Fine-Scale Movement of Largemouth Bass *(Micropterus salmoides)* and Potential for Open-Water Predation

Anna Steel and A. Peter Klimley
UC Davis, Biotelemetry Lab

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Background: LMB movements

- Bass important sport fish
- Wide range of behaviors have been seen in previous studies
  - e.g.: Home ranges from 0.18ha (Fish and Savitz 1983) to 17.9ha (Ridgeway 2002)
- Important to understand behavior in Delta to address ecological challenges

Photo Credit :Eric Engbretson

Questions:

- Do largemouth bass (LMB) use open-water areas?
- Do LMB show a preference in their use of submerged aquatic vegetation (SAV)?
- Are there daily or seasonal patterns in habitat use and/or movement?

Questions:

- Do largemouth bass (LMB) use open-water areas?

Fish movement
and
Habitat structure

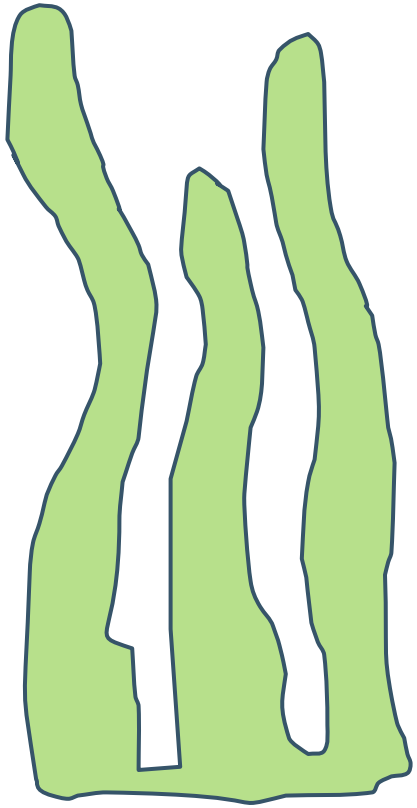
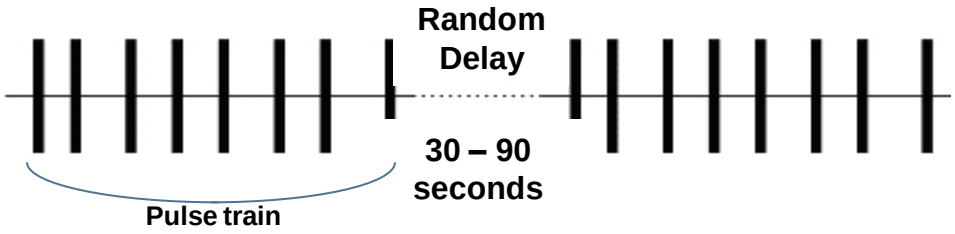
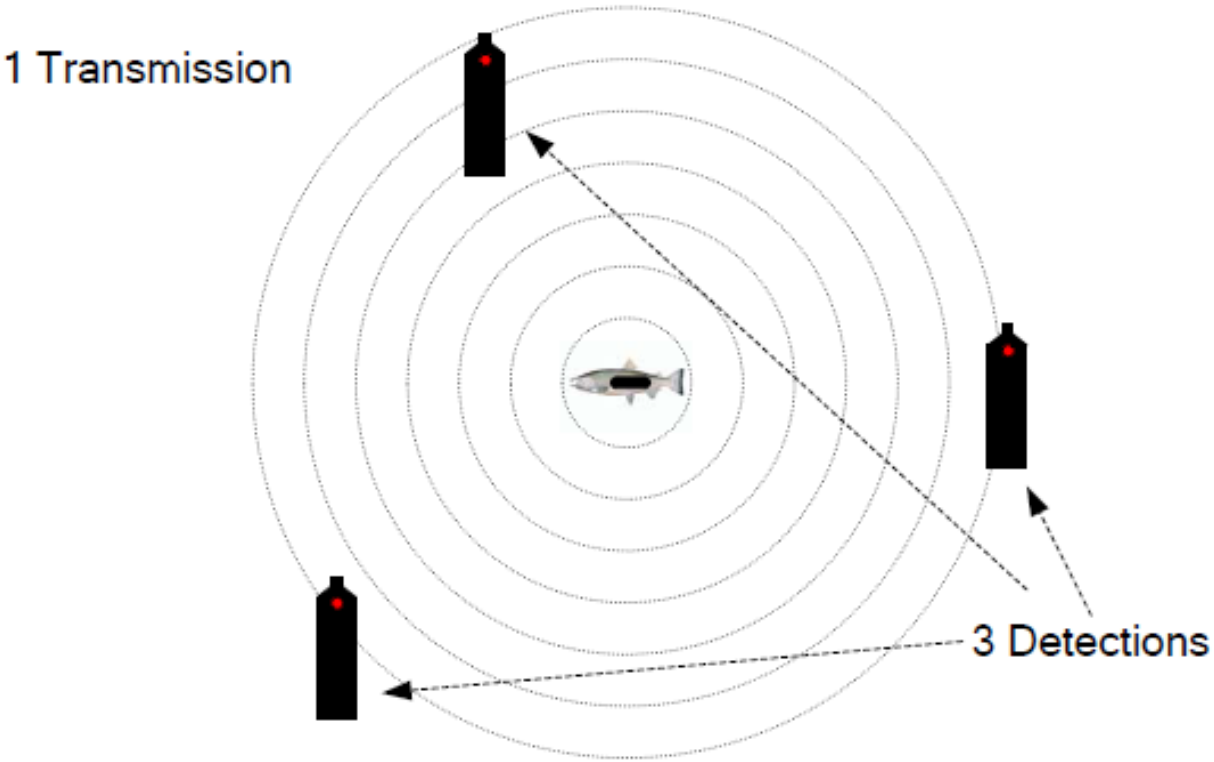


Photo credit: Dave "Gio" Giordano

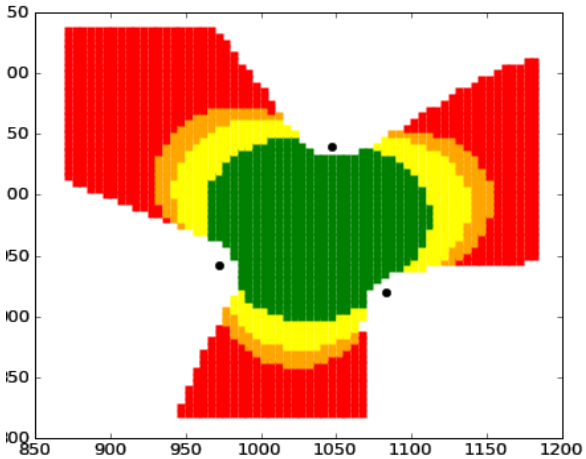
Methods: Acoustic telemetry

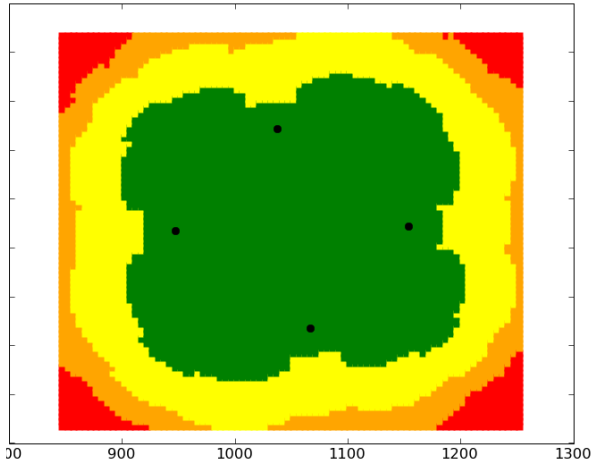


Methods: VPS array in theory

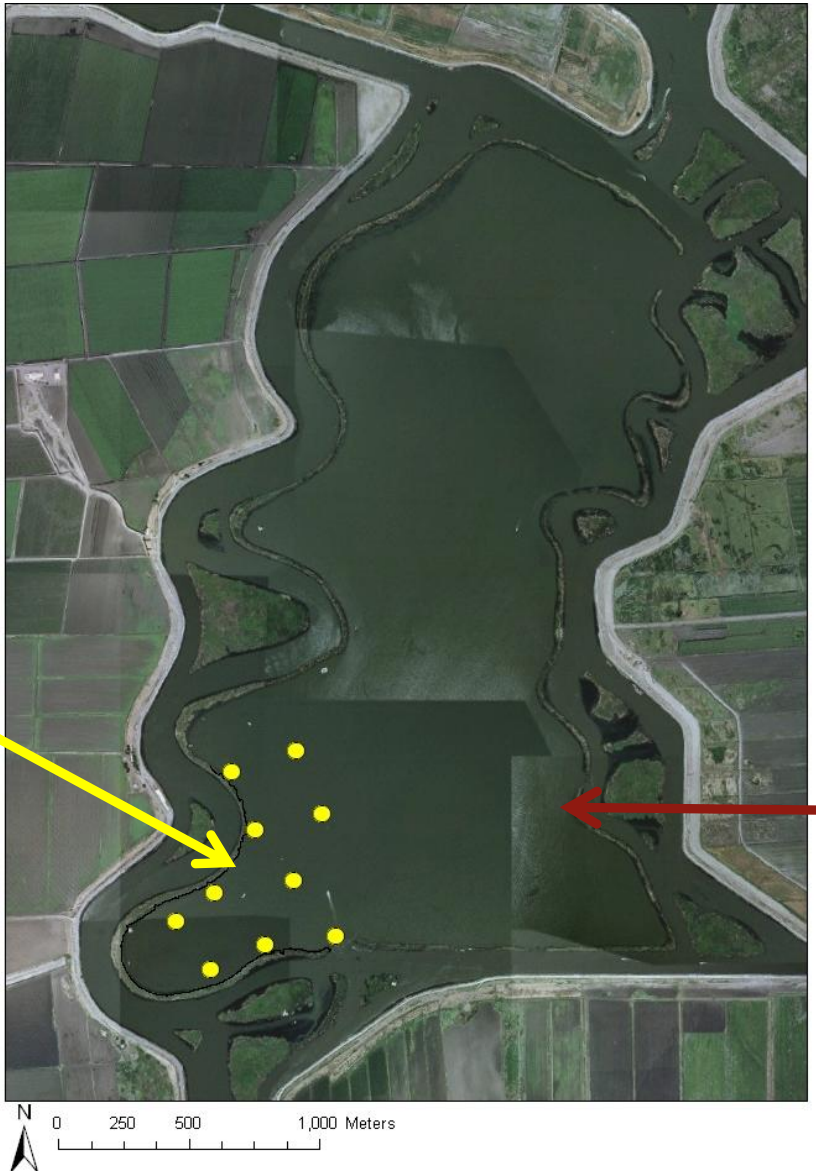


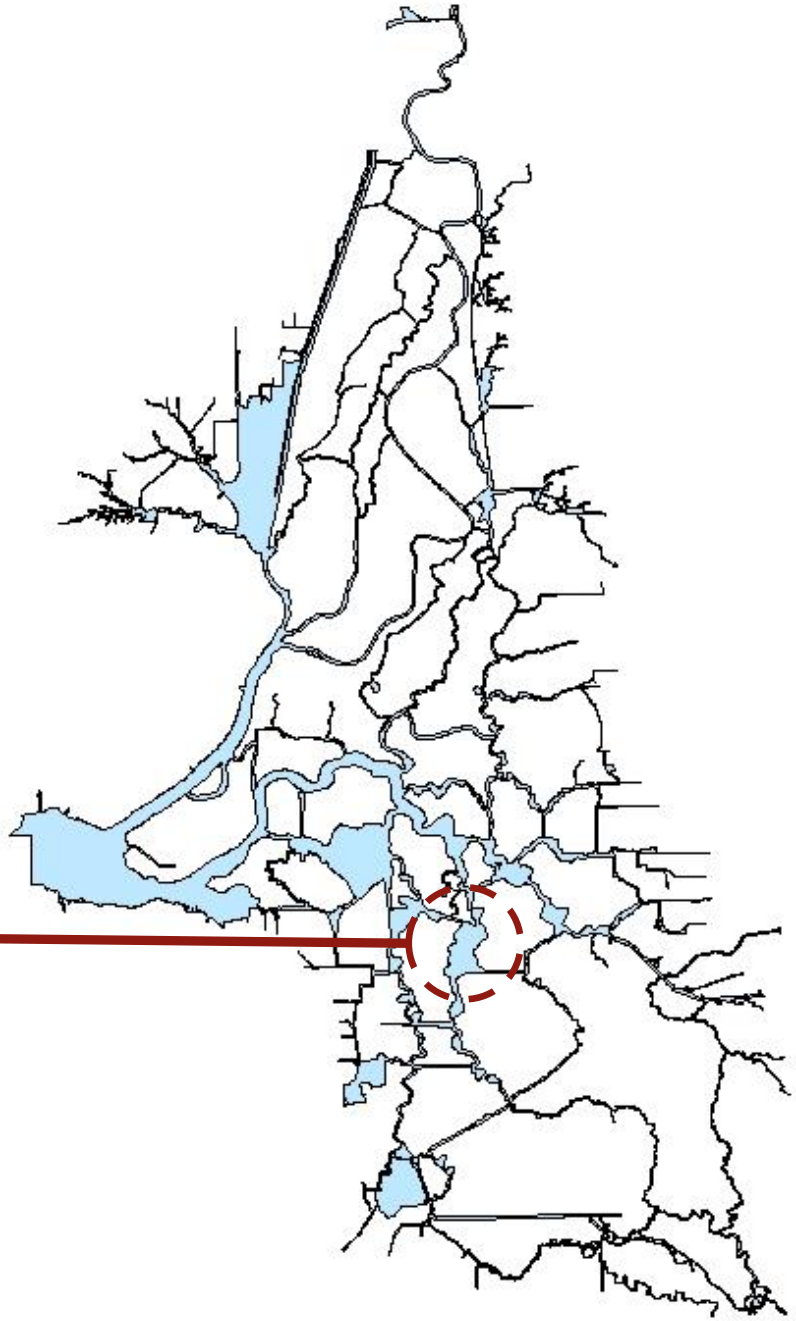
Simulated error with various array geometries





Methods: VPS array in practice





Methods: Tagging fish

LMB Summary:	
Capture Period	Aug 2 - Aug 7 2009
N	8
Mean FL	338 mm ± 15g
Min FL	298 mm
Max FL	403 mm
Mean weight	627 g ± 89g
Min weight	351 g
Max weight	1000 g

Tags: 11g, <3.5% body weight
36mm, <12% body length

Methods: Quantifying habitat

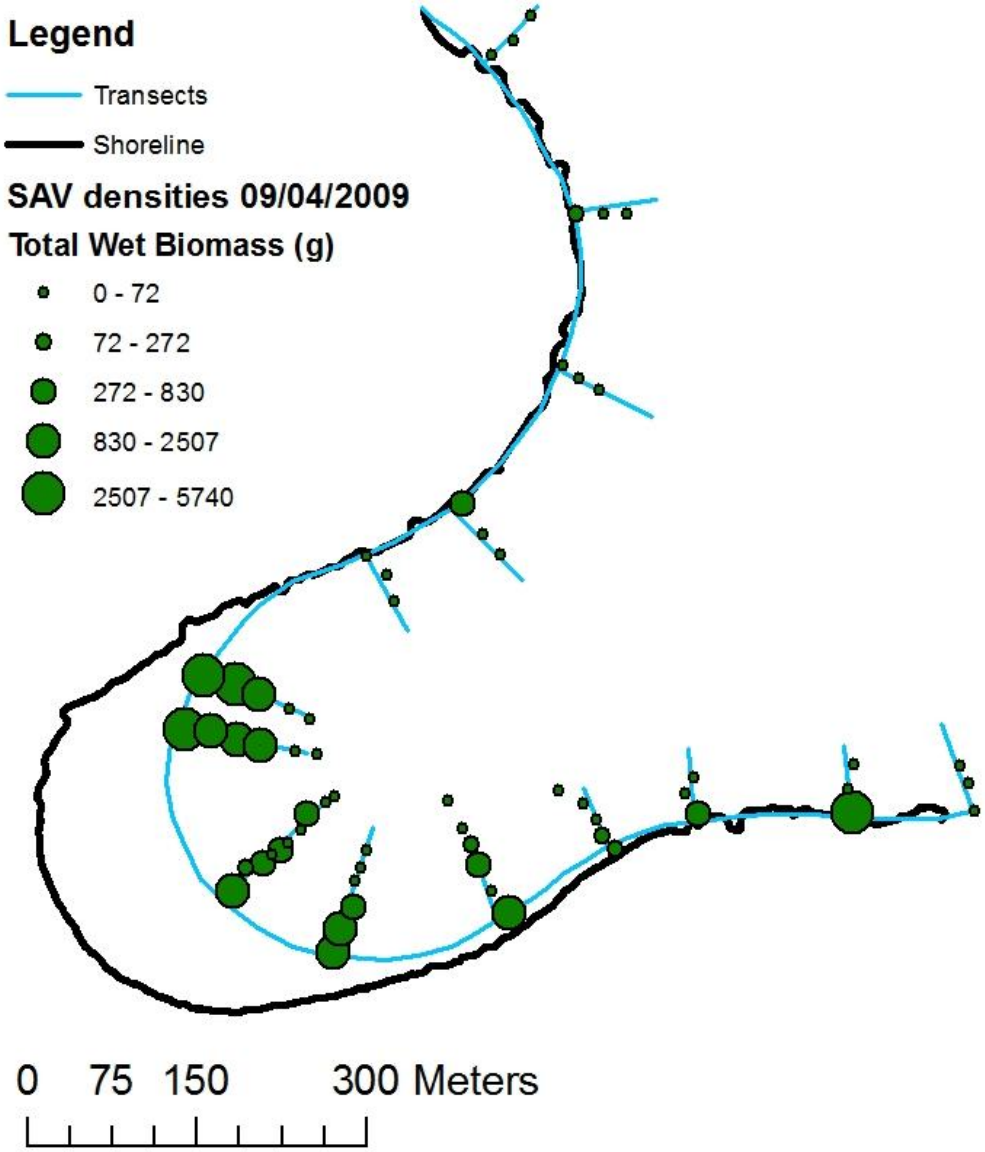
Visual assessment of SAV bed

- <1m below surface at low tide (-0.5 to +0.9)

SAV density sampling

- 14 transects
- points 25m apart

Methods: Quantifying habitat, metric #2

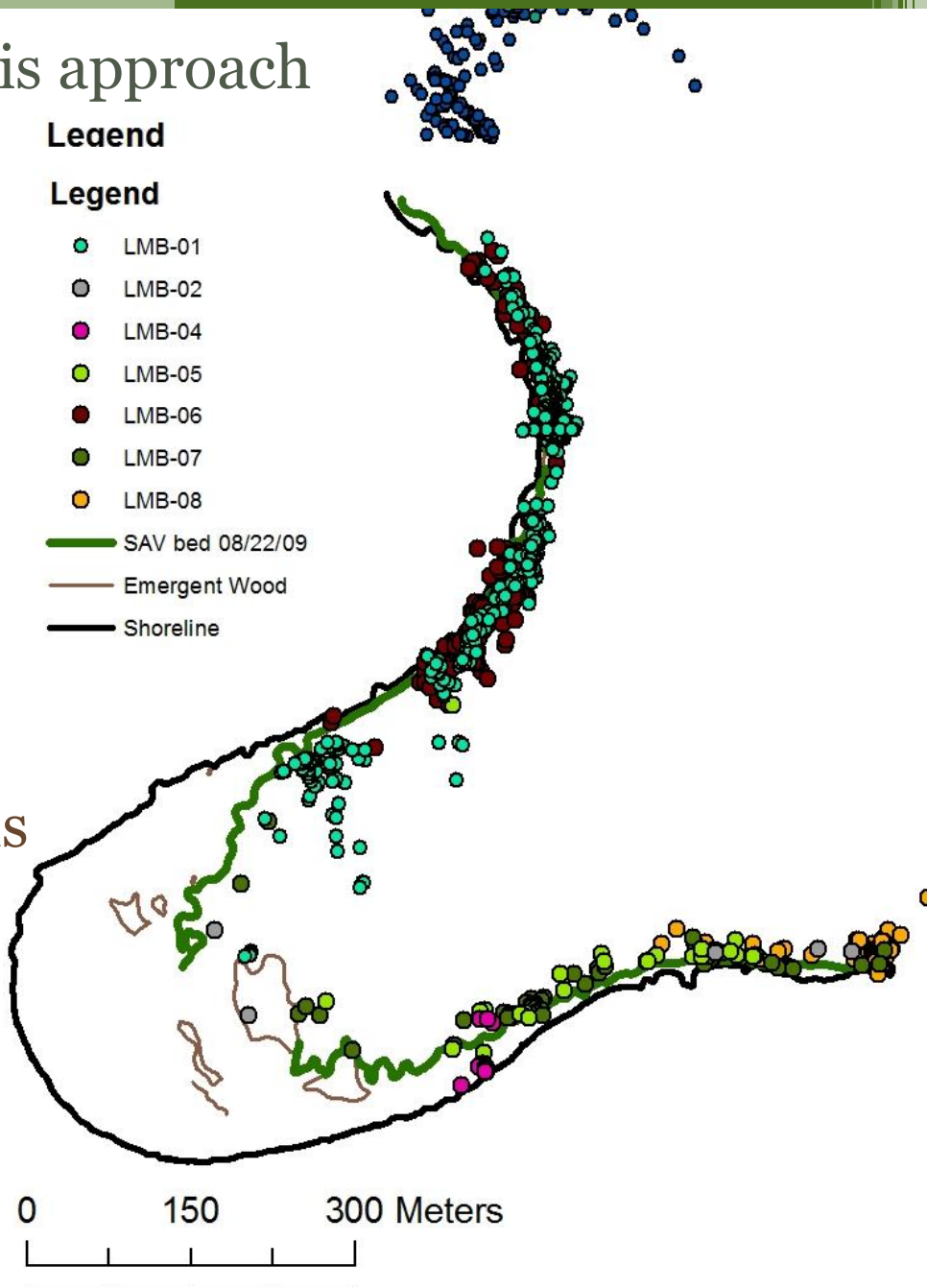


Preliminary Results: VPS array, post-processed

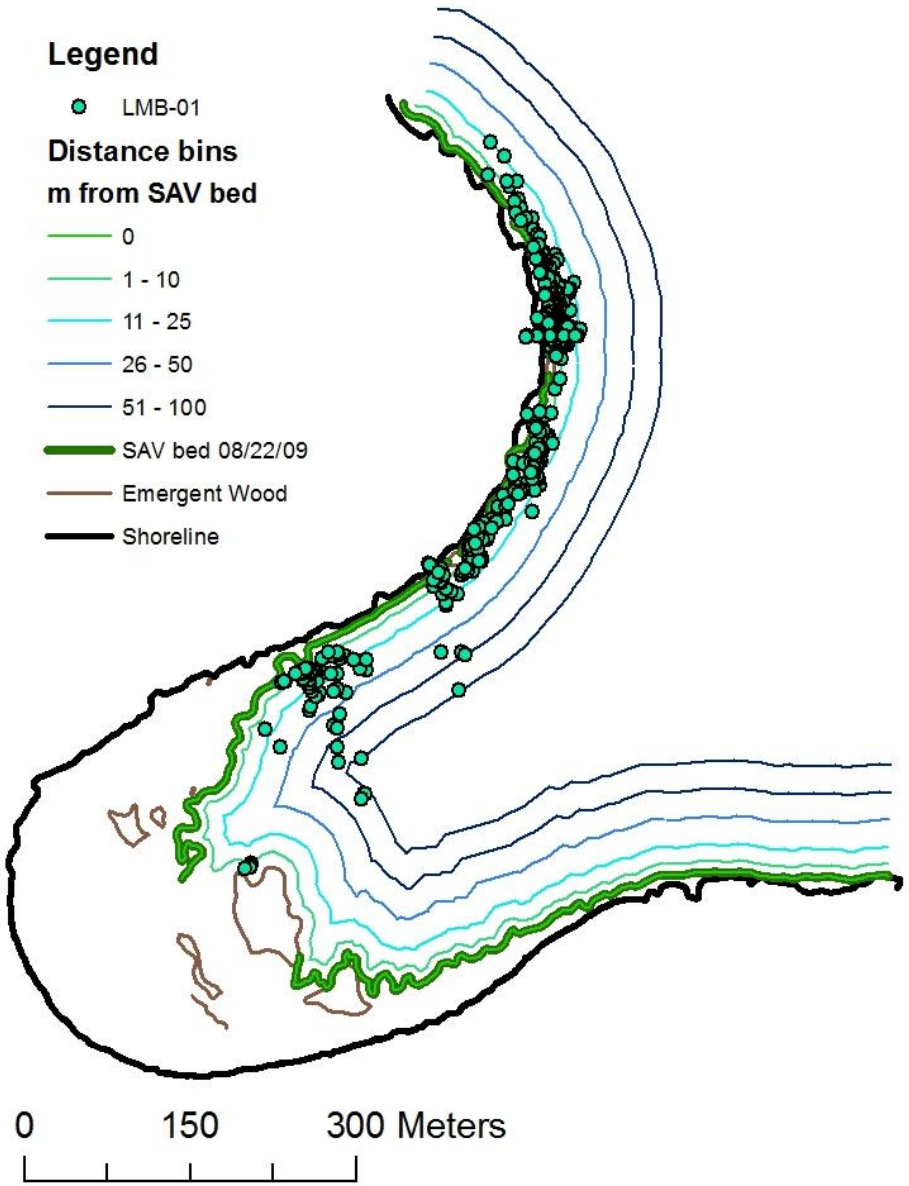
- Each color = one fish
- One week period, Aug

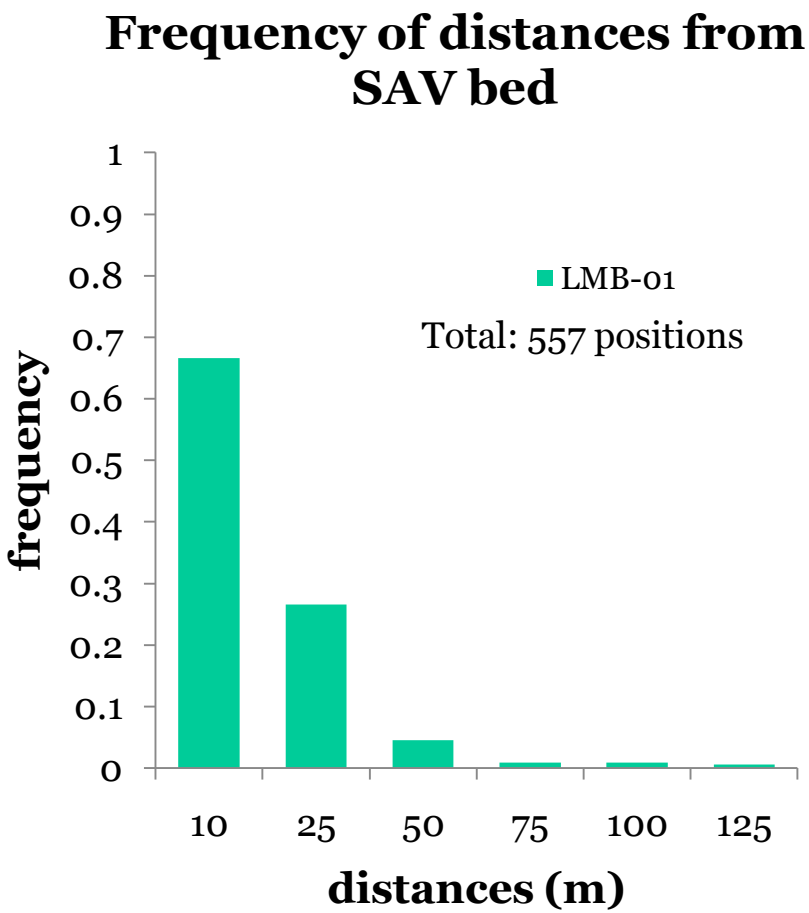
Preliminary Results: Analysis approach

- Raw positions filtered by VPS Horizontal Positioning Error
- 10% chance of error >8.5m
- Retained 25% of total positions

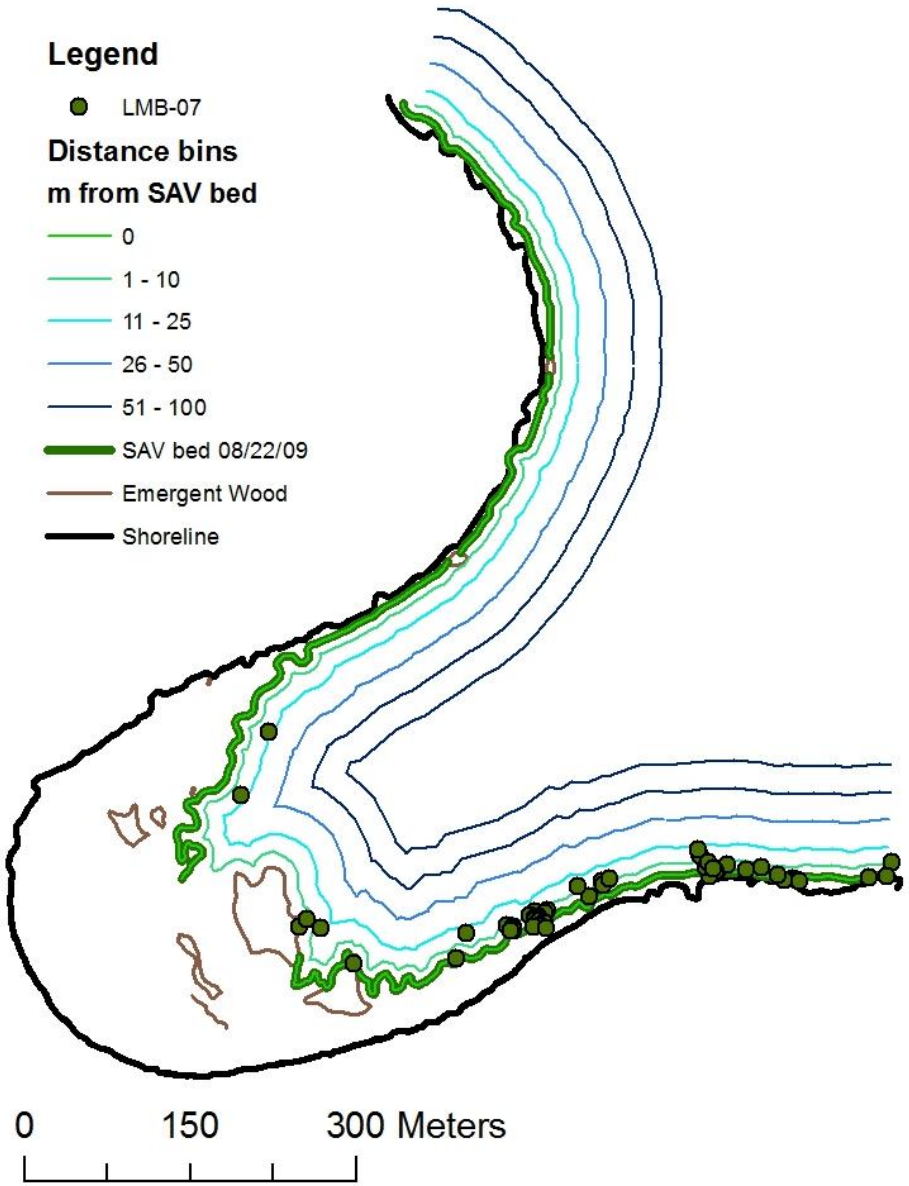


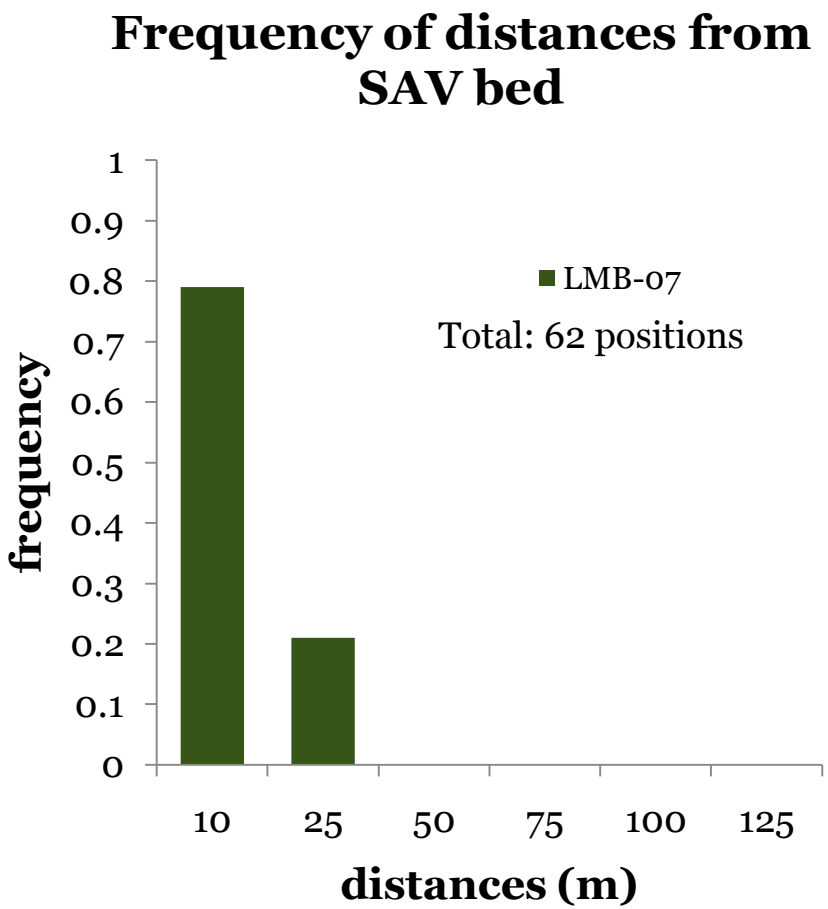
Preliminary Results: LMB-01, Aug 15 – Sept 26



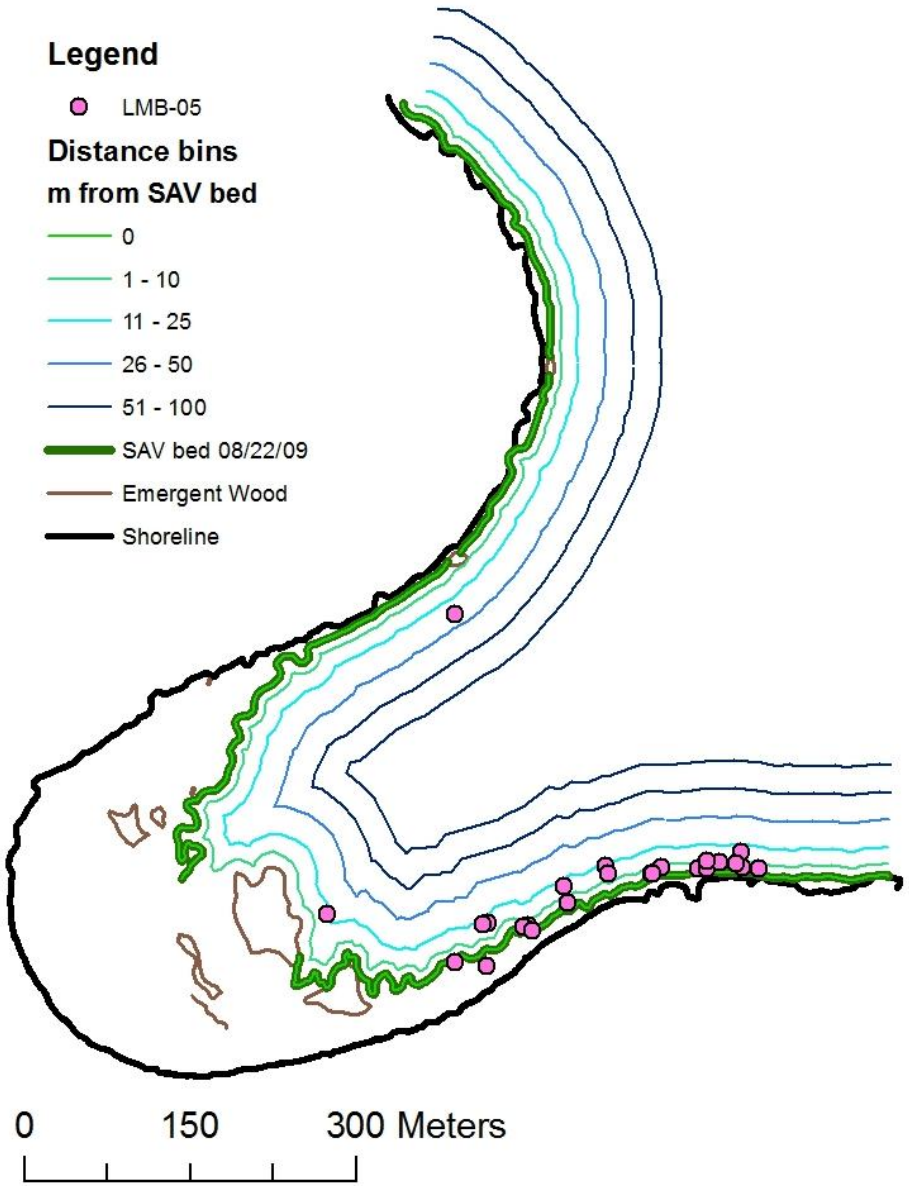


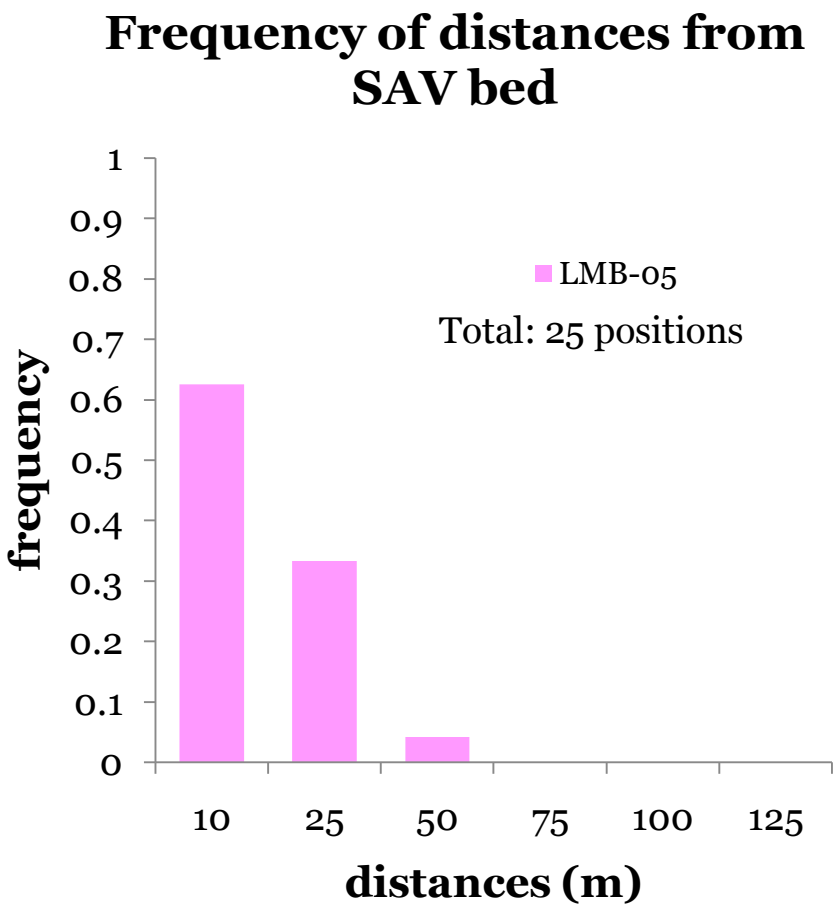
Preliminary Results: LMB-07, Aug 15 – Sept 26



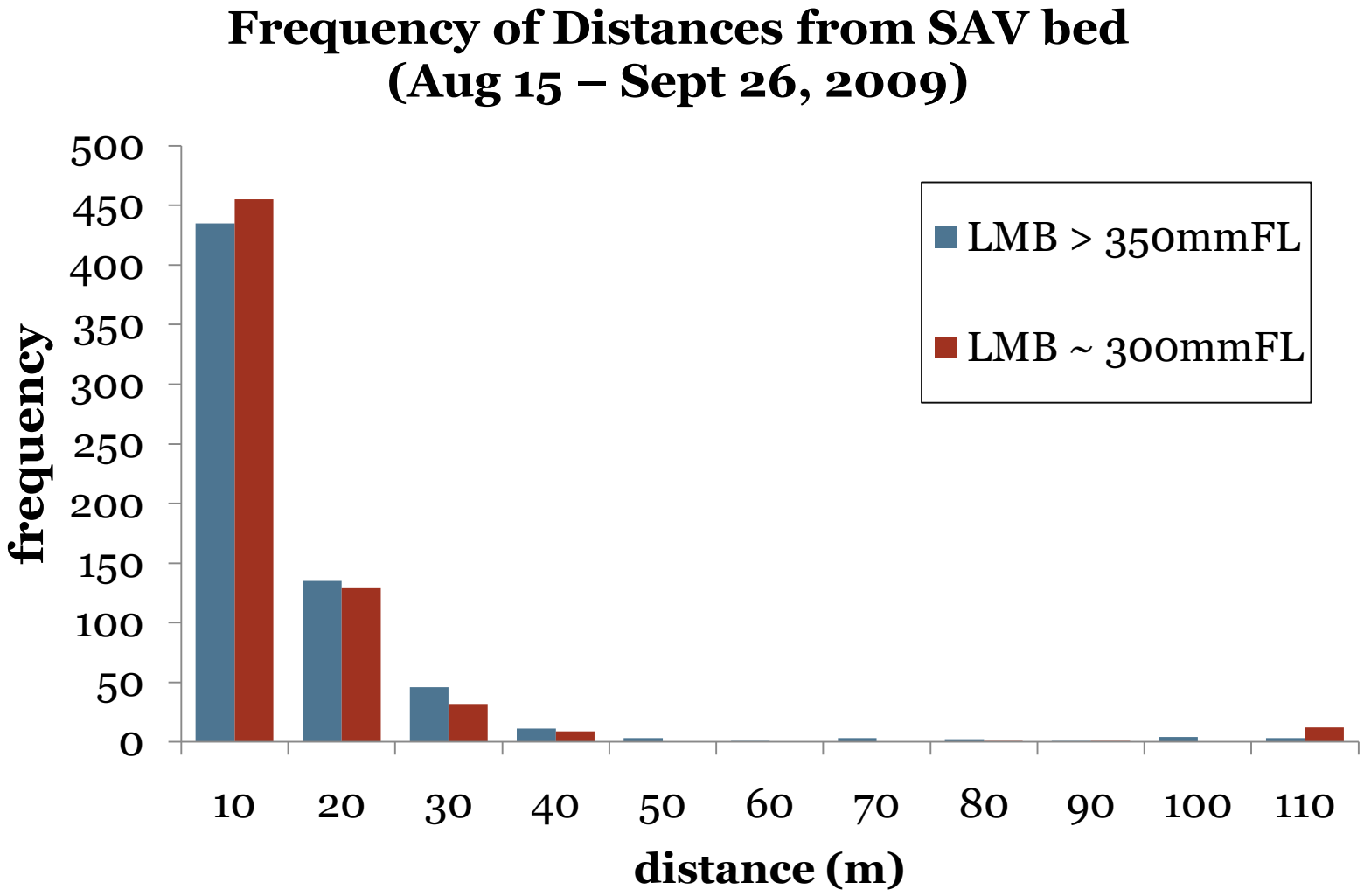


Preliminary Results: LMB-05, Aug 15 – Sept 26





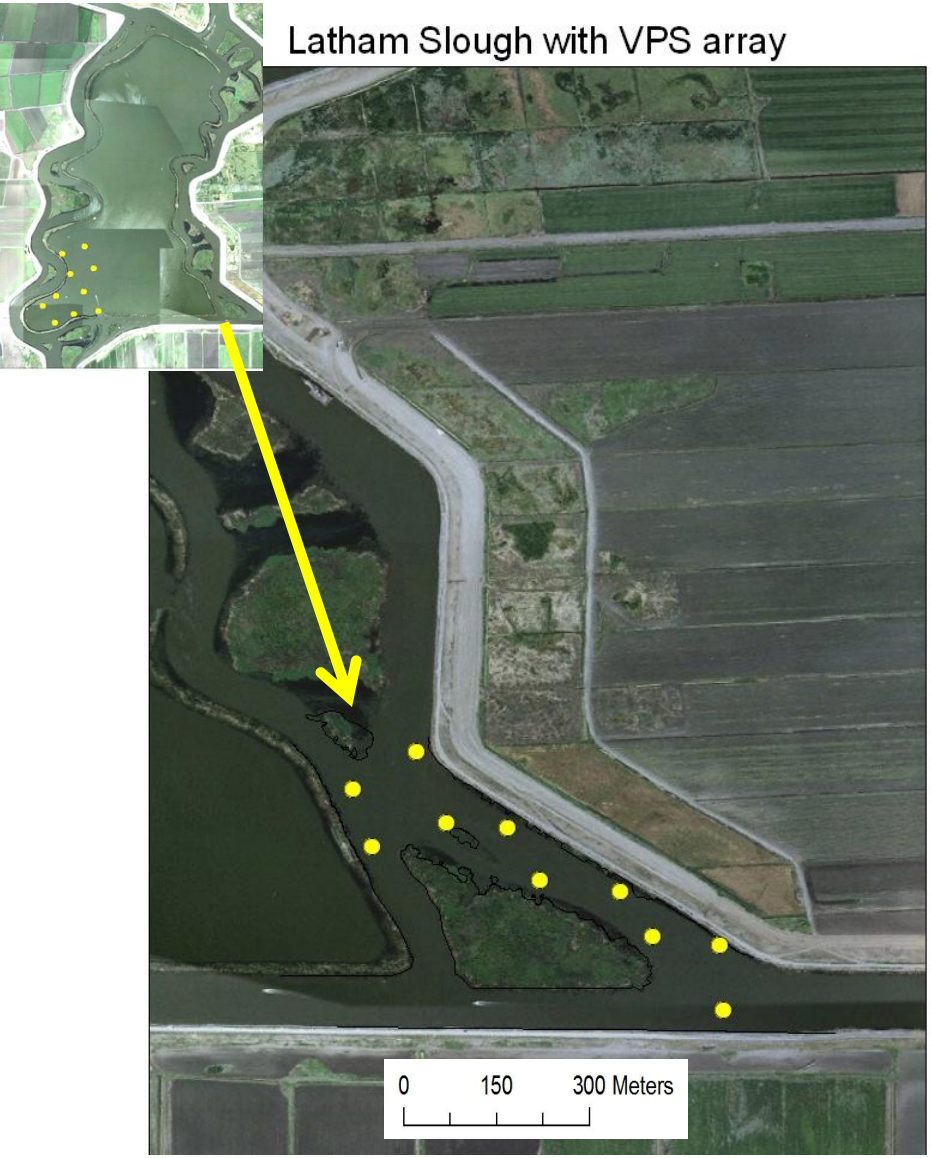
Preliminary Results:



Summary:

- Do largemouth bass use pelagic zones?
  - Not in late summer; more data to come
- Do LMB show a preference in their use of submerged aquatic vegetation (SAV)?
- Are there daily or seasonal patterns in habitat use and/or movement?
  - Future analysis:
    - multivariate analysis, using density, SAV spp, temp, season, time of day
    - Analysis of core-use areas

Future analysis:



- Similar array in Latham Slough
- Will tag fish June, 2010
- Address difference in movement by habitat geometry

Acknowledgements

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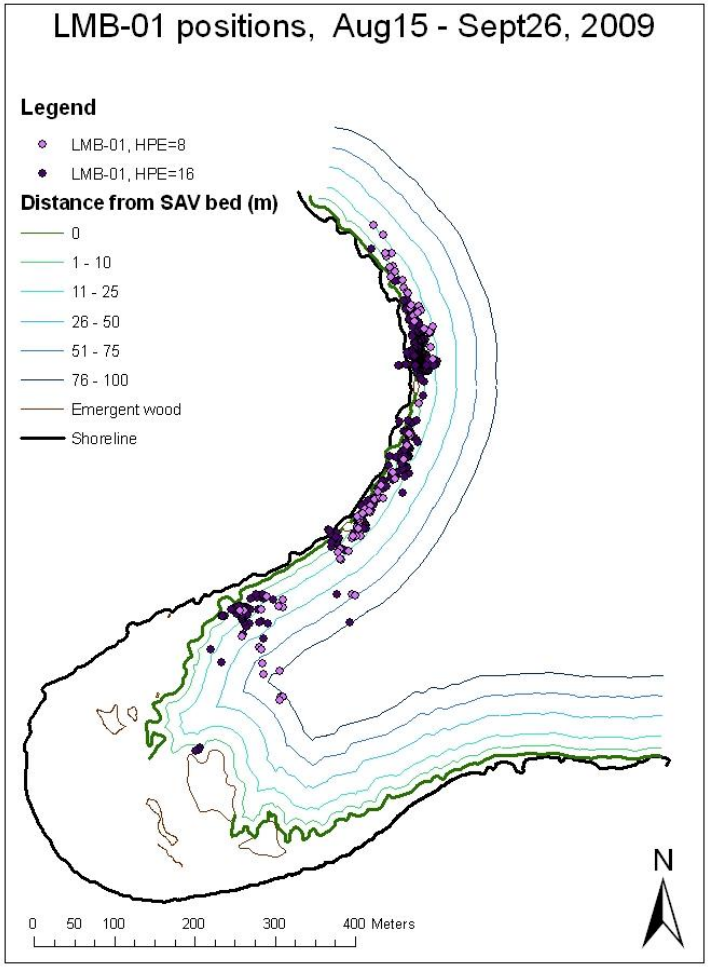

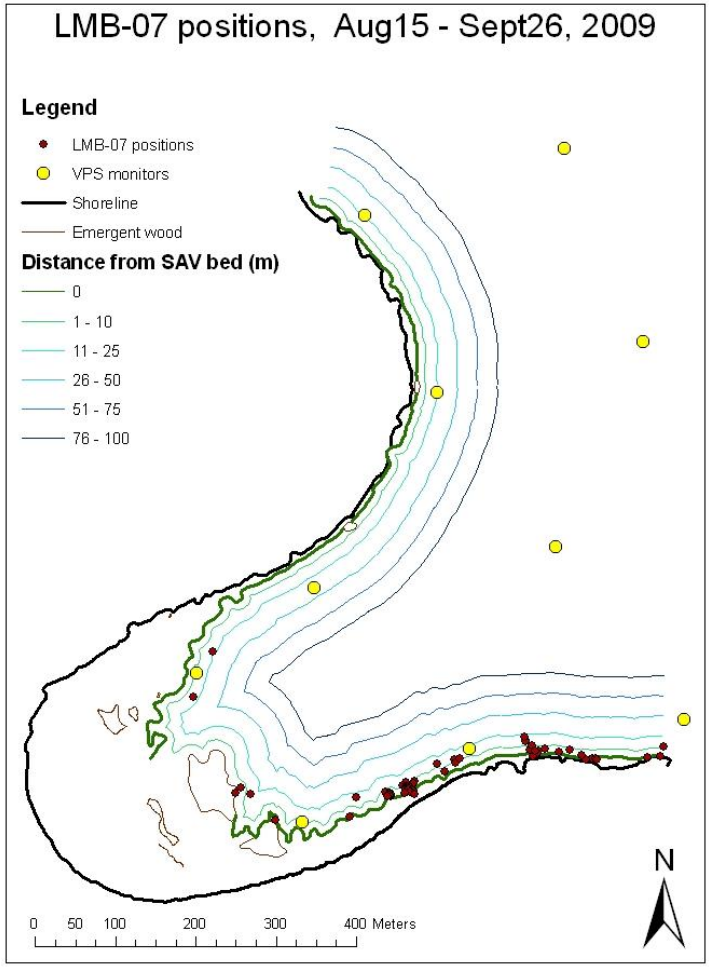

LMB Tagging Data:

Fish ID	Floy ID	Date	Habitat Description	FL (mm)	Weight (g)	Tag ID
LMB-MIL01	N/A	2009-08-02	tule shore line with SAV	377	850	60275
LMB-MIL02	01101	2009-08-04	emergent wood/trees	300	491	60276
LMB-MIL03	01102	2009-08-04	patches of SAV and algae; w/in 30m of shoreline	351	600	60277
LMB-MIL04	01104	2009-08-04	SAV and algae, near rocky shore on E of plot	300	399	60278
LMB-MIL05	01105	2009-08-06	tule bank and sparser weed patches; E side of plot	403	1000	60279
LMB-MIL06	01106	2009-08-07	hook and line - kut tail (7" green senko)	304	433	60280
LMB-MIL07	01107	2009-08-07	woody area at SE corner of plot	372	900	60281
LMB-MIL08	01108	2009-08-07	just outside of array at entrance to flooded island	298	351	60282