

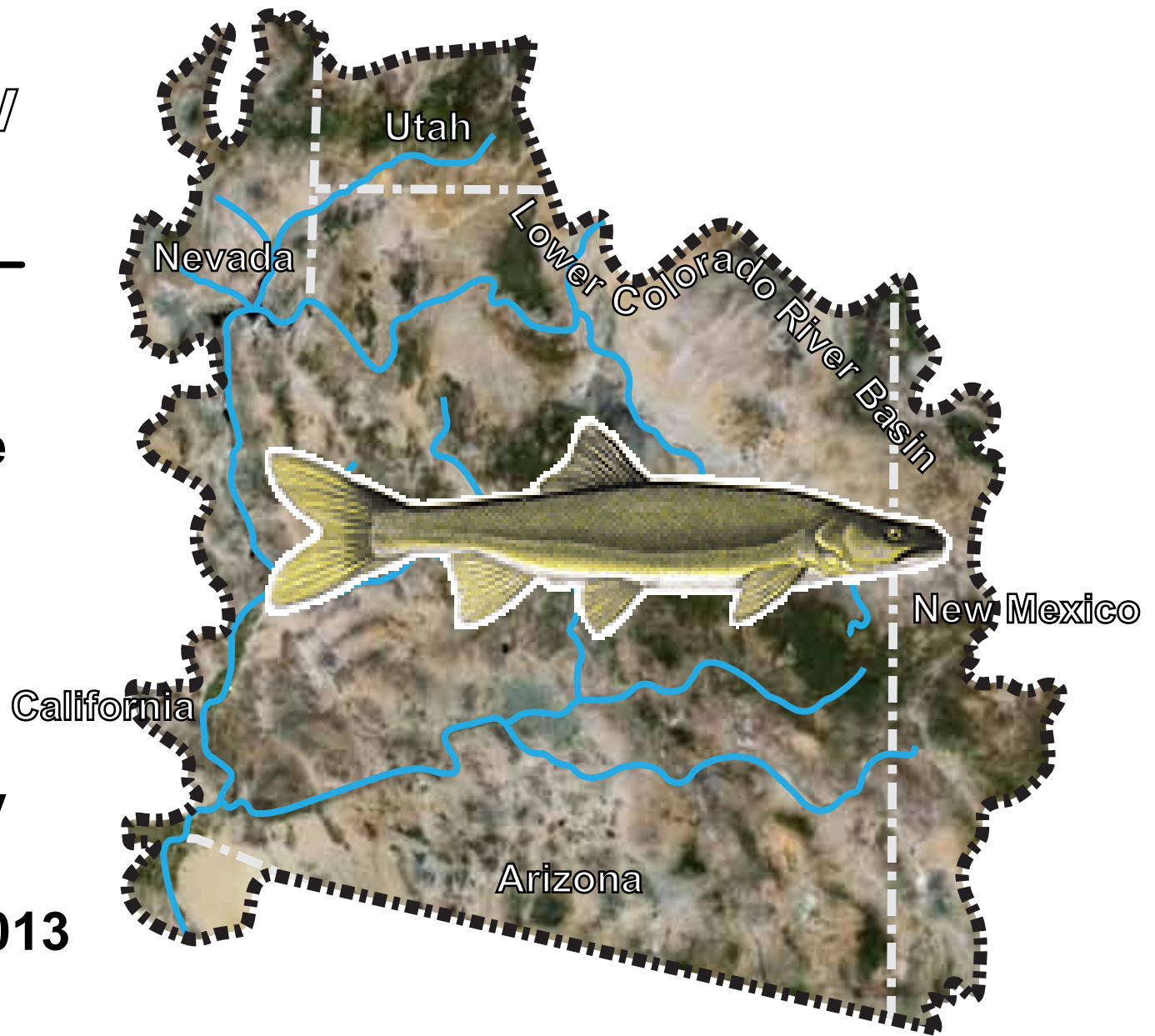
Colorado Pikeminnow Nurseries

**Artificial Habitats
to Reintroduce
the Species to the
Lower Colorado
River Basin**

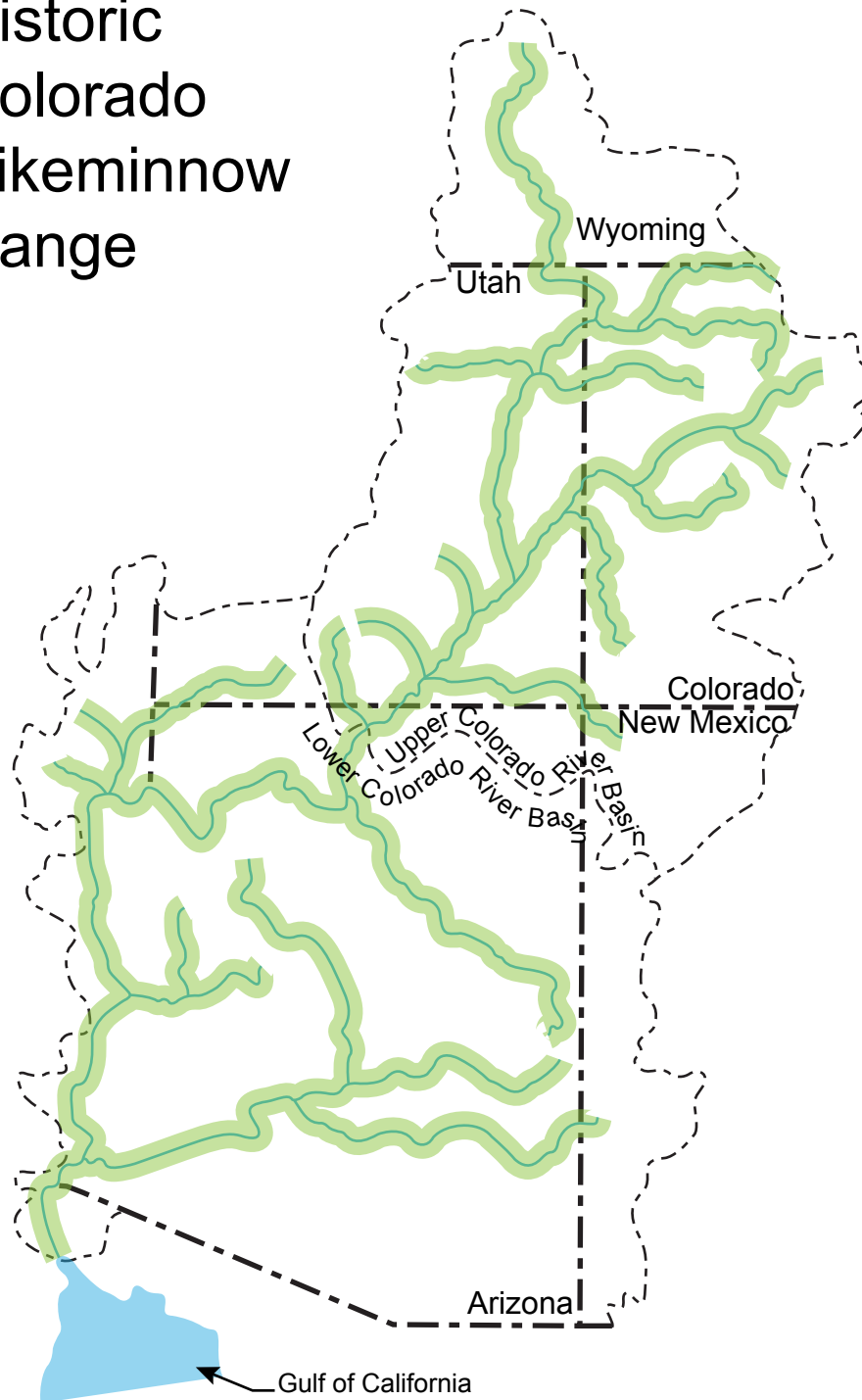
**Design Project By
Devon Santy
MLA Candidate 2013
Cal Poly Pomona**

LA 602

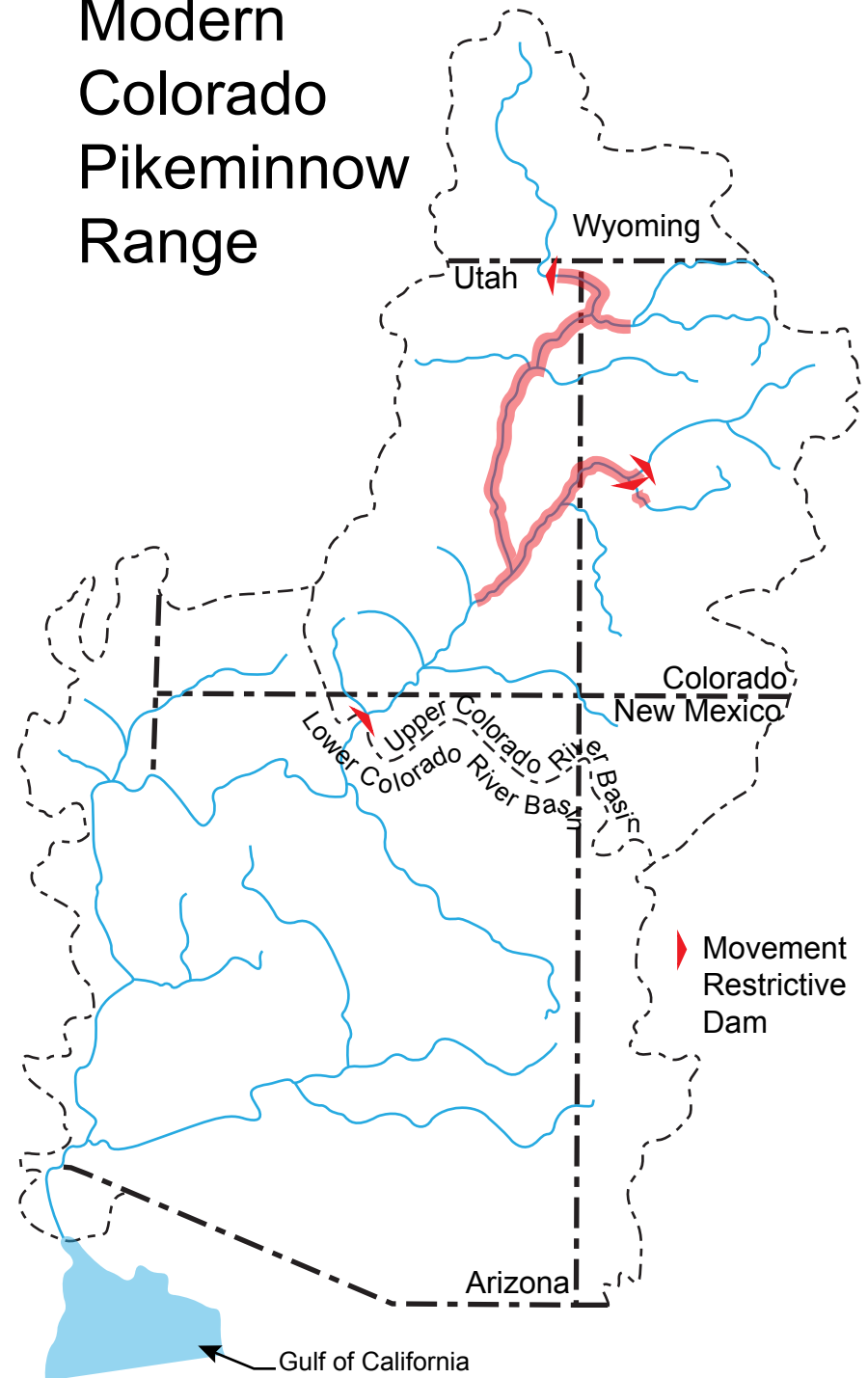
Instructor: Jessica Hall



Historic Colorado Pikeminnow Range



Modern Colorado Pikeminnow Range



Vicinity Map



Blythe

Salton Sea

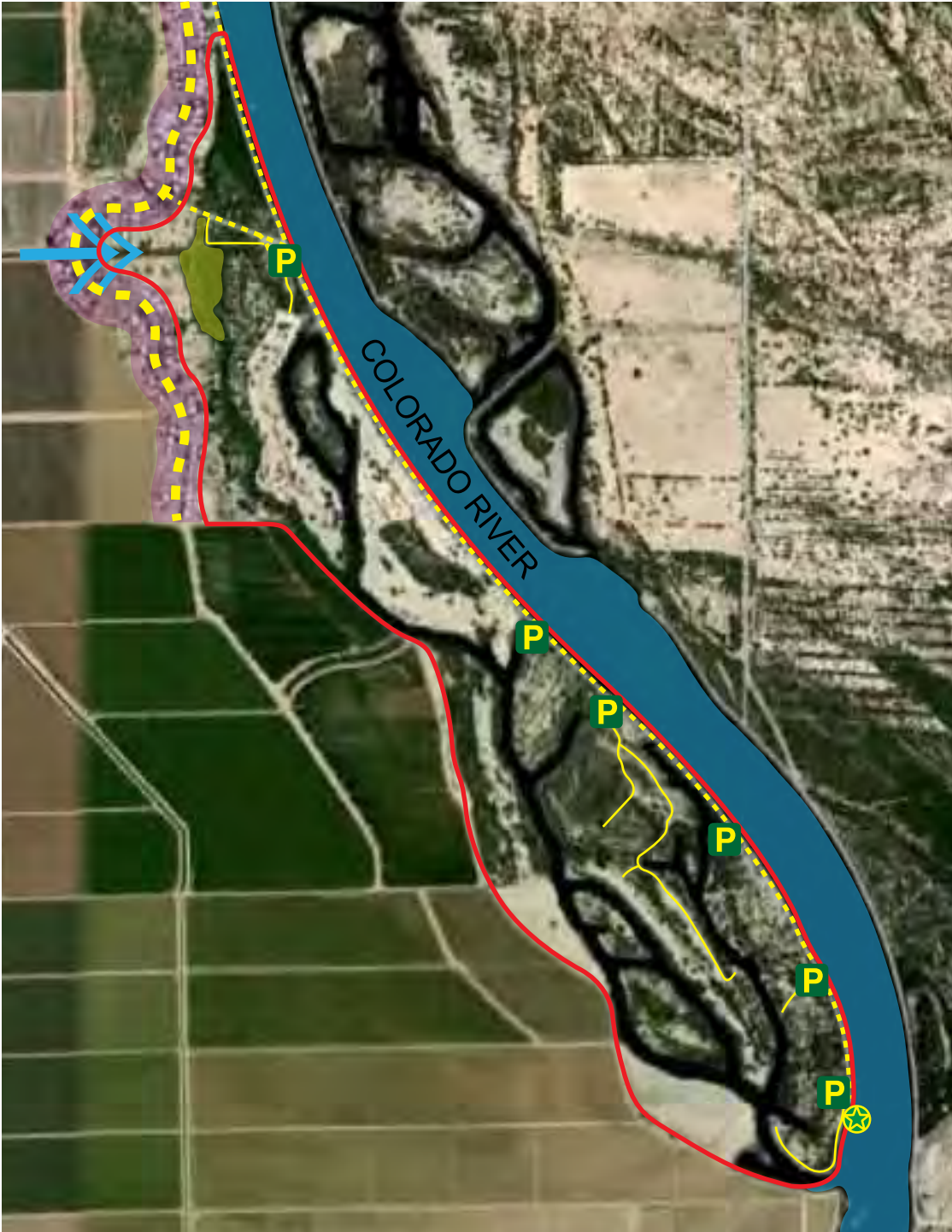
Colorado River












Goose Flats and Access Route

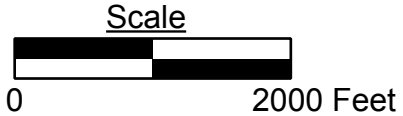


Goose Flats: Existing Site Conditions

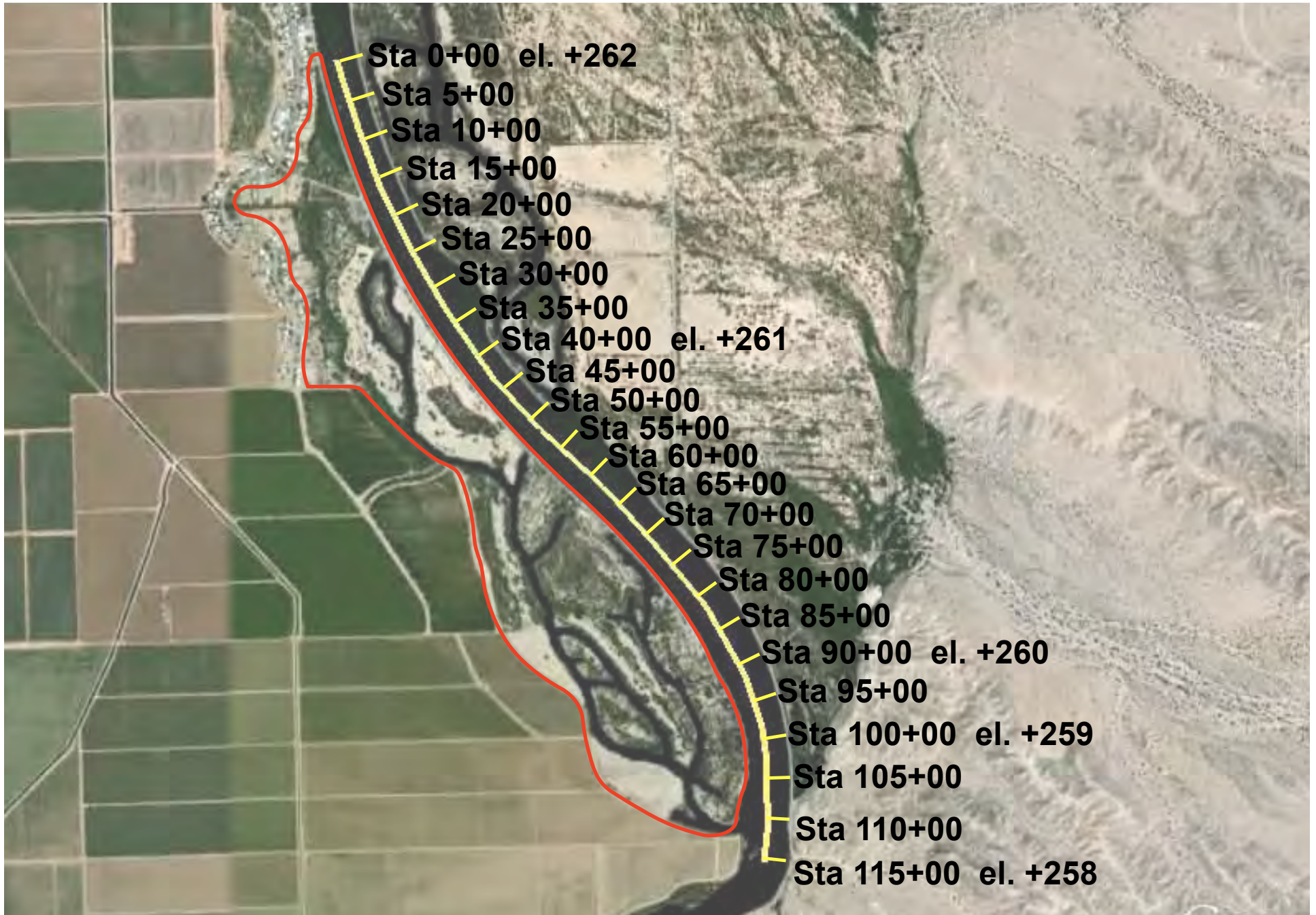


Legend

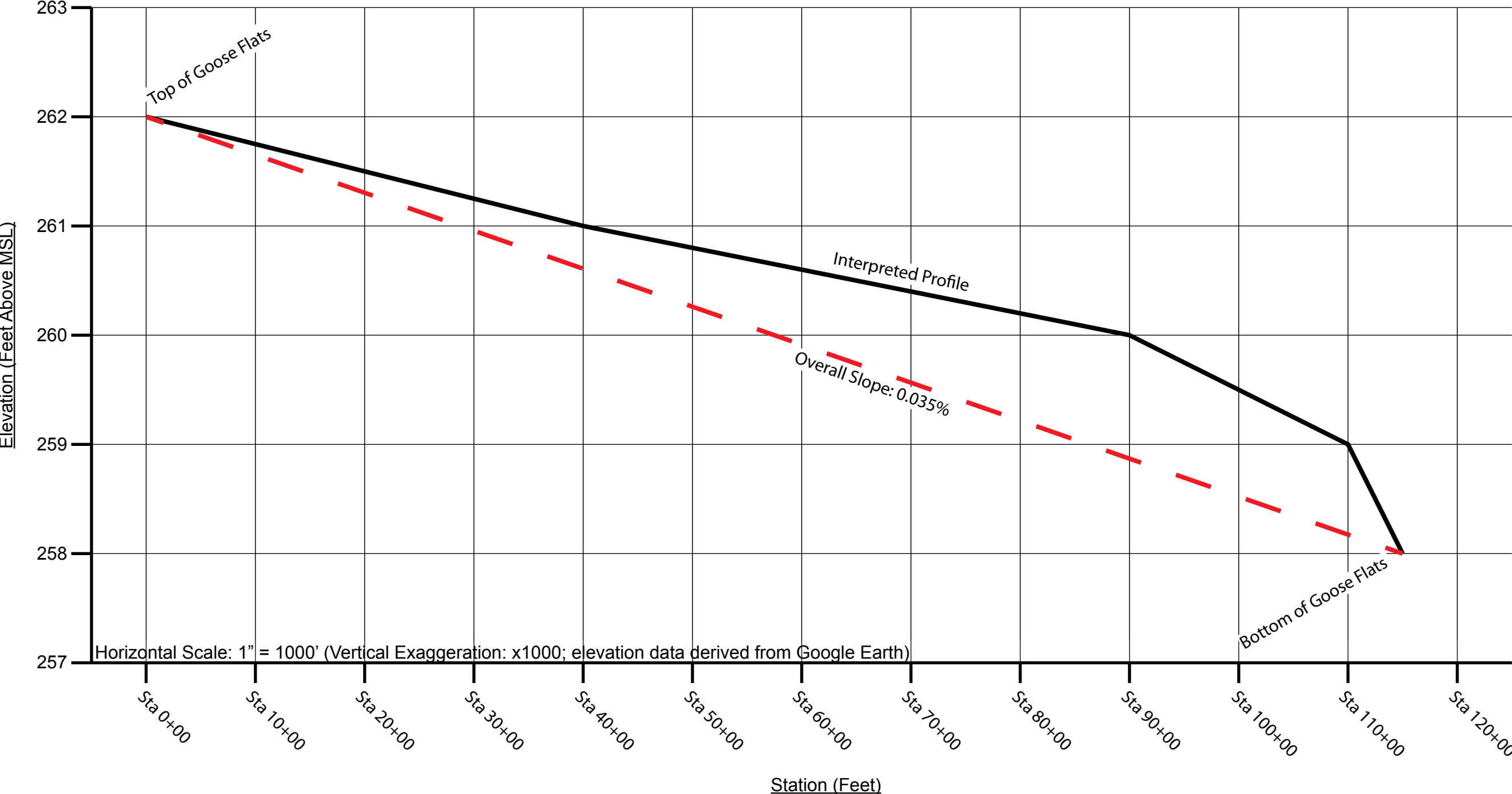
-  Project Site Boundary
-  Paved Vehicle Road
-  Unpaved Vehicle Road
-  Footpath
-  Residential area
-  Parking Area
-  Public Beach
-  Marsh
-  ~20cfs Agriculture Irrigation Outflow



Stationing for Colorado River Profile



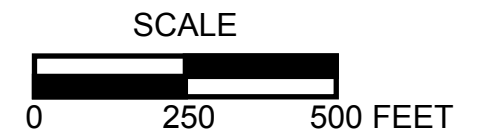
Colorado River Surface Profile at Goose Flats, Blythe, CA



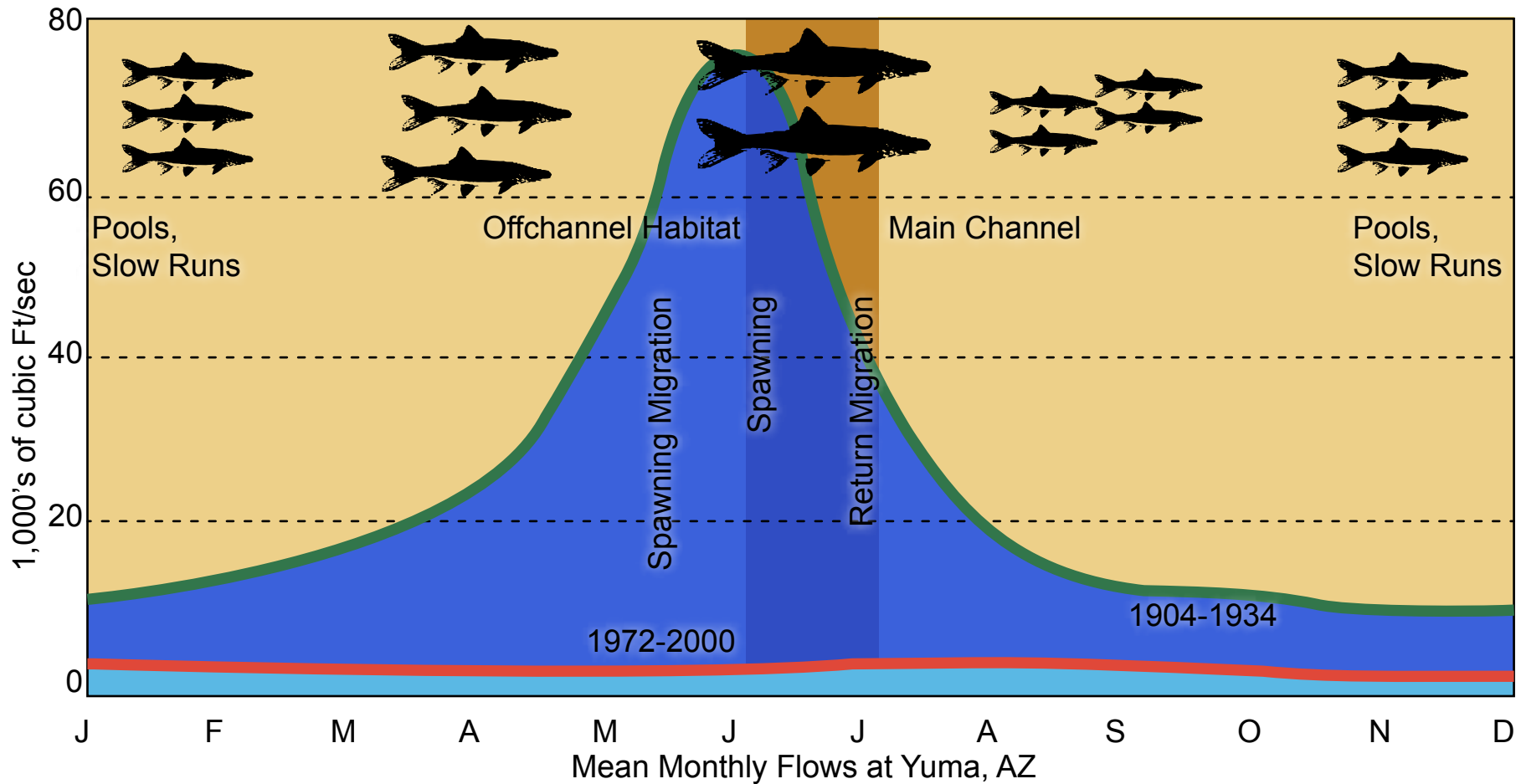
Goose Flats Cross Section



SECTION
(Vertical Exaggeration: 20X)

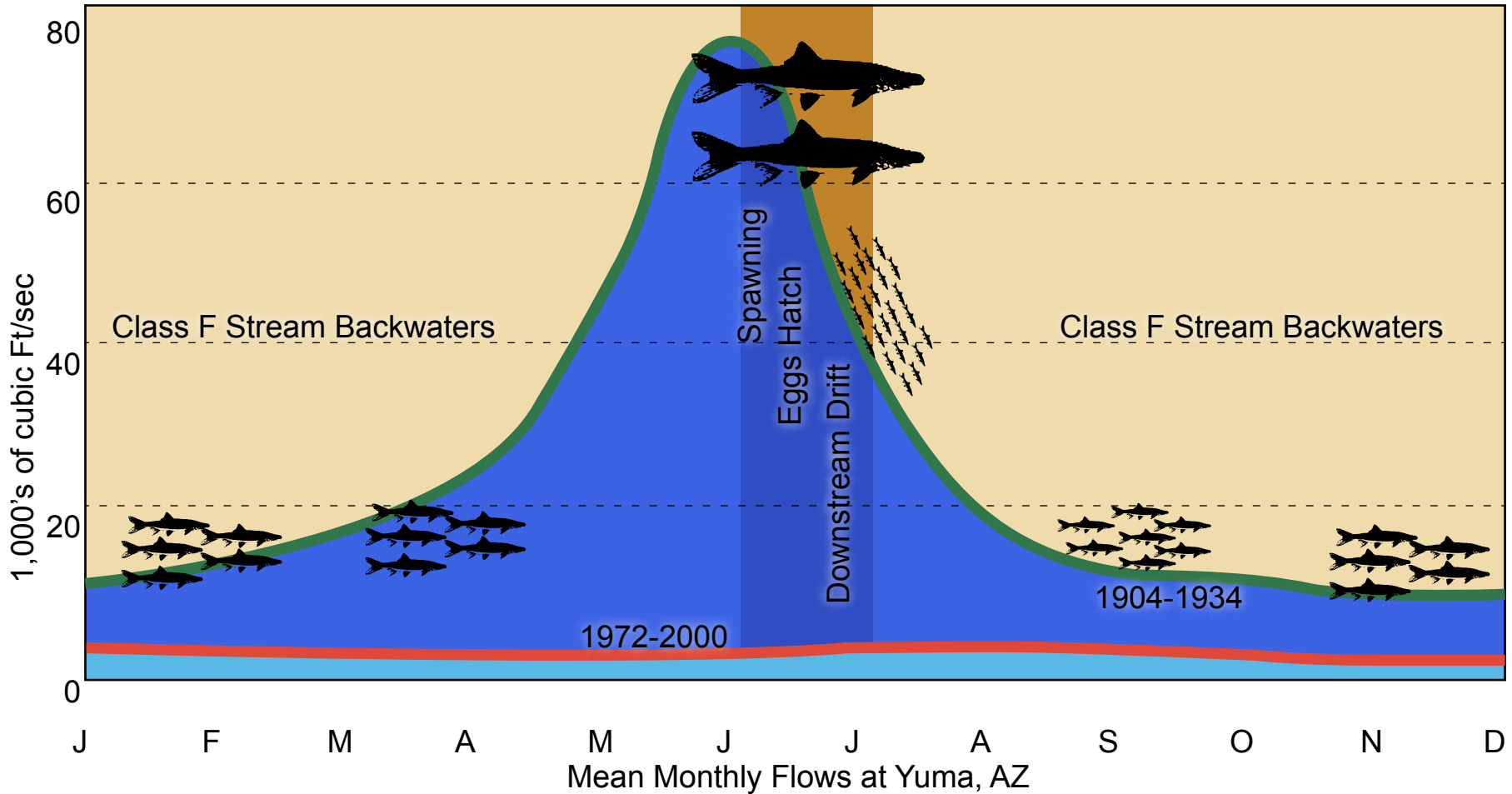


Generalized Life History of Juvenile / Mature Colorado Pikeminnow



HABITAT	BEDFORM MATERIAL SIZE	LIFESTAGE
Class C stream riffle - pool areas	 Cobbles / Boulders	Mature Adults
Class C / F streams	 Intermediate / Variable	Juveniles to Adults

Generalized Life History of Colorado Pikeminnow Age 0-1



HABITAT	BEDFORM MATERIAL SIZE	LIFESTAGE
Class C stream riffle - pool areas	 Cobbles / Boulders	Egg and Larvae
Class F stream backwaters nurseries	 Sand / Silt	Larvae to Juvenile

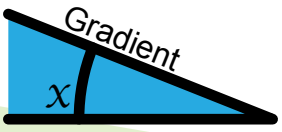
Green River Study Area (Tyus and Haines 1991)



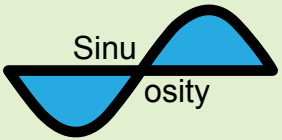
Yampa River Spawning Habitat



Vicinity Map with Detail Area



<u>Upper Portion</u>	0.16%
<u>Lower Portion</u>	0.05%



<u>Upper Portion</u>	2.48
<u>Lower Portion</u>	2.03

Yampa Canyon Spawning Grounds

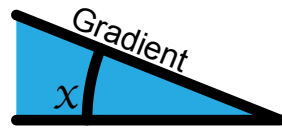


Rosgen
Class C

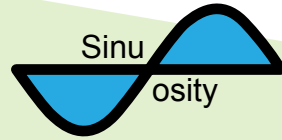
Upper Green River Nursery Habitat



Vicinity Map with Detail Area



0.05%



2.03

1st of 2 Nursery Habitats on Green River

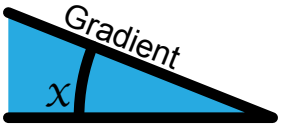


Rosgen
Class F

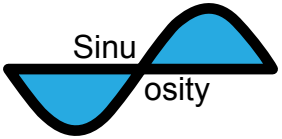
Green River Spawning Habitat



Vicinity Map with Detail Area



Gradient **0.12%**



1.39

Spawning Habitat on Green River near the town of Green River, UT.

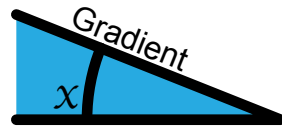


Rosgen Class C

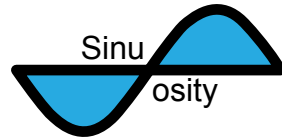
Lower Green River Nursery Habitat



Vicinity Map with Detail Area



0.02%



3.12

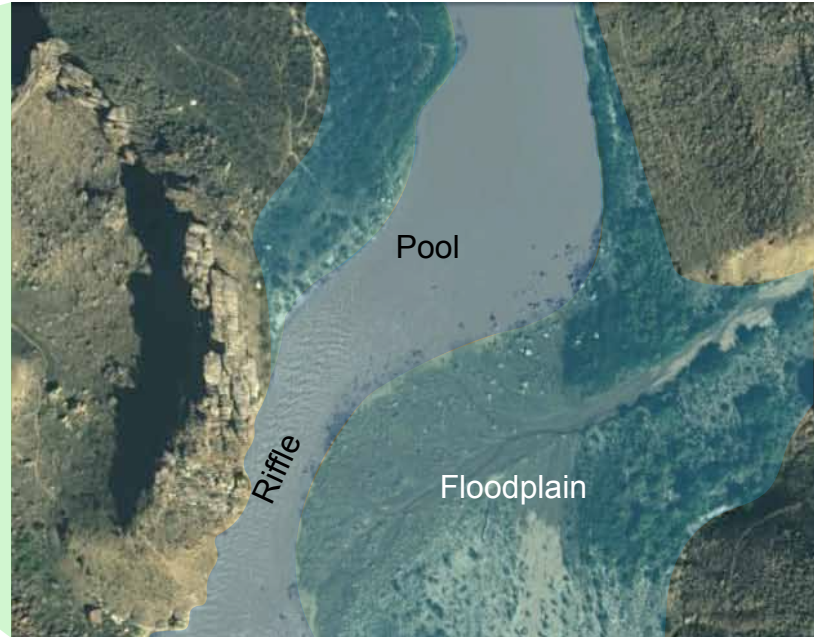
2nd of 2 Nursery Habitats on Green River



Rosgen
Class F

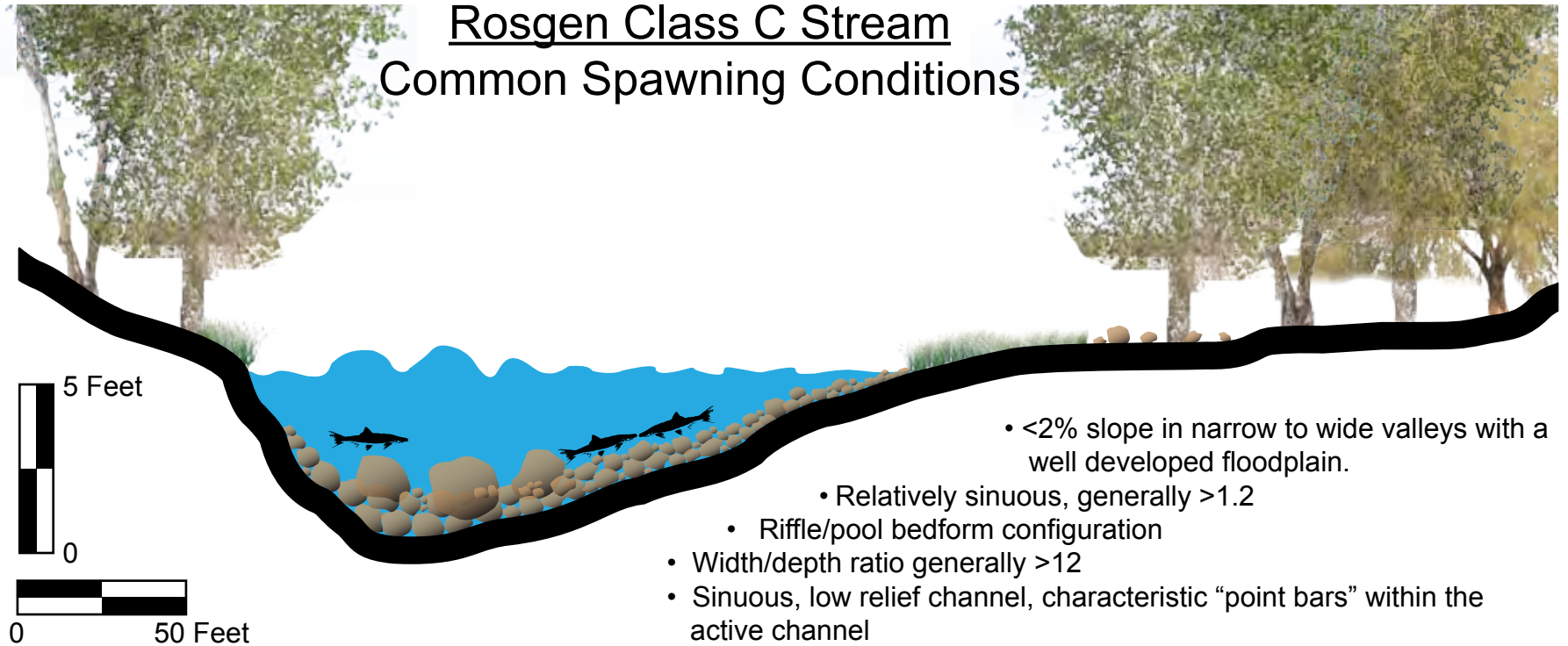


Green River Utah Spawning Habitat



Green River Utah - Riffle / Pool Sequence

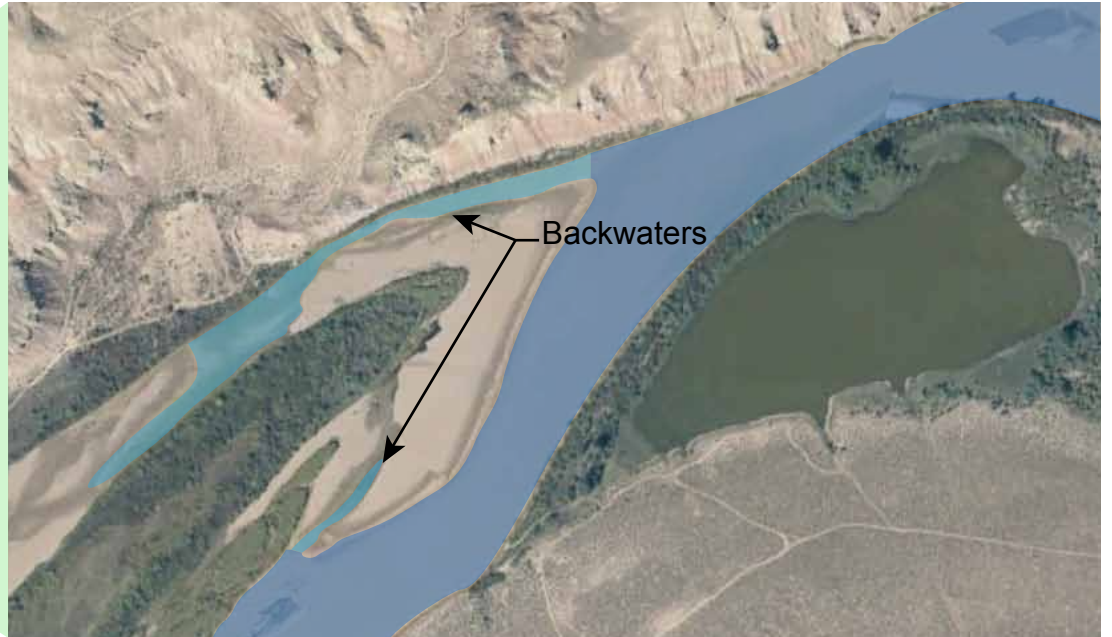
Rosgen Class C Stream Common Spawning Conditions



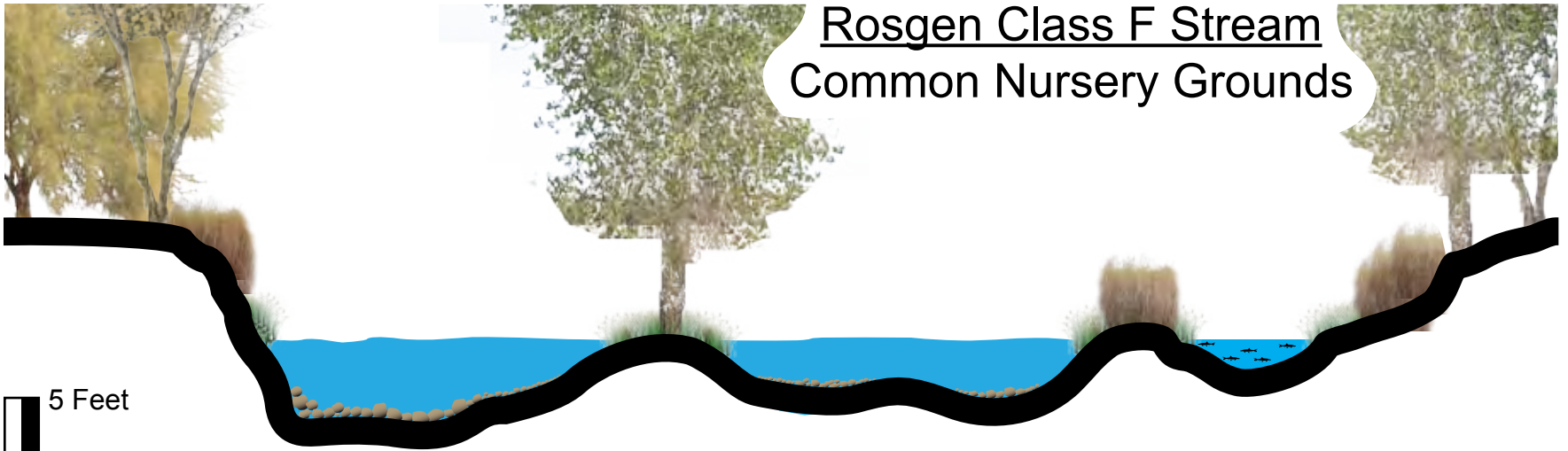
- <2% slope in narrow to wide valleys with a well developed floodplain.
- Relatively sinuous, generally >1.2
 - Riffle/pool bedform configuration
- Width/depth ratio generally >12
- Sinuous, low relief channel, characteristic “point bars” within the active channel



Green River Utah - Nursery Habitat

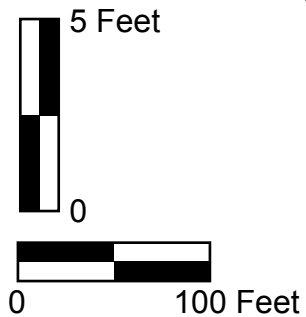


Green River Utah - Backwater Example

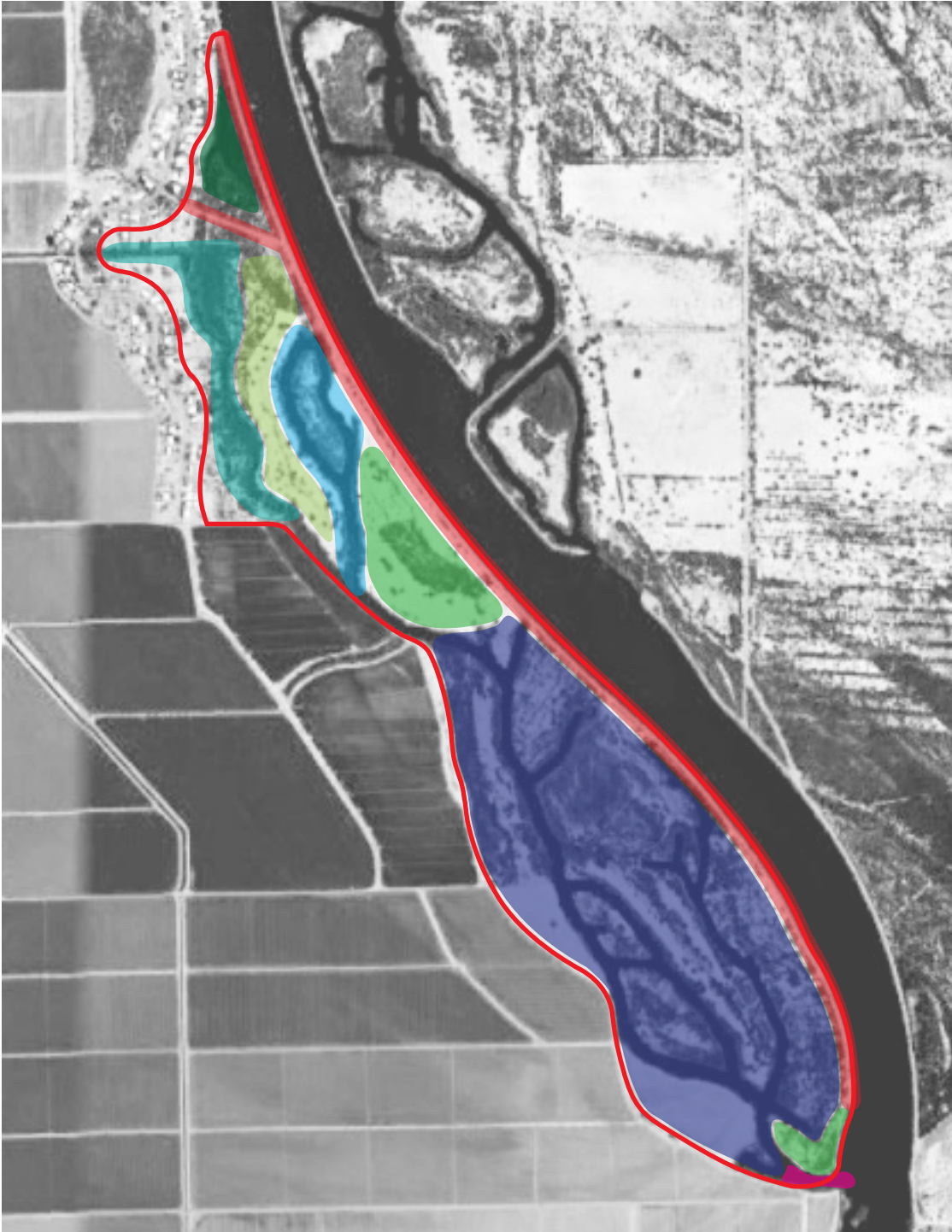


Rosgen Class F Stream
Common Nursery Grounds

- Classic “entrenched, meandering” channels
- Gradients <2%
- Deeply incised in low relief valleys
- High channel width/depth ratios at bankfull stage, bedform usually riffle/pool
- Can have high bank erosion and lateral extension rates, significant bar deposition



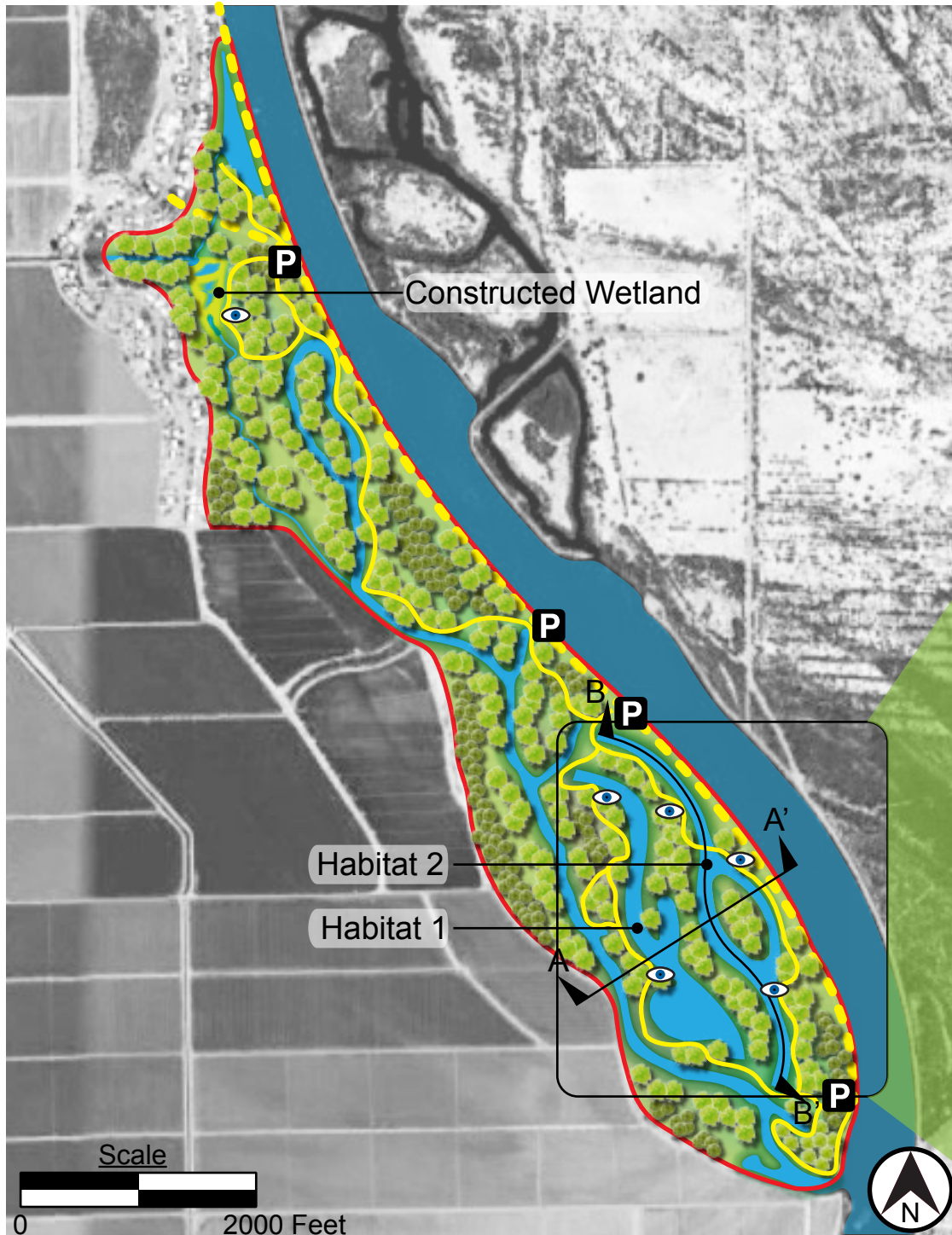
Site Opportunities and Constraints



Legend







- Site Boundary
- Opportunities
 - Backwater Habitats
 - Runoff Cleansing
 - Restorative Vegetation
 - Recreation
 - Water Flow
 - Fishing
- Constraints
 - Automobile Access
 - Backwater Inlet / Outlet

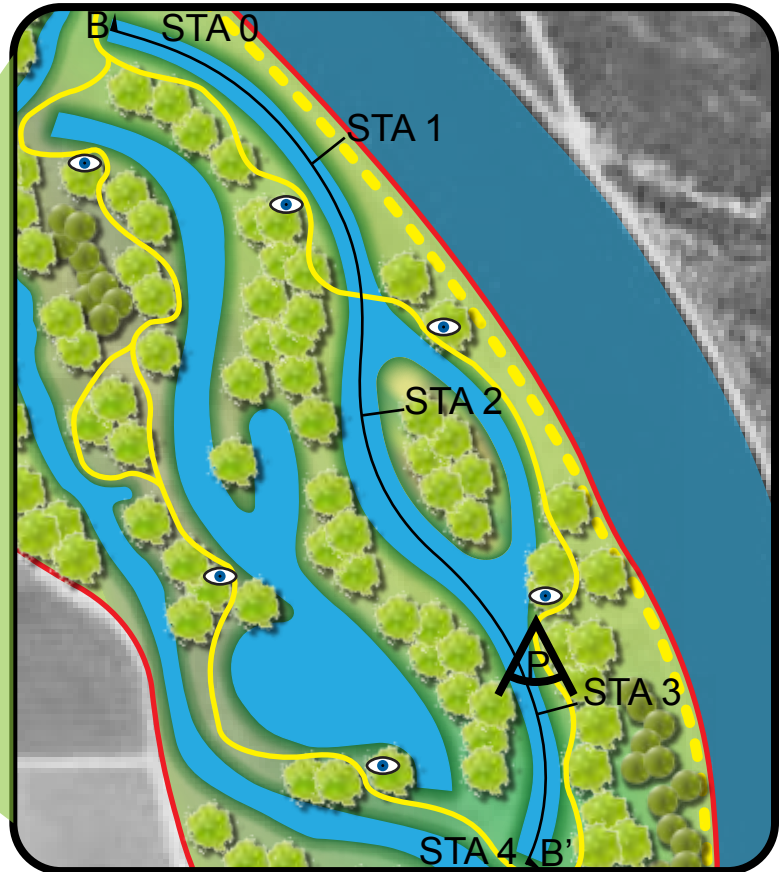




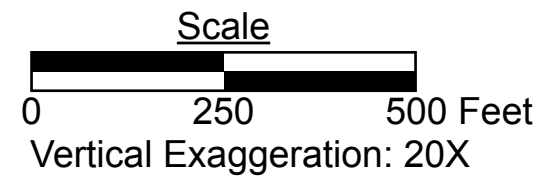
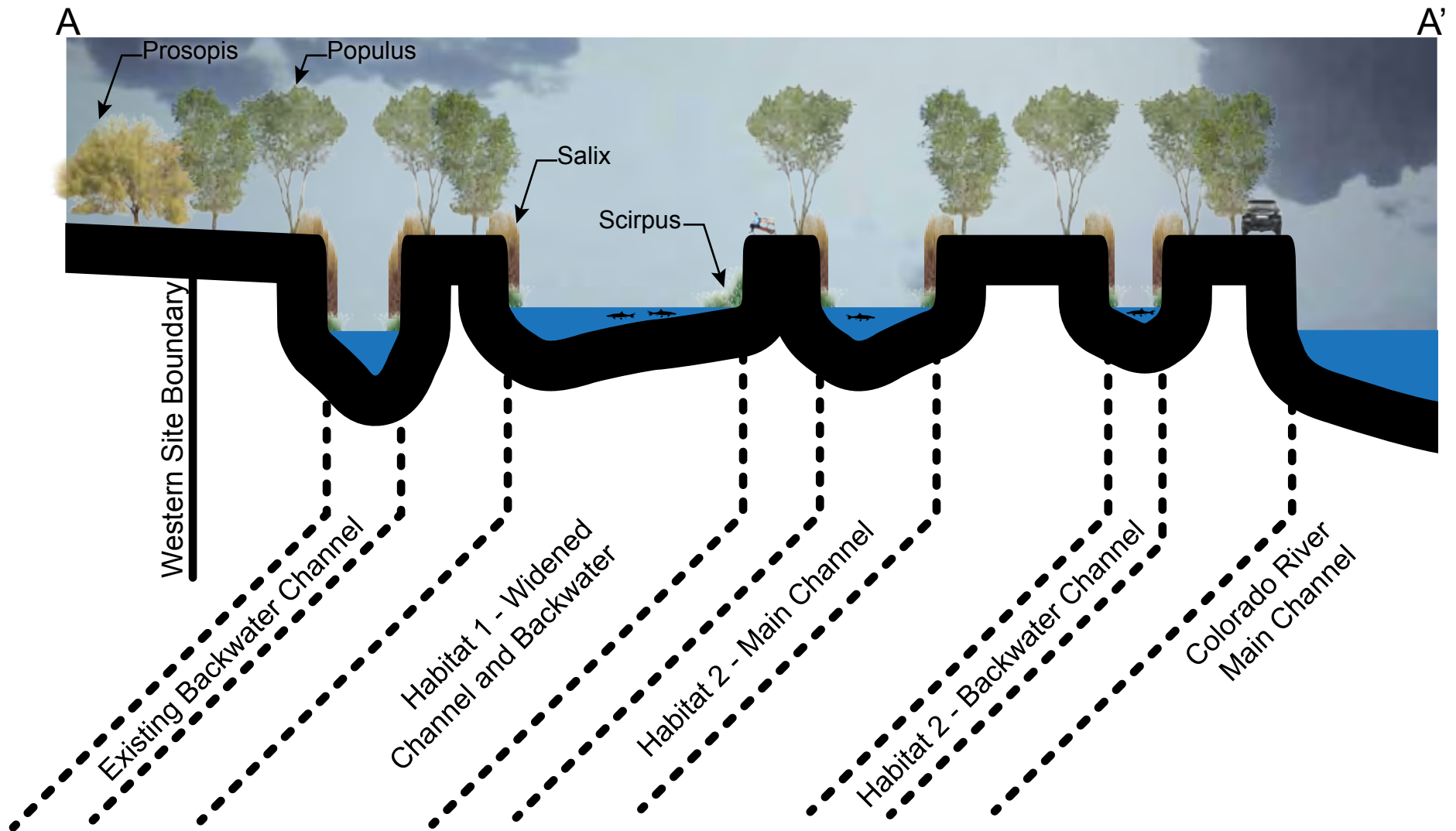
Site Plan

Legend

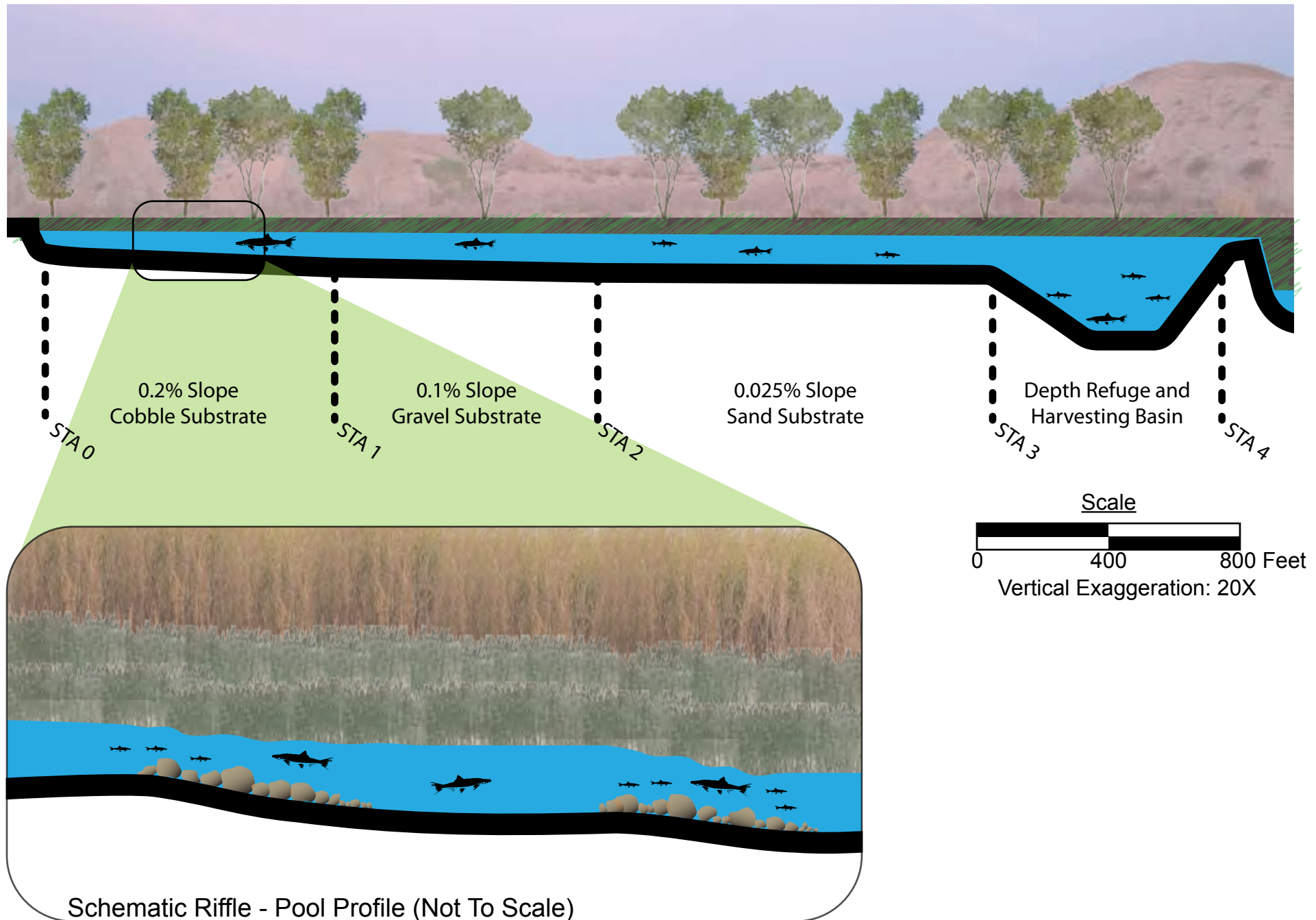
-  Site Boundary
-  Parking Turnout
-  Interpretive Vista
-  Vehicle Circulation
-  Trails
-  Perspective



Goose Flats Cross Section - With Nursery Habitats



Longitudinal Profile - Habitat 2



Scale
0 400 800 Feet
Vertical Exaggeration: 20X

Schematic Riffle - Pool Profile (Not To Scale)

Interpretive Vista



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Thank You!

