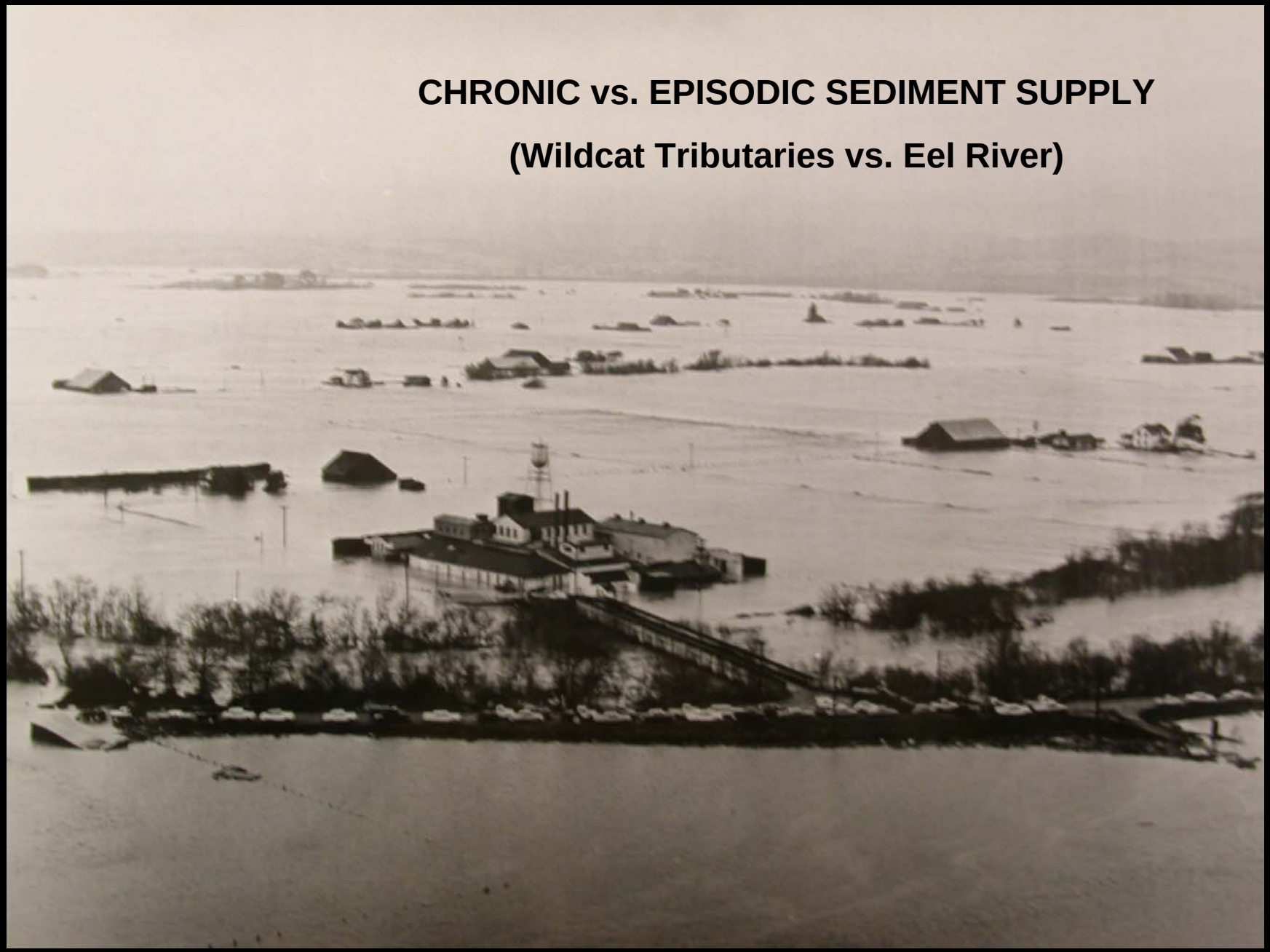
(Smith Creek Restoration Alternative)



12/15/2005 9:06:39 AM C:\3042 Salt River\WIKE_MODEL\Salt_R_SMITH_V1.nwk11 Page 1/1



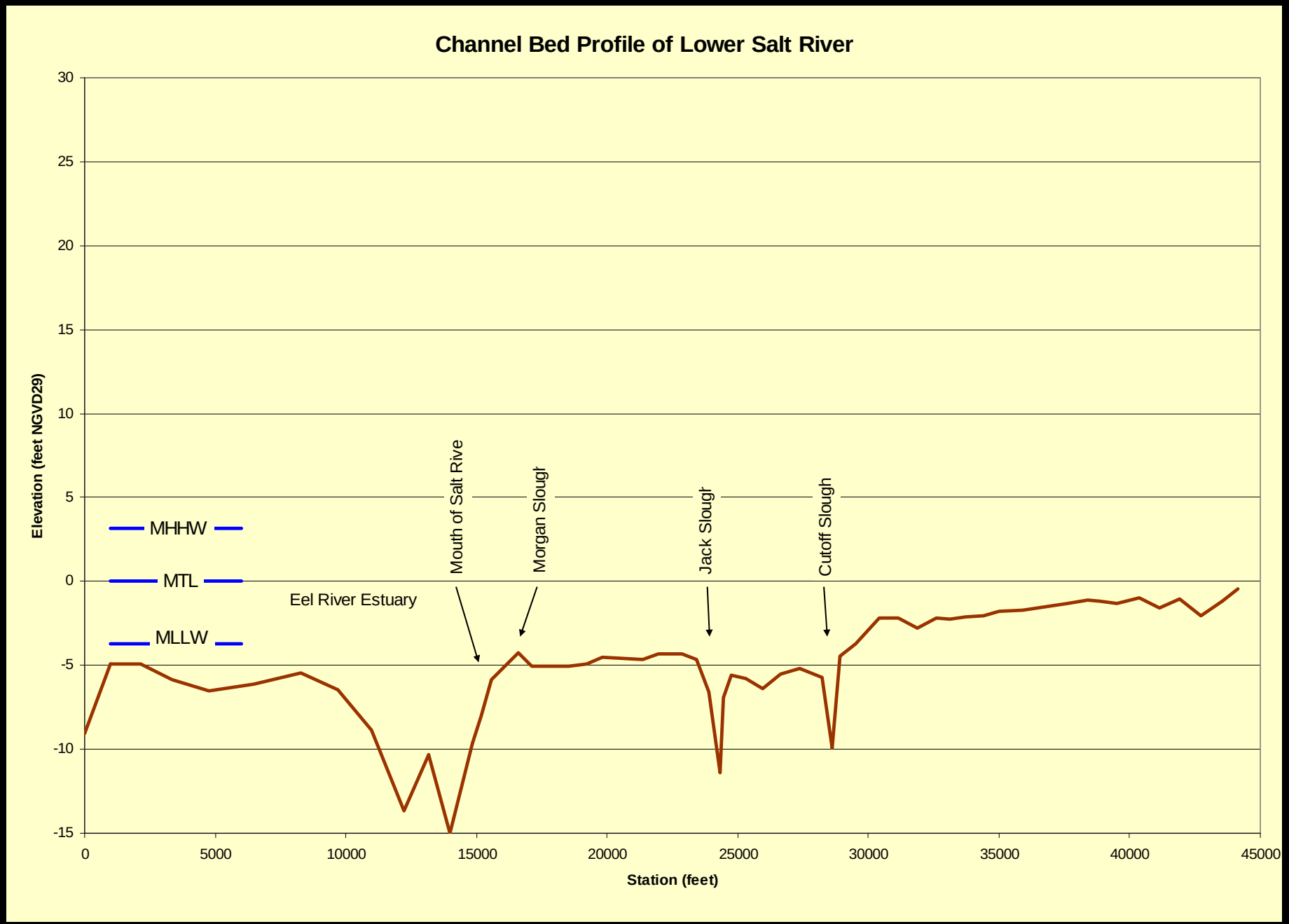
SMITH-REAS CREEK VICINITY

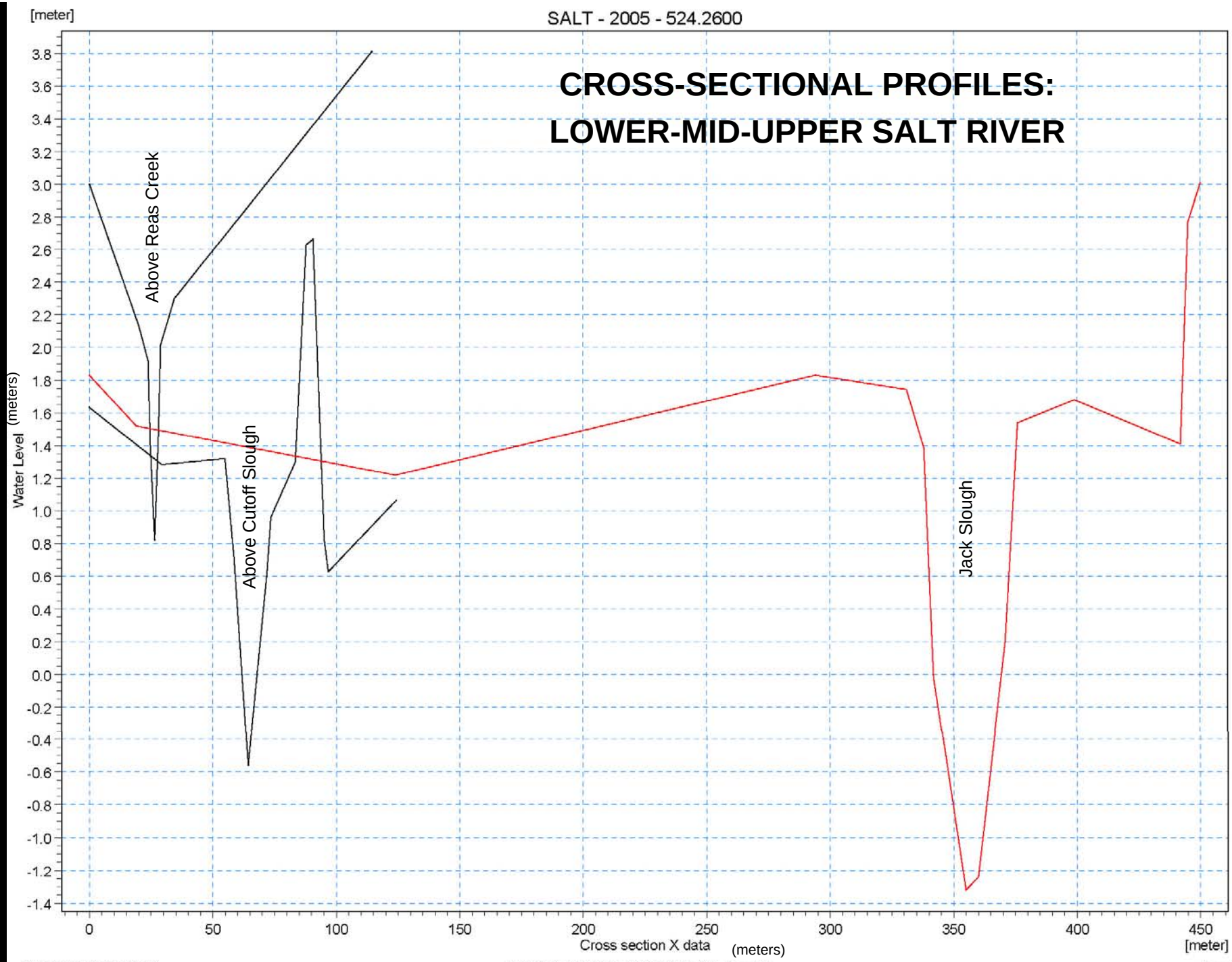


Port Kenyon (Dillon Road Bridge) 1964 flood.

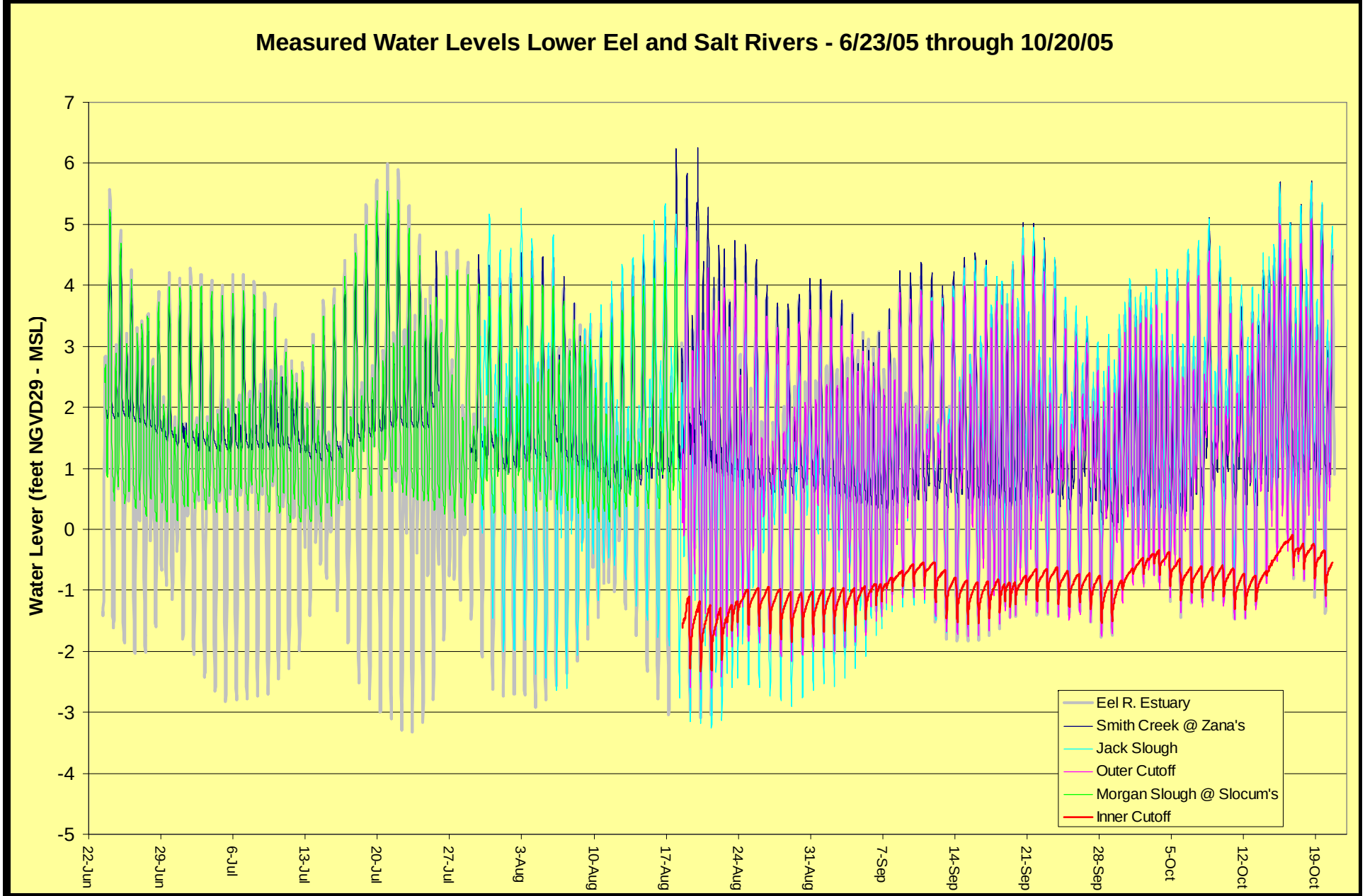
Leonardo Levee Area during Flood (1906 or 1909 ?)

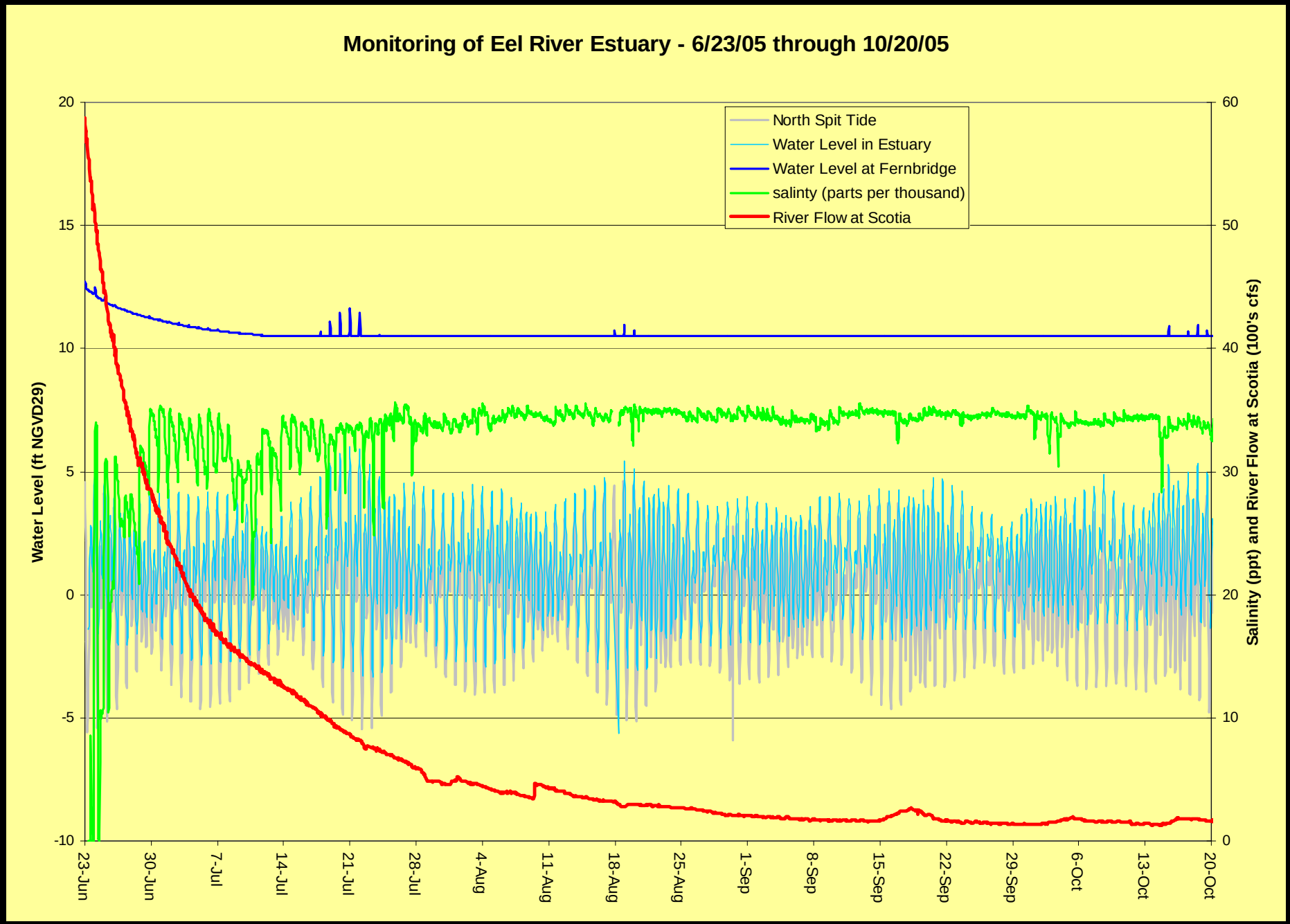
Leonardo Levee Area after Flood (1906 or 1909 ?)

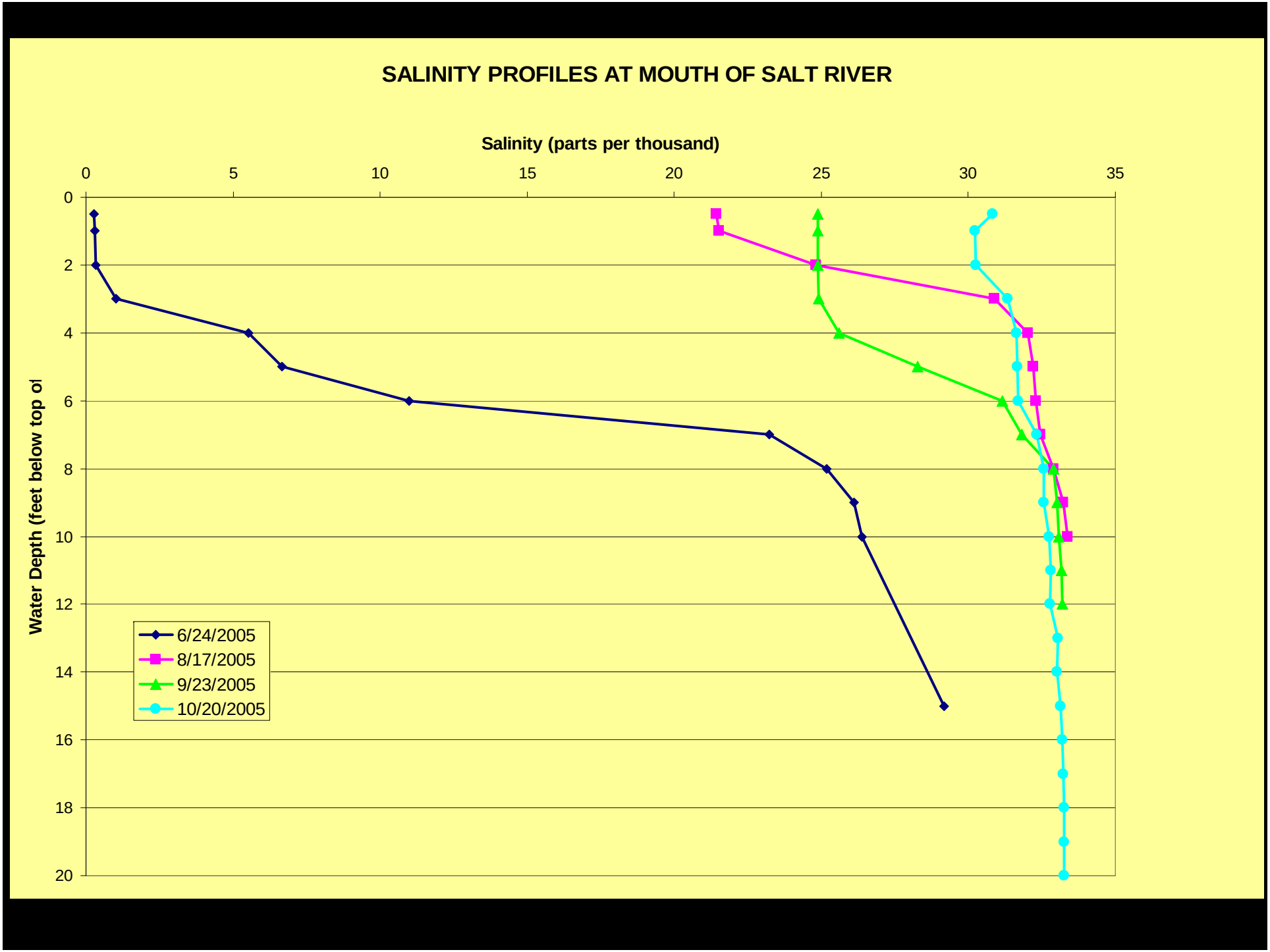

Channel Bed Profile of Lower Salt River
Elevation (feet NGVD29)
30
25
20
15
10
5
0
-5
-10
-15
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
Station (feet)
MHHW
MTL
MLLW
Eel River Estuary
Mouth of Salt Rive
Morgan Slougl
Jack Slougl
Cutoff Slough

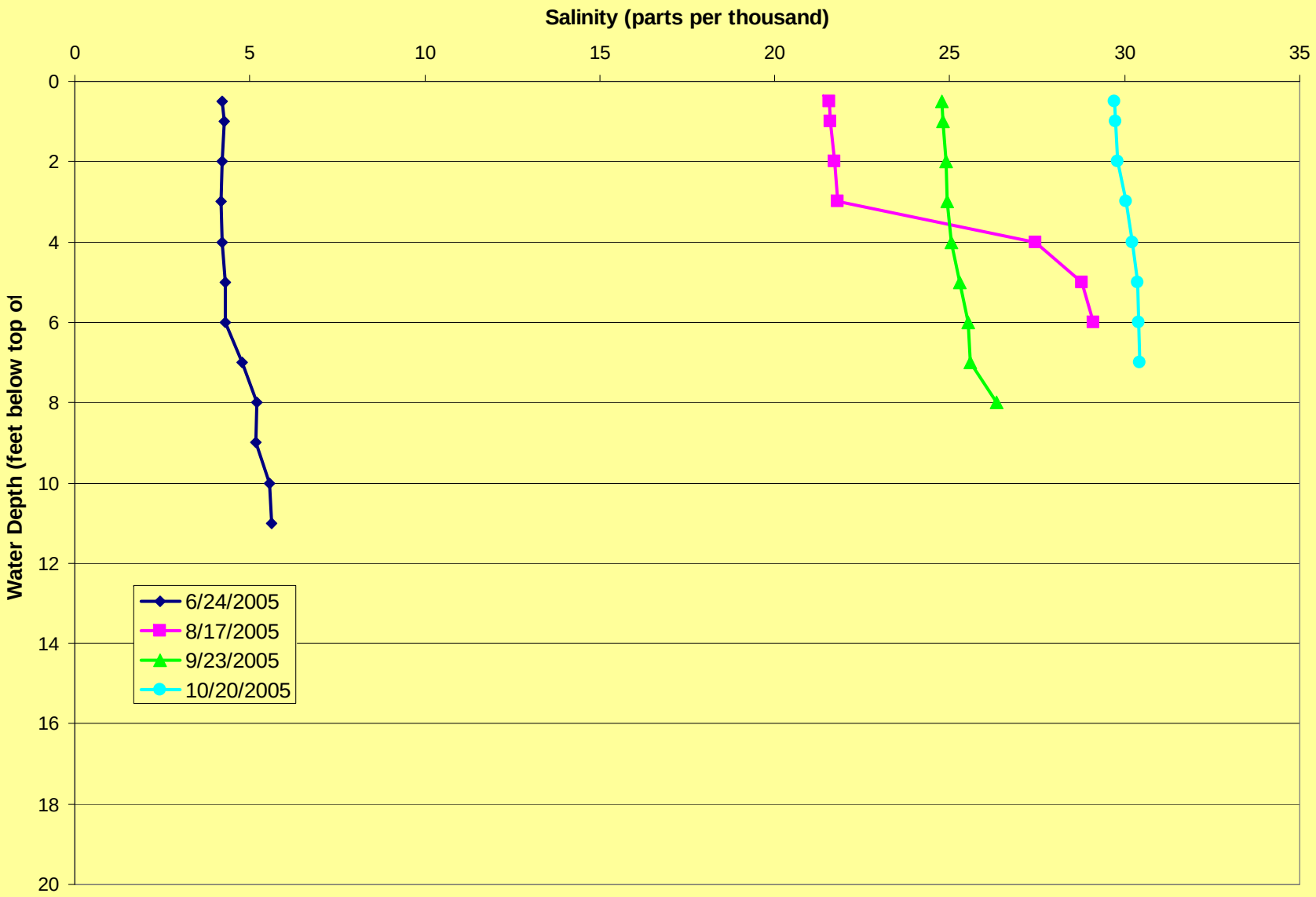

[meter]
SALT - 2005 - 524.2600
CROSS-SECTIONAL PROFILES:
LOWER-MID-UPPER SALT RIVER
Above Reas Creek
Above Cutoff Slough
Jack Slough
Water Level (meters)
Cross section X data (meters)
[meter]
11/5/2006 10:46:23 PM
C:\3042 Salt R\MIKE_MODEL\Salt_XS_v6.xns11
Page 1/1

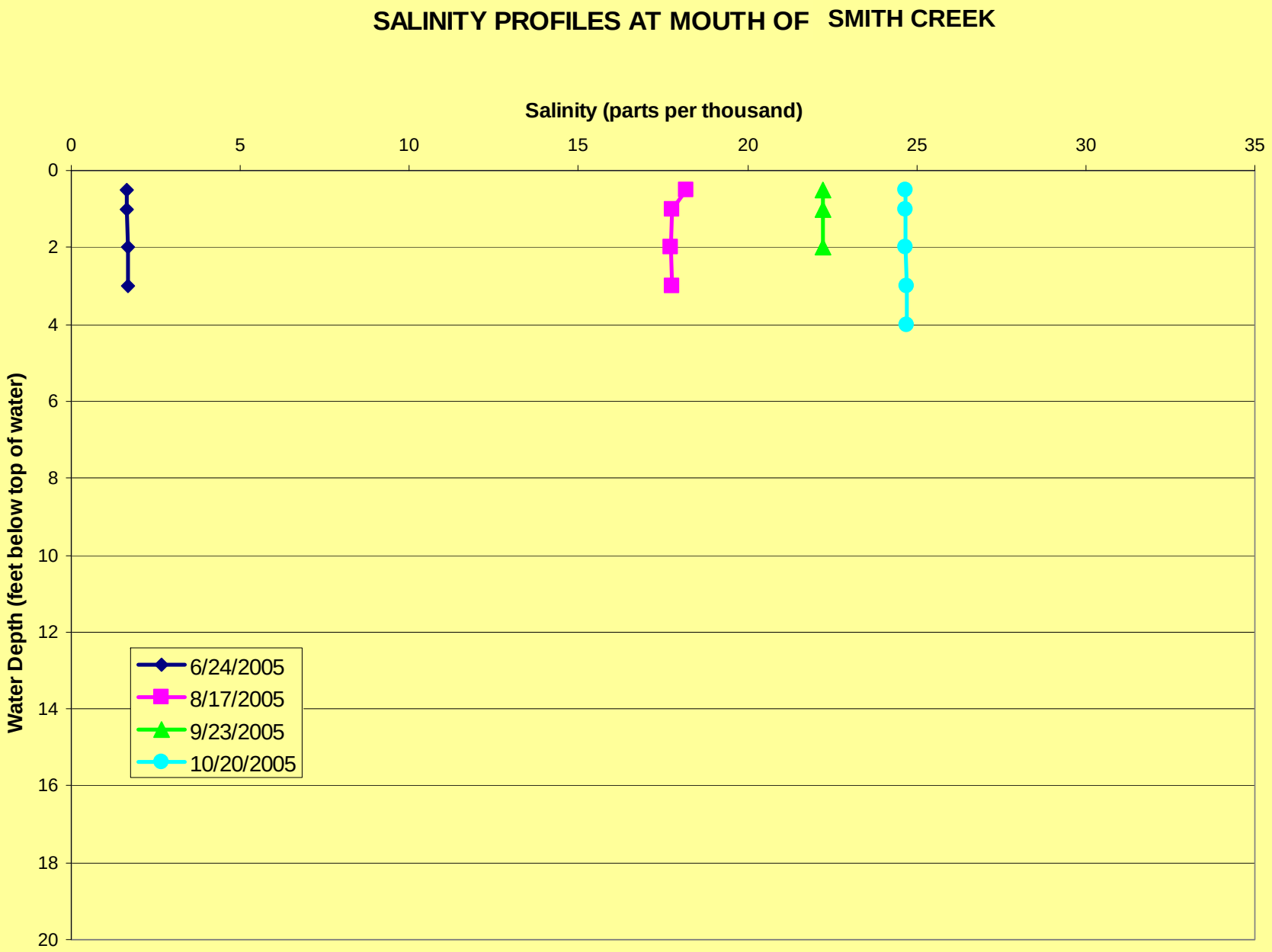
FIELD MONITORING


Measured Water Levels Lower Eel and Salt Rivers - 6/23/05 through 10/20/05
Water Lever (feet NGVD29 - MSL)
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
22-Jun
29-Jun
6-Jul
13-Jul
20-Jul
27-Jul
3-Aug
10-Aug
17-Aug
24-Aug
31-Aug
7-Sep
14-Sep
21-Sep
28-Sep
5-Oct
12-Oct
19-Oct
Eel R. Estuary
Smith Creek @ Zana's
Jack Slough
Outer Cutoff
Morgan Slough @ Slocum's
Inner Cutoff

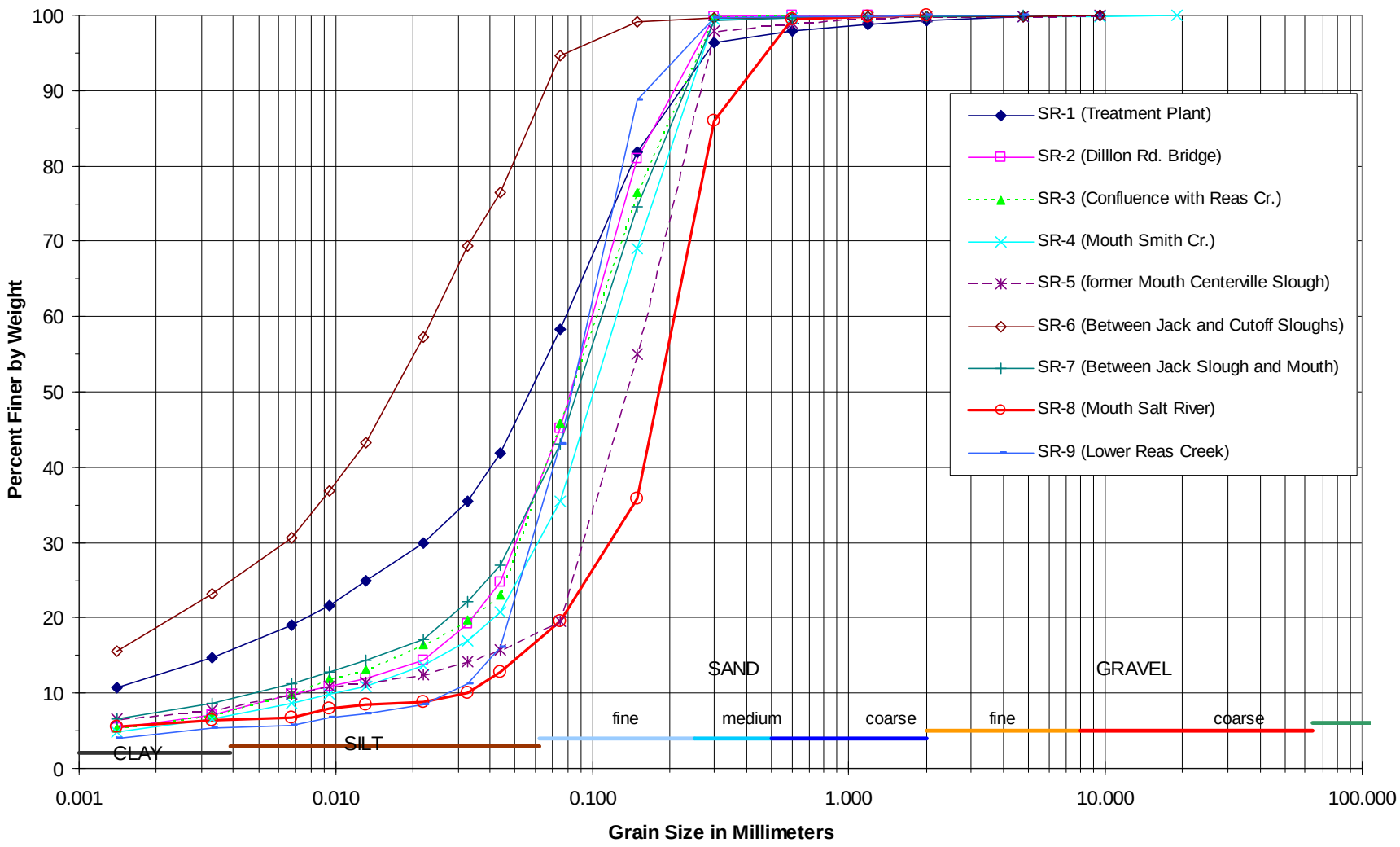

Monitoring of Eel River Estuary - 6/23/05 through 10/20/05
North Spit Tide
Water Level in Estuary
Water Level at Fernbridge
salinty (parts per thousand)
River Flow at Scotia
Water Level (ft NGVD29)
Salinity (ppt) and River Flow at Scotia (100's cfs)
20
15
10
5
0
-5
-10
60
50
40
30
20
10
0
23-Jun
30-Jun
7-Jul
14-Jul
21-Jul
28-Jul
4-Aug
11-Aug
18-Aug
25-Aug
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct


SALINITY PROFILES AT MOUTH OF SALT RIVER
Salinity (parts per thousand)
0
5
10
15
20
25
30
35
Water Depth (feet below top of
0
2
4
6
8
10
12
14
16
18
20
6/24/2005
8/17/2005
9/23/2005
10/20/2005


SALINITY PROFILES AT MOUTH OF CUTOFF SLOUGH
Salinity (parts per thousand)
0
5
10
15
20
25
30
35
Water Depth (feet below top of
0
2
4
6
8
10
12
14
16
18
20
6/24/2005
8/17/2005
9/23/2005
10/20/2005


SALINITY PROFILES AT MOUTH OF SMITH CREEK
Salinity (parts per thousand)
0
5
10
15
20
25
30
35
Water Depth (feet below top of water)
0
2
4
6
8
10
12
14
16
18
20
6/24/2005
8/17/2005
9/23/2005
10/20/2005

FIELD MONITORING



Kamman Hydrology & Engineering, Inc.

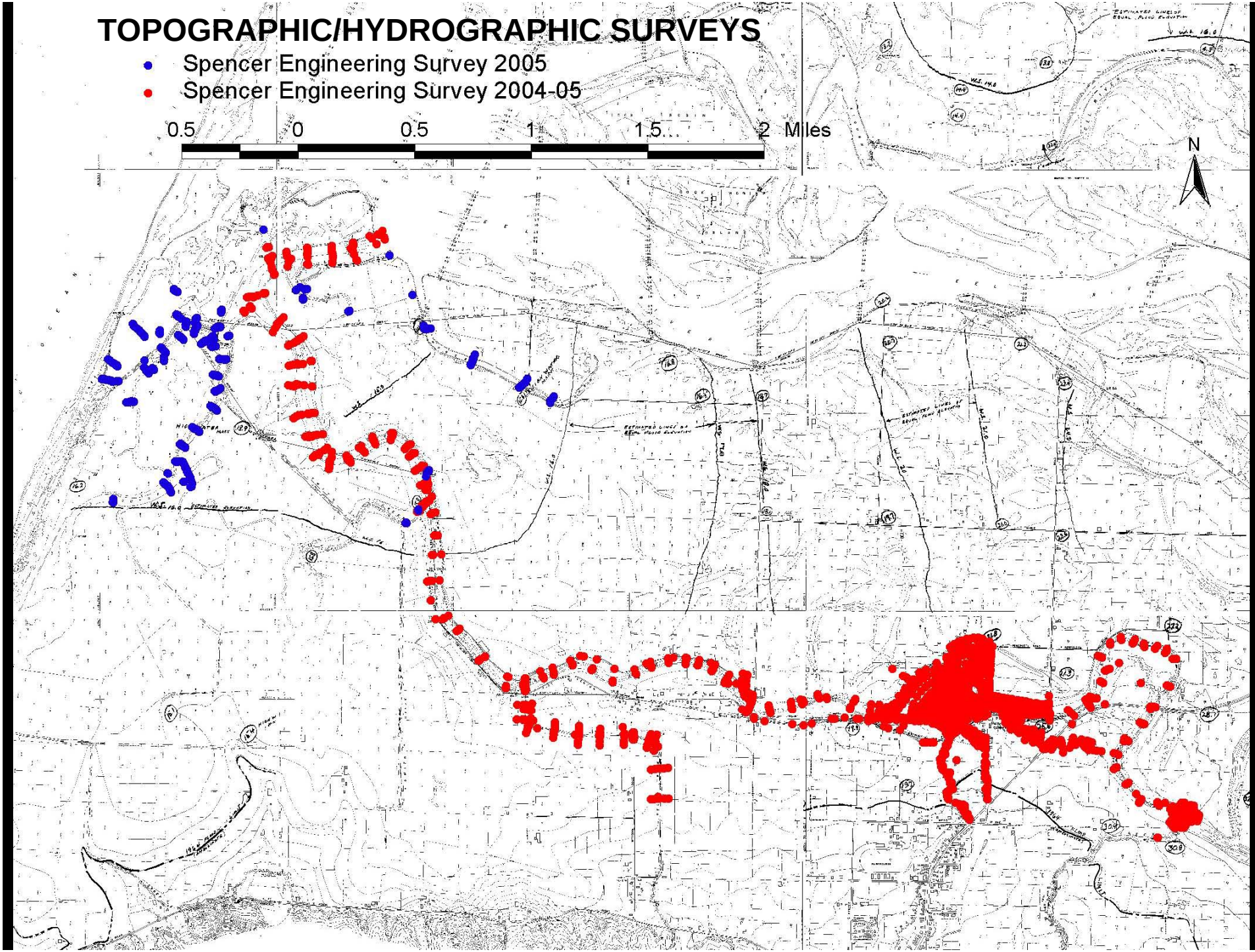
Tidal Influence and Hydraulic Data Synthesis Study for Restoration Planning
Lower Salt River, Humboldt County, CA

Grain Size Analysis Results for Soil Samples

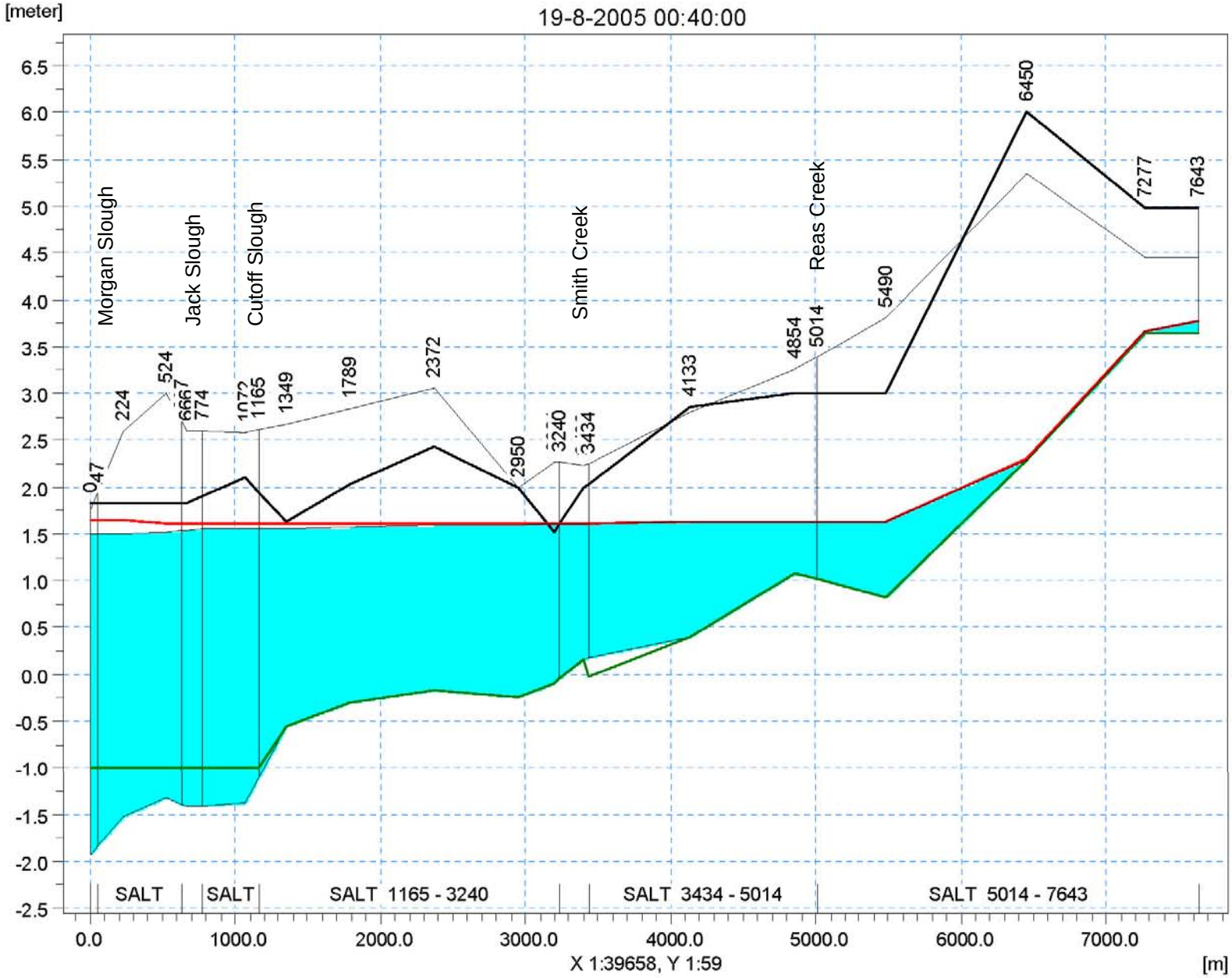
FIGURE

X

TOPOGRAPHIC/HYDROGRAPHIC SURVEYS



LONGITUDINAL PROFILE – MAINSTEM SALT RIVER (Treatment Plant to Eel River)



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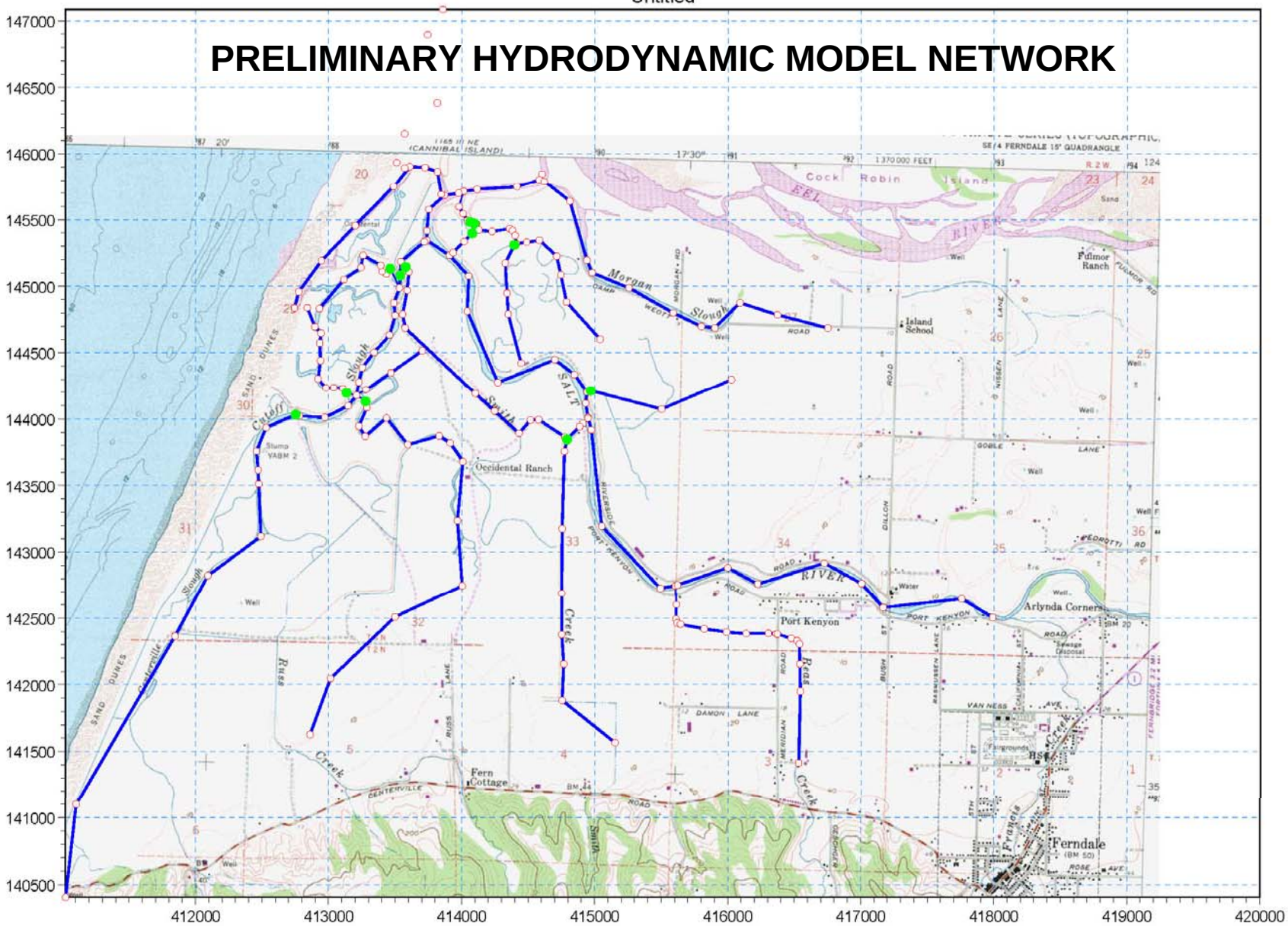
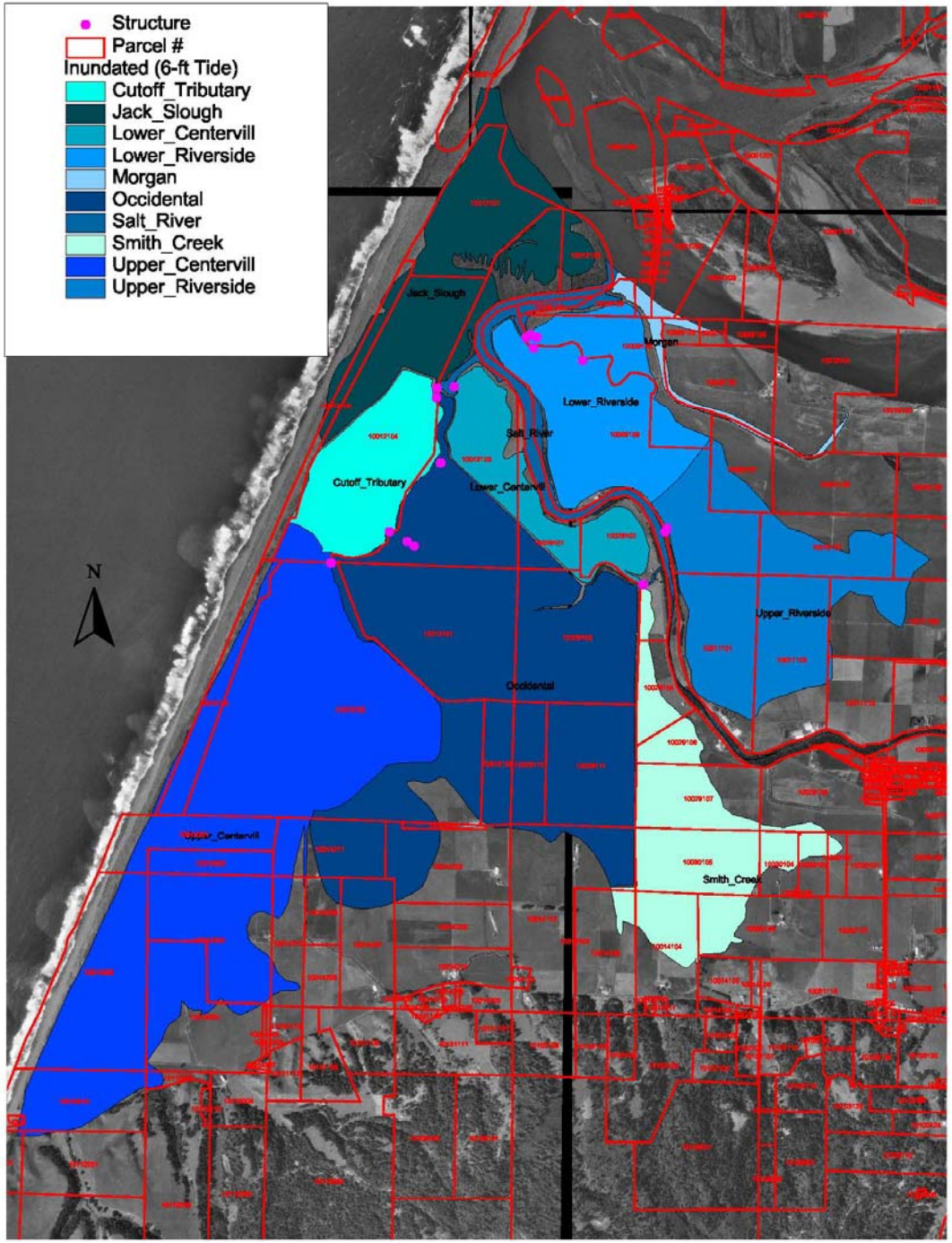
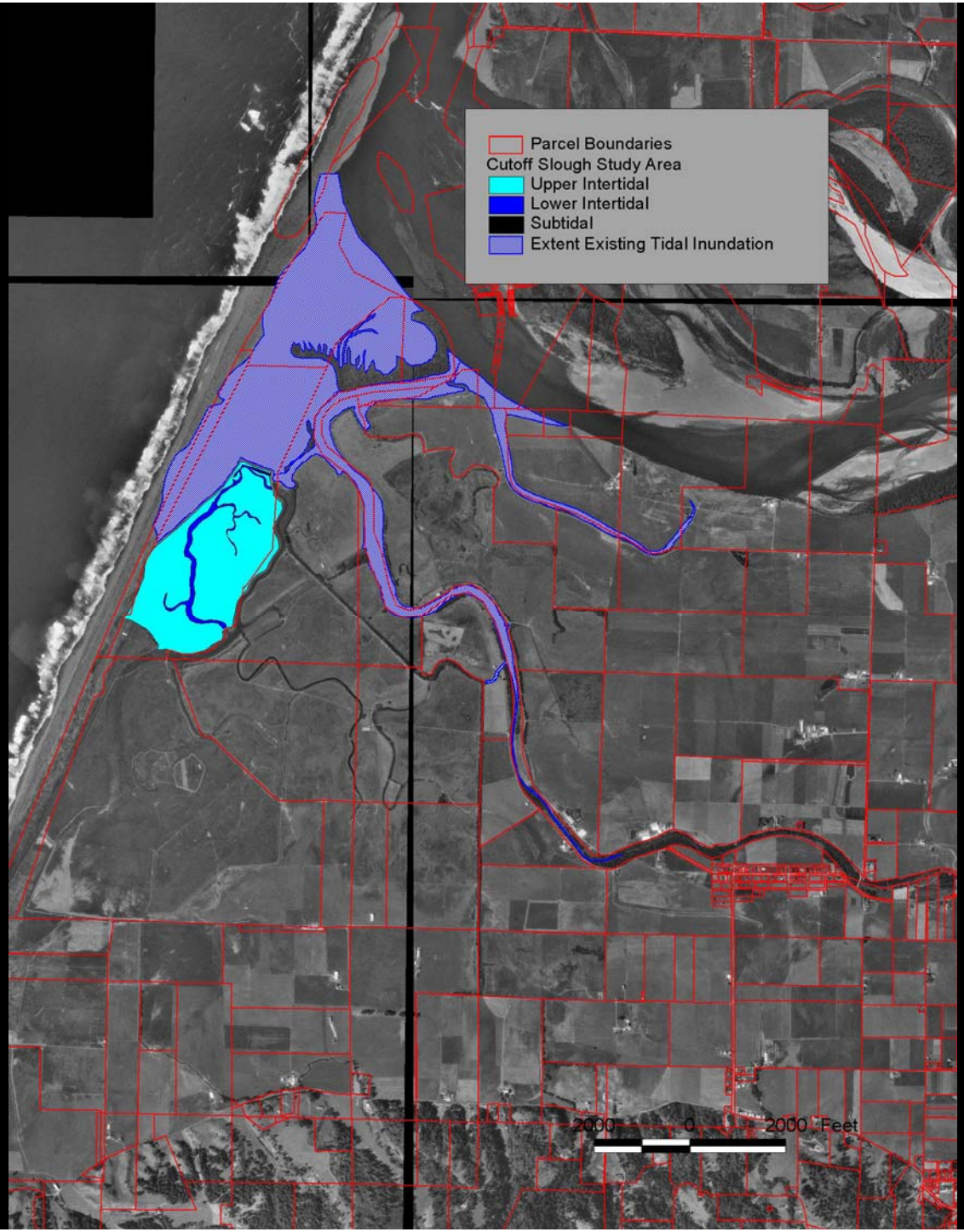
PRELIMINARY HYDRODYNAMIC MODEL NETWORK

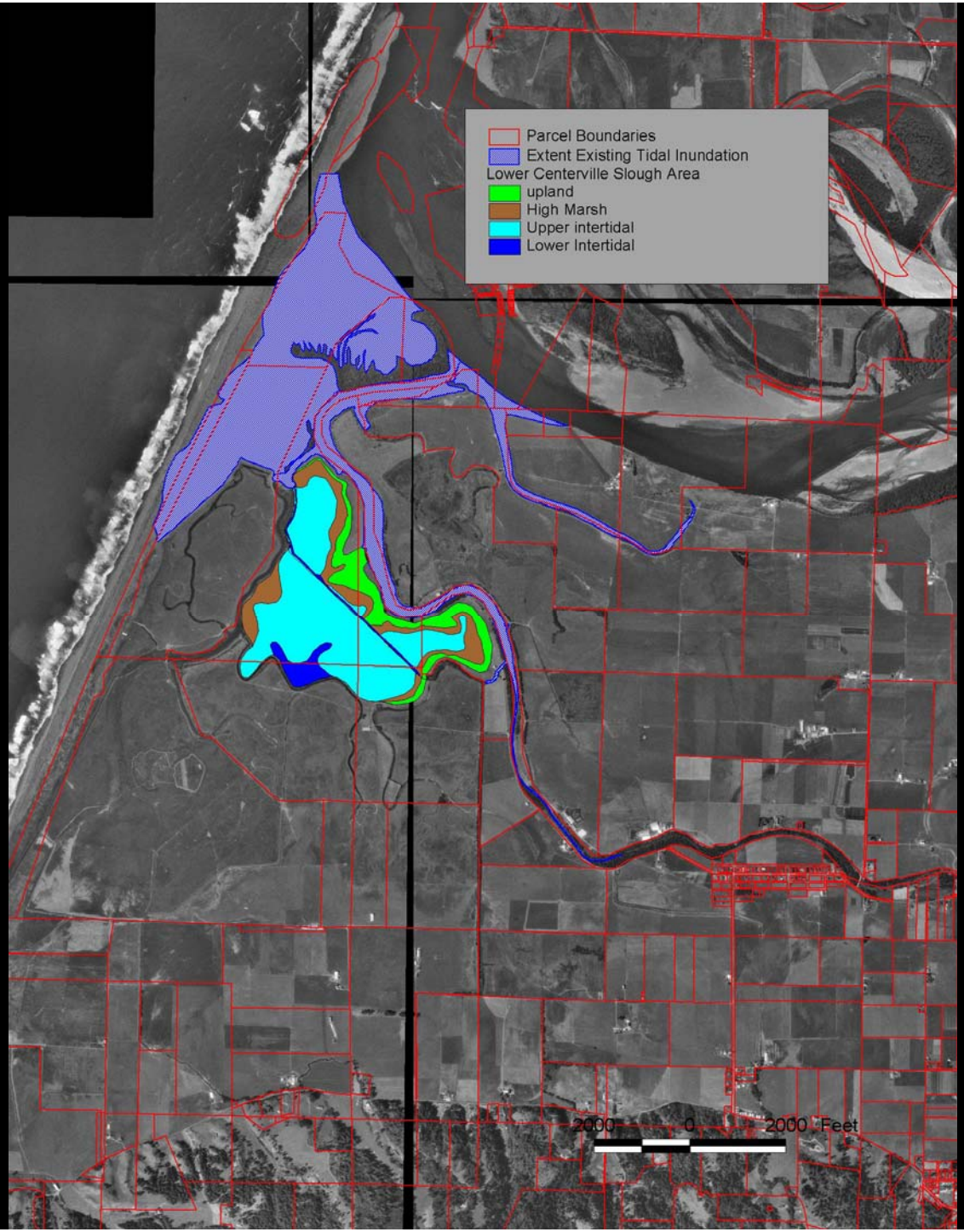




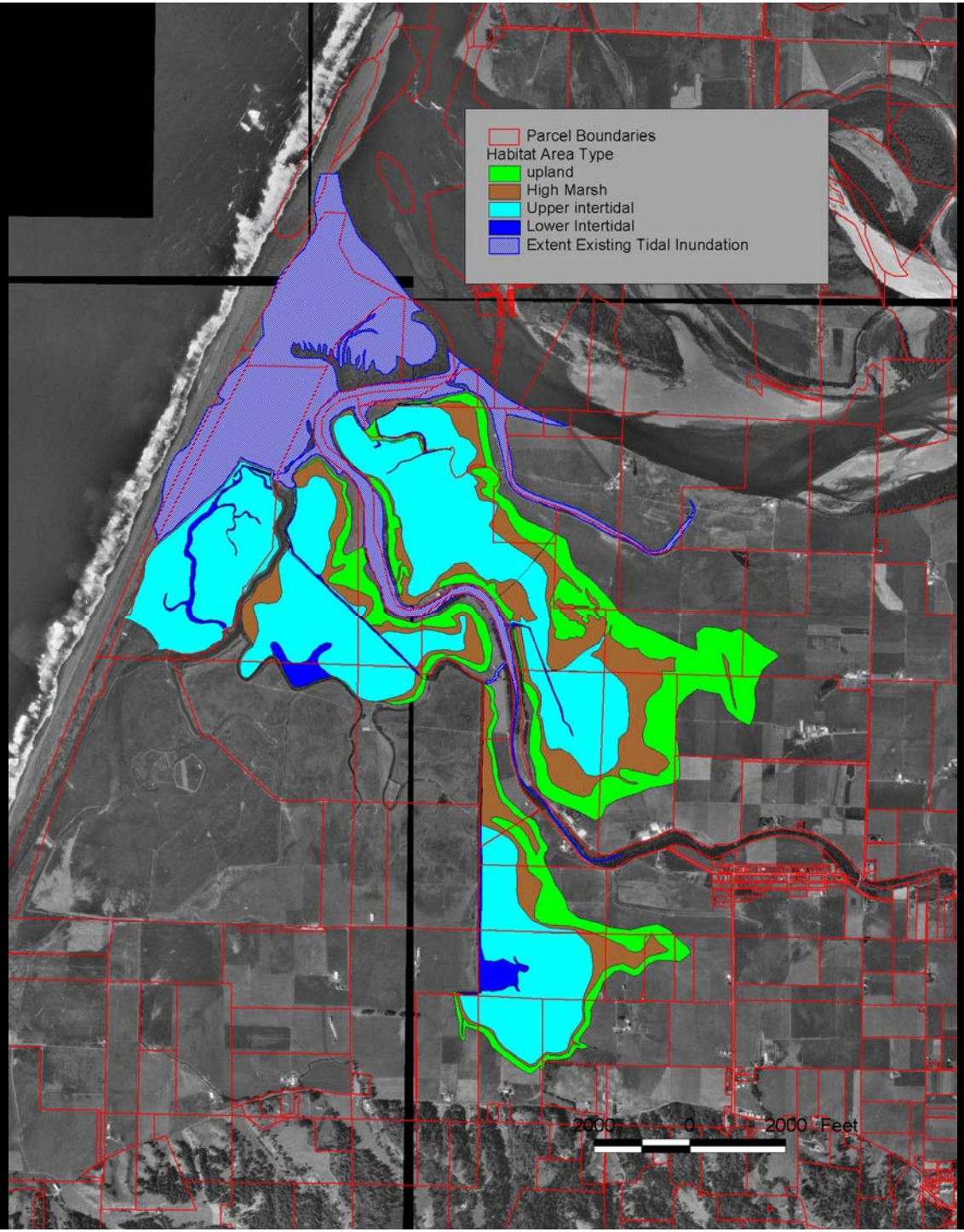
POTENTIAL TIDAL MARSH RESTORATION AREAS



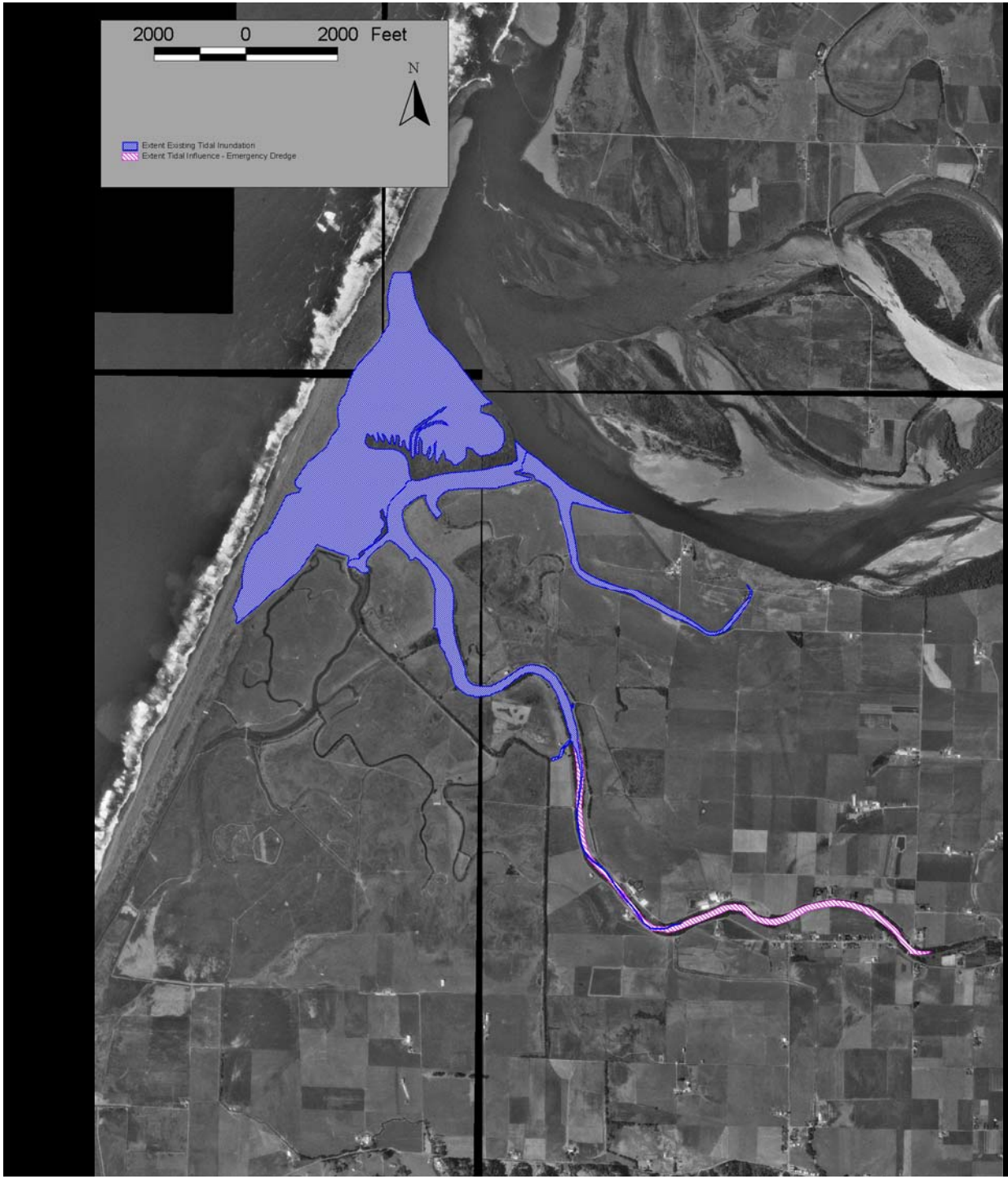
CUTOFF SLOUGH SUBAREA



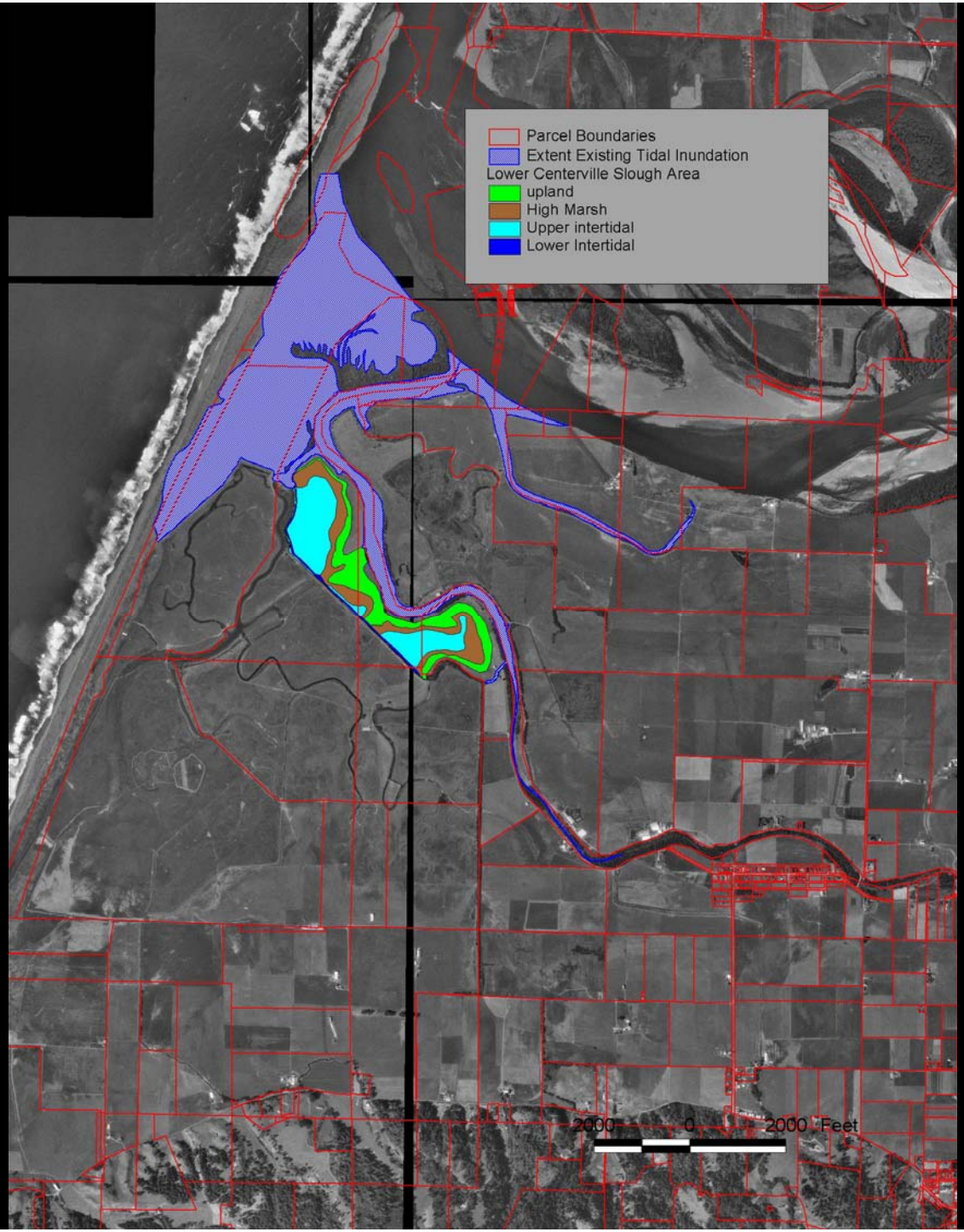
LOWER CENTERVILLE SLOUGH AREA



ALL RESTORATION AREAS EVALUATED



EMERGENCY DREDGING SCENARIO

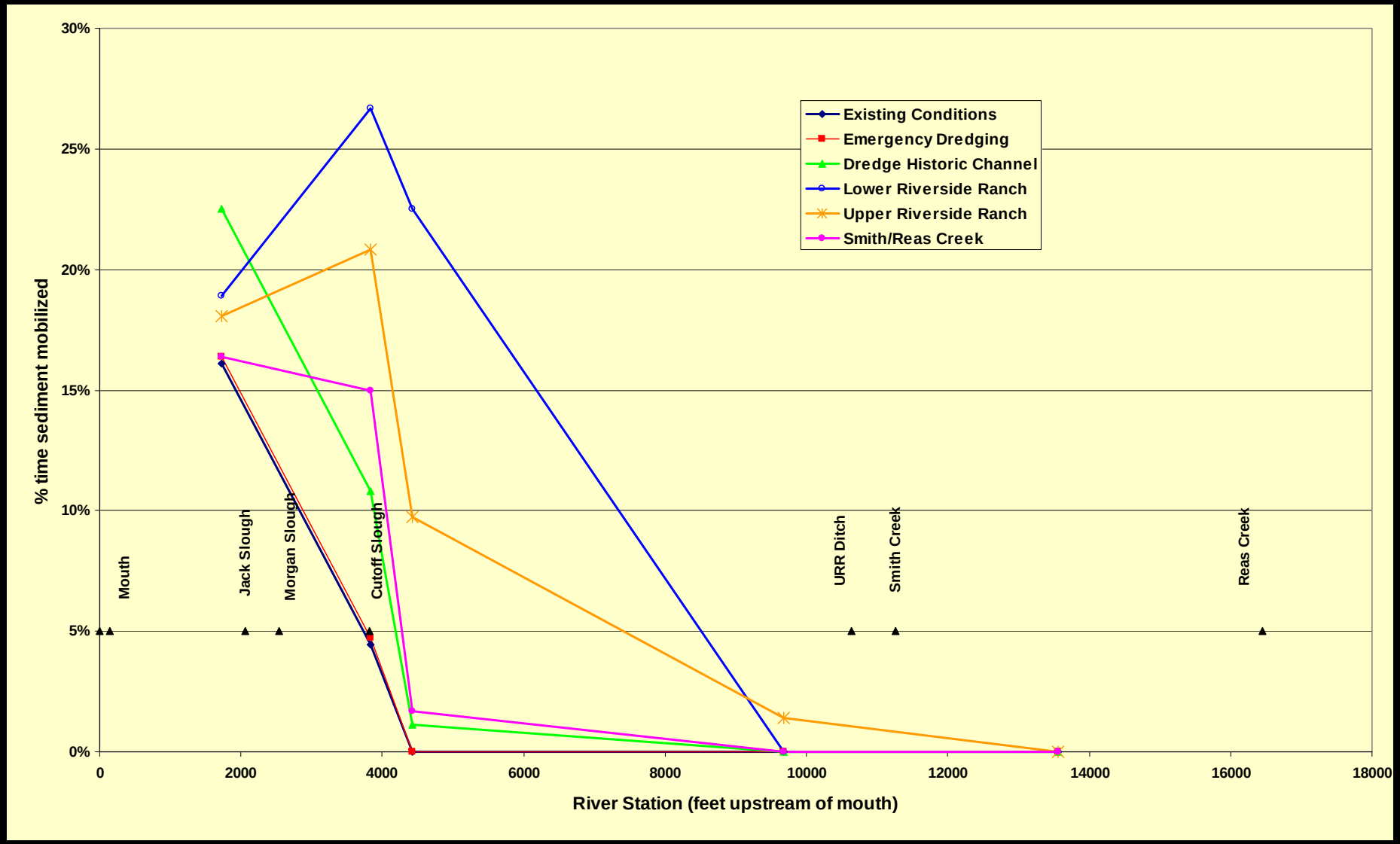


LOWER CENTERVILLE SLOUGH AREA

Areas of Tidal Inundation During Low Eel River Flow (Summer) Conditions

Area	Subtidal	Lower Intertidal	Upper Intertidal	High Marsh	Uplands	SUBTOTAL
Existing Conditions	…	…	…	…	…	**444**
Emergency Dredging	…	…	…	…	…	**471.9**
Maximum/Historic	…	…	…	…	…	**3556.6**
Lower Riverside Ranch						
Full Inundation Area	…	2.3	175	40.9	42.3	**260.5**
Clipped to Parcel	…	0.9	142.5	22.8	21.5	**187.7**
Upper Riverside Ranch						
Full Inundation Area	…	1.9	103.8	105.9	171	**382.6**
Clipped to Parcel	…	1.9	83.2	54.2	35.4	**174.7**
Smith Creek	…	15.7	153.9	56.1	71.2	**296.9**
Lower Centerville						
Existing Levees	…	4	53.4	36.5	41.5	**135.4**
Levee Setback	…	16	168.4	50.9	43.7	**279**
Cutoff Subdrainage	0.1	12.6	153.4	…	…	**166.1**

Note: Riverside Ranch Area = 187.7-ac + 174.7-ac = 362.4 (?)


30%
25%
20%
15%
10%
5%
0%
% time sediment mobilized
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
River Station (feet upstream of mouth)
Existing Conditions
Emergency Dredging
Dredge Historic Channel
Lower Riverside Ranch
Upper Riverside Ranch
Smith/Reas Creek
Mouth
Jack Slough
Morgan Slough
Cutoff Slough
URR Ditch
Smith Creek
Reas Creek