Ecosystem Monitoring: Habitat Structure 2013 Results

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Science Workgroup Meeting

28 January 2014

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Overview

- Sites and Metrics
- Results from Habitat Structure Monitoring
  - 2005 – 2013
- Primary Productivity Results

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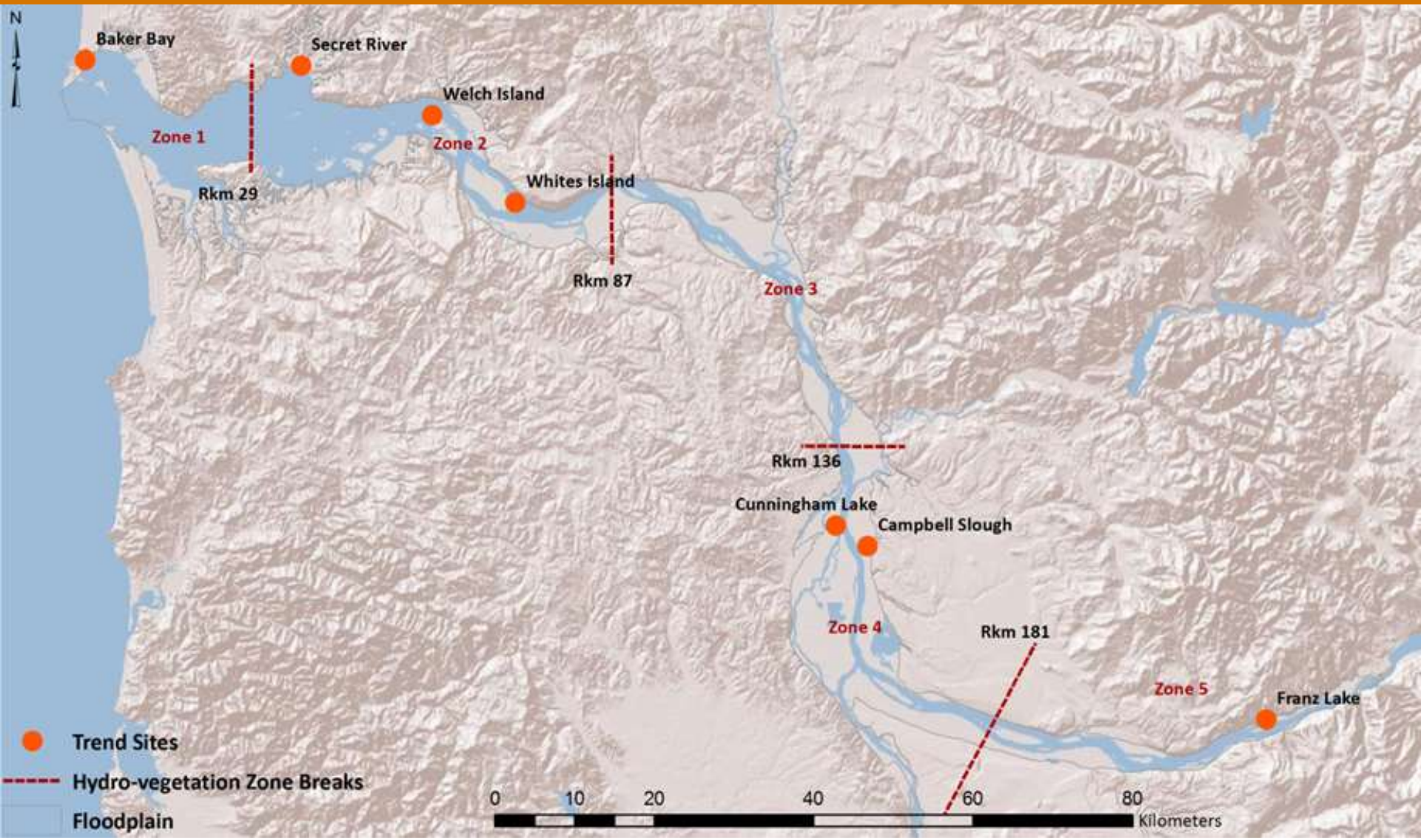
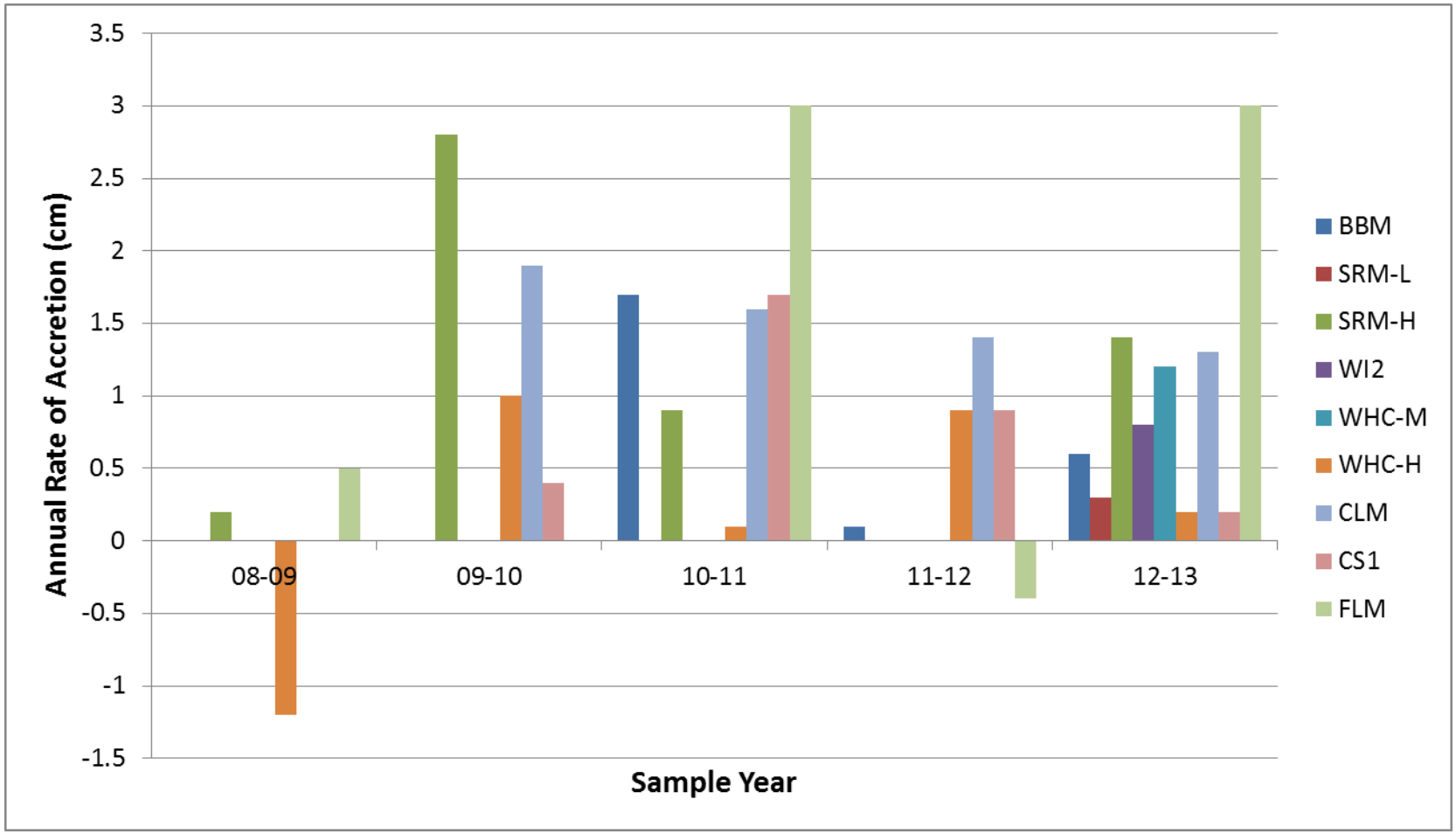
2013 Monitoring Sites



Habitat Structure Metrics for Trend Analysis

- Sediment
  - Accretion rates
- Hydrology
  - Inundation
- Channel morphology
- Vegetation
  - Species assemblages
  - Inter-annual variability
  - Effect of inundation

Sediment Accretion



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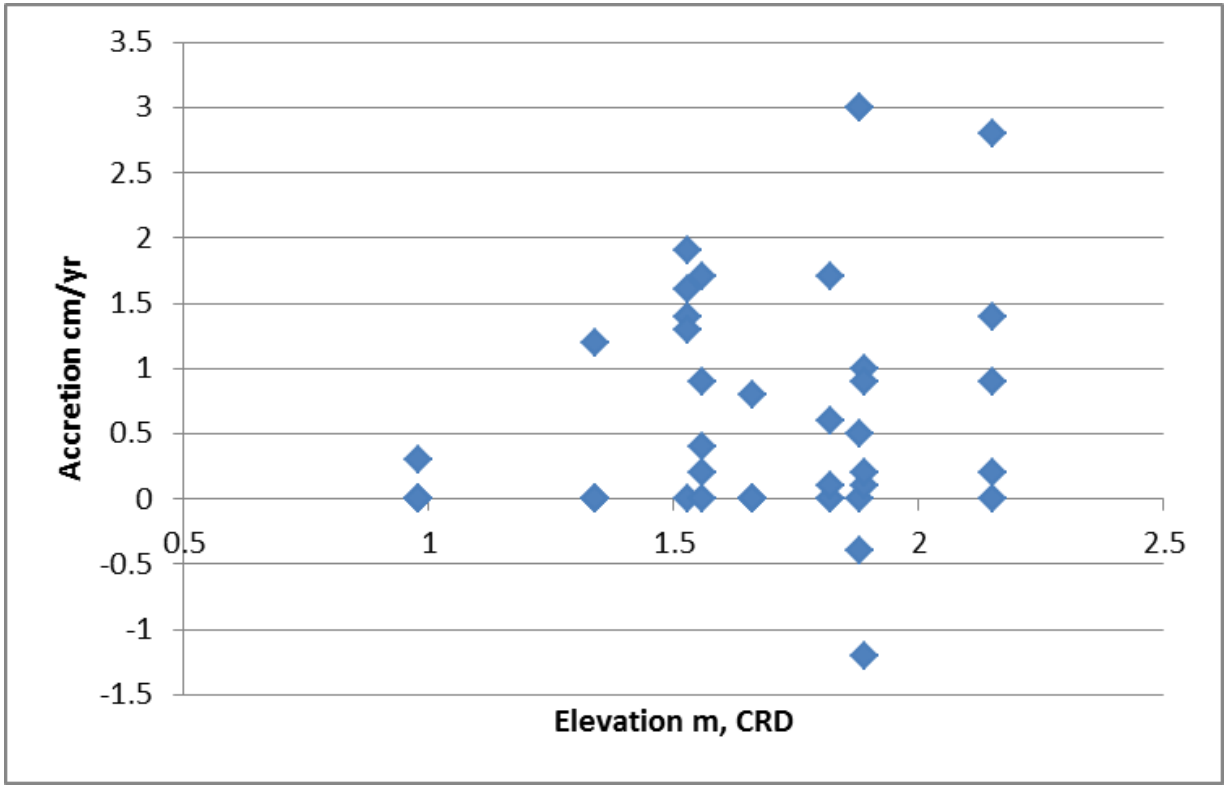
Sediment Accretion



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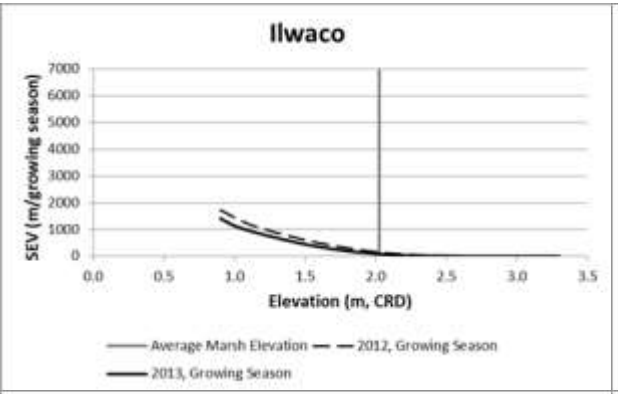
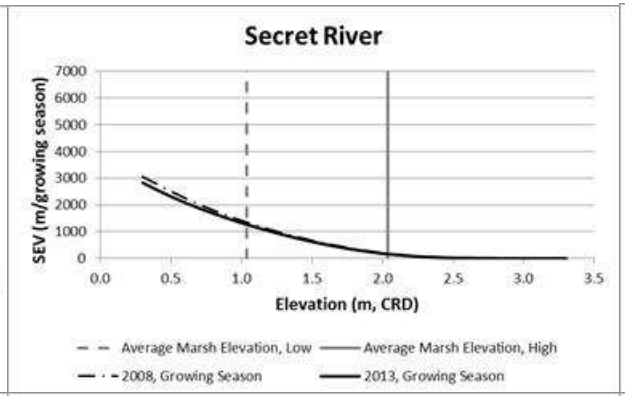
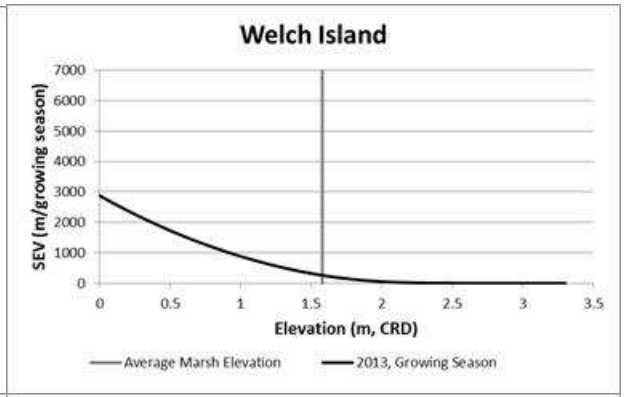
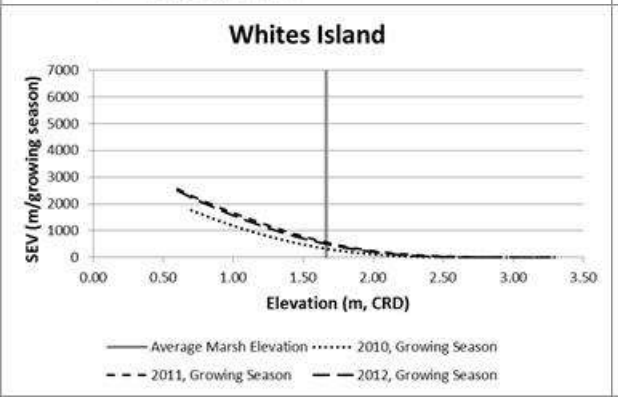
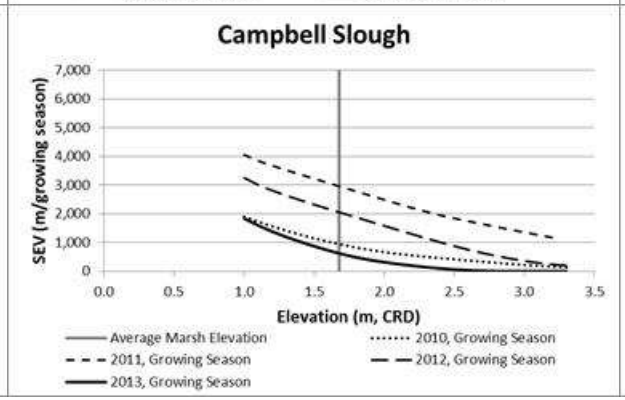
Hydrologic Patterns

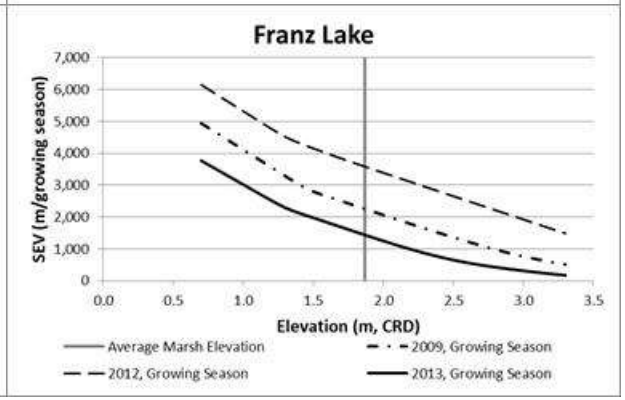












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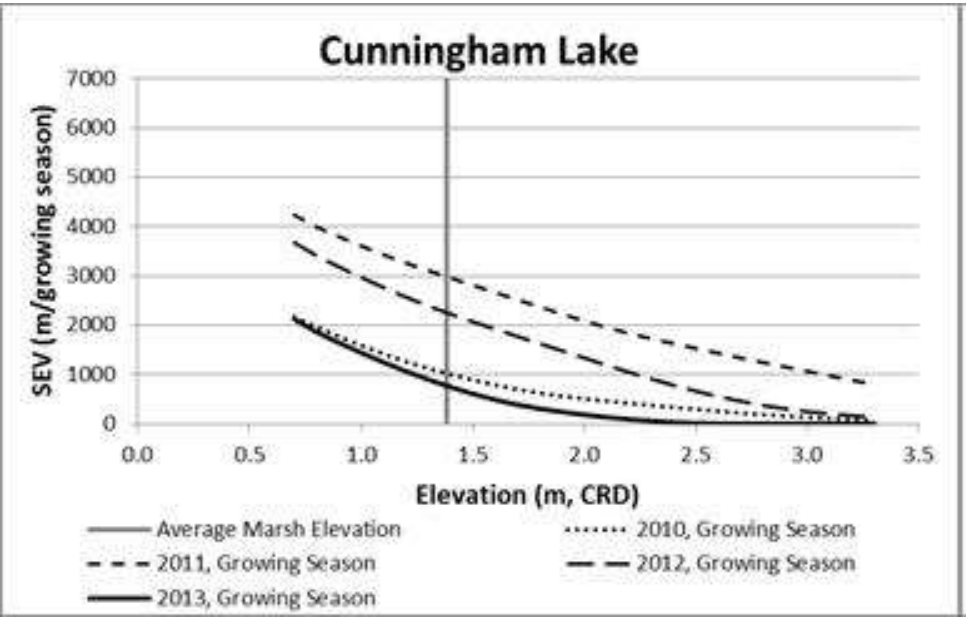

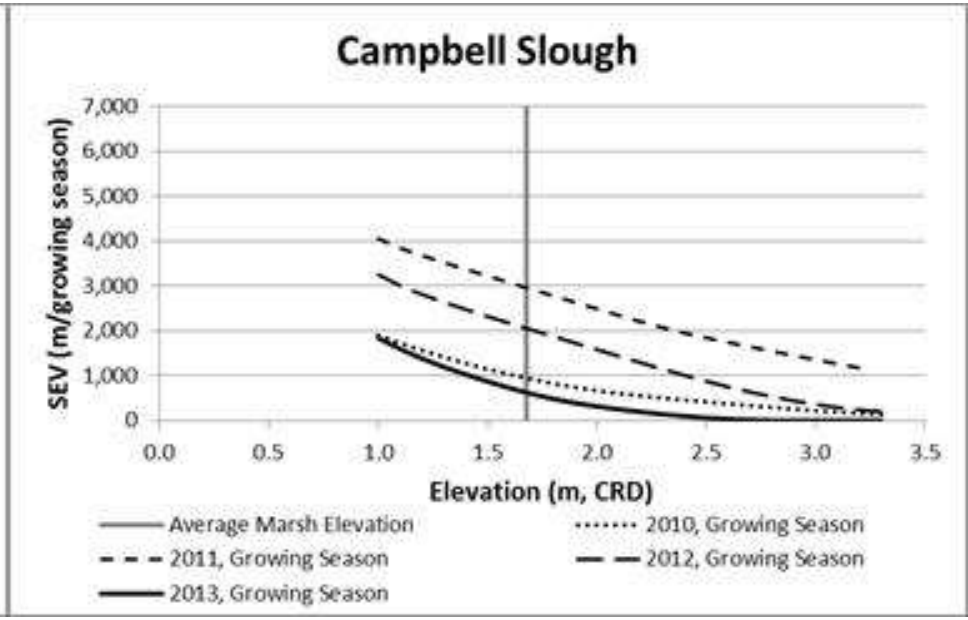

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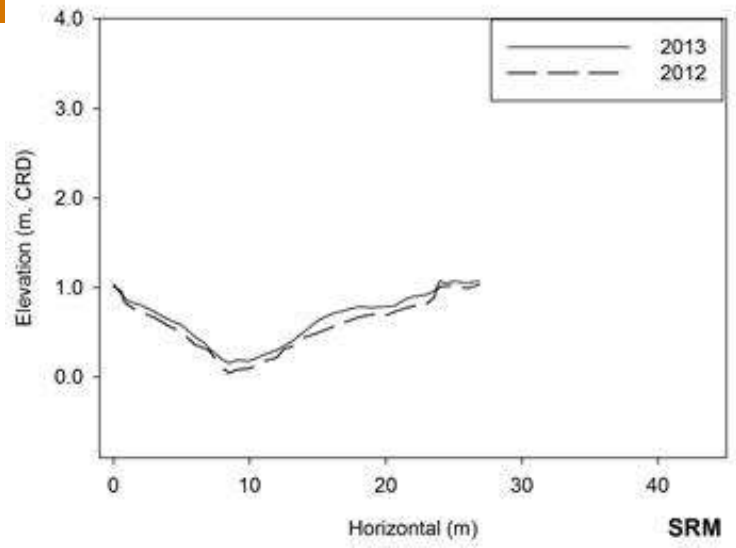
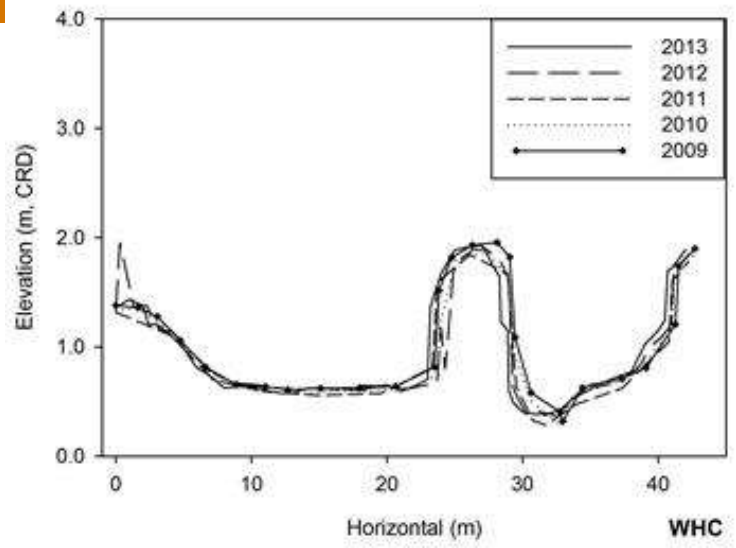
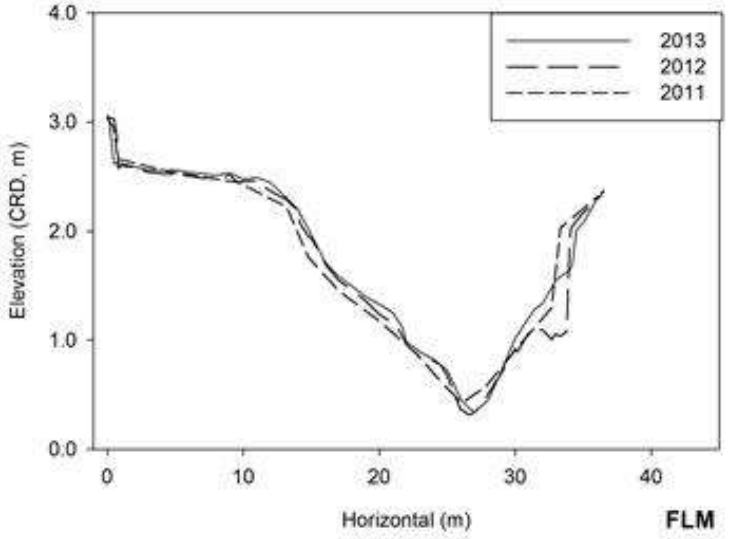
Channel Morphology







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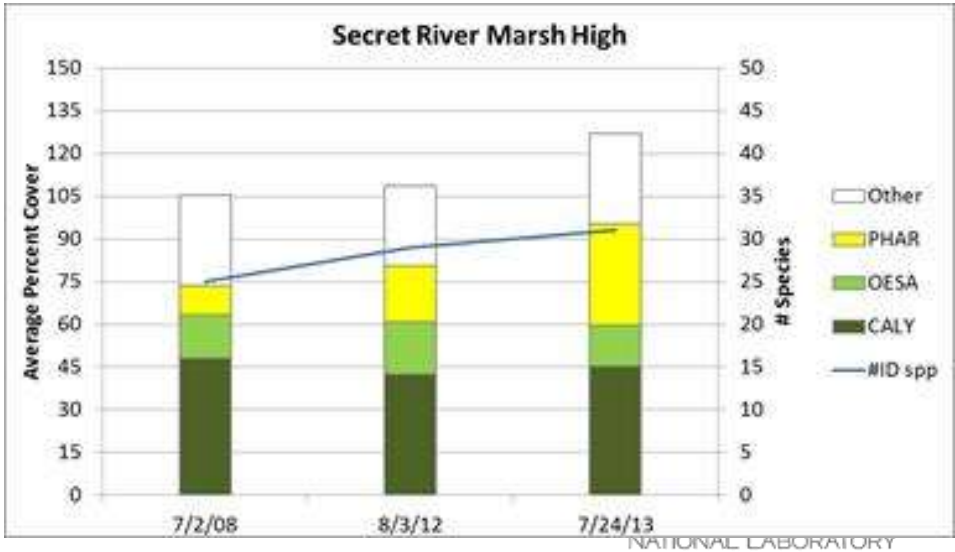
Vegetation – Species Assemblages



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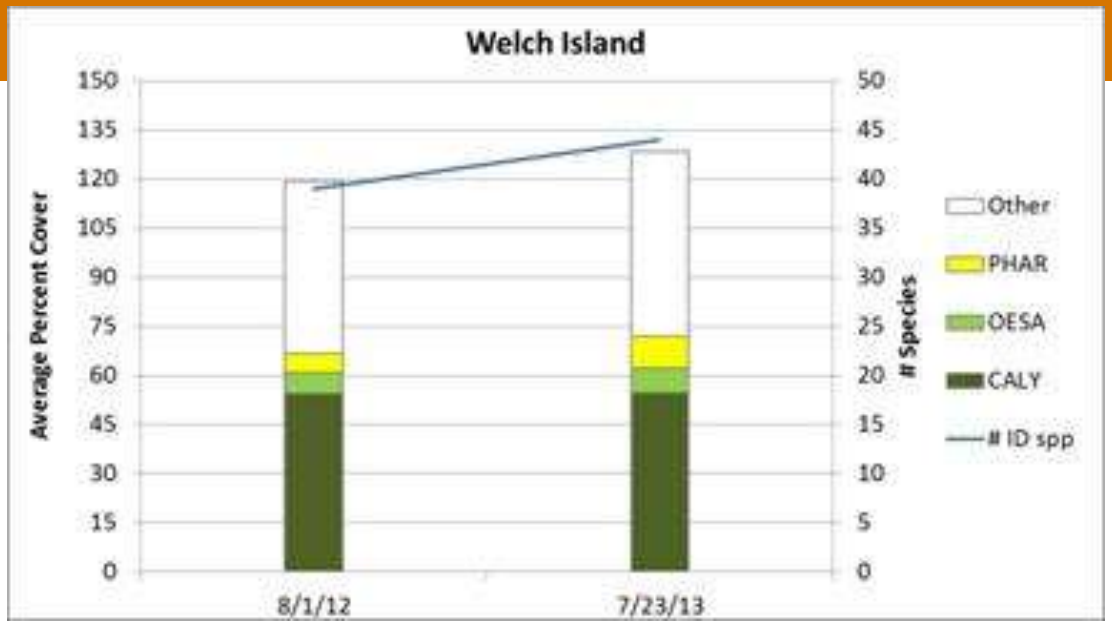

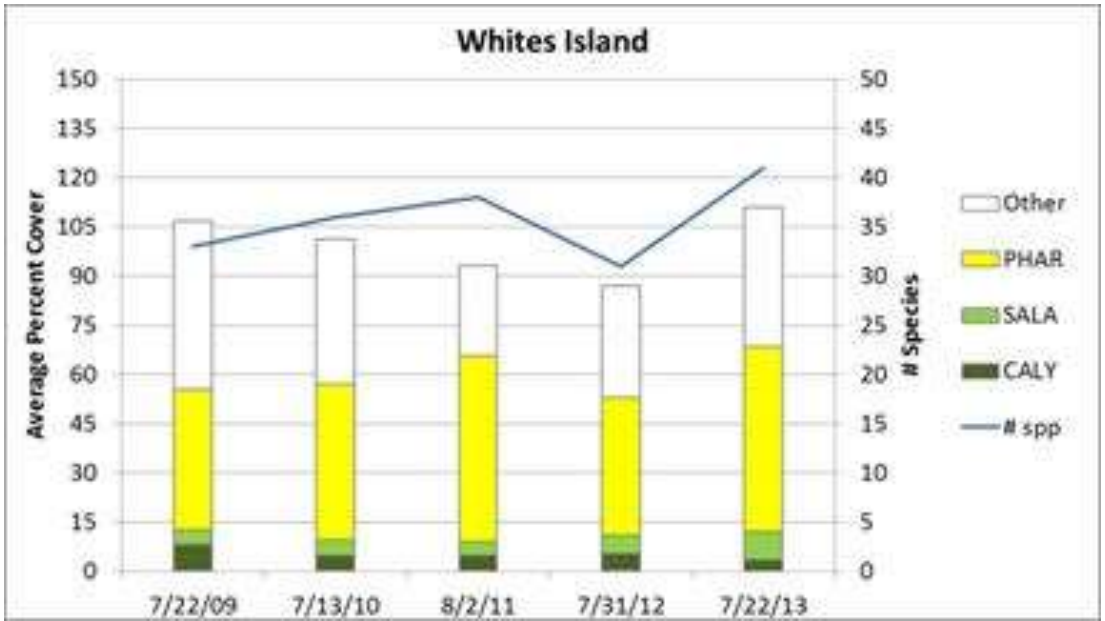

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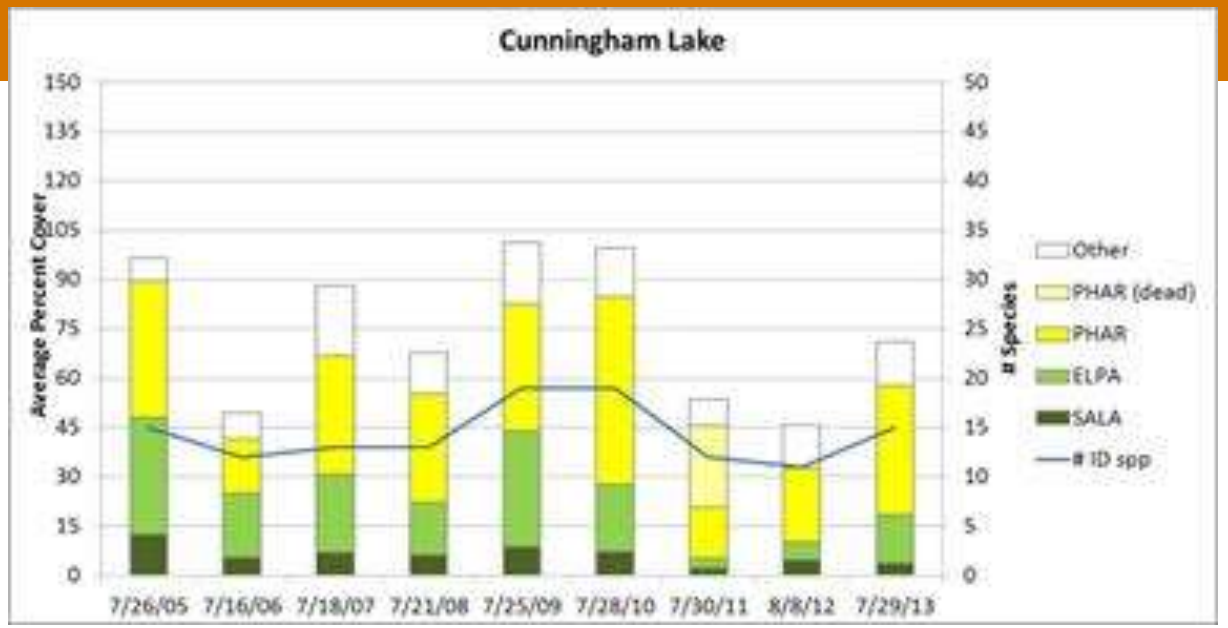

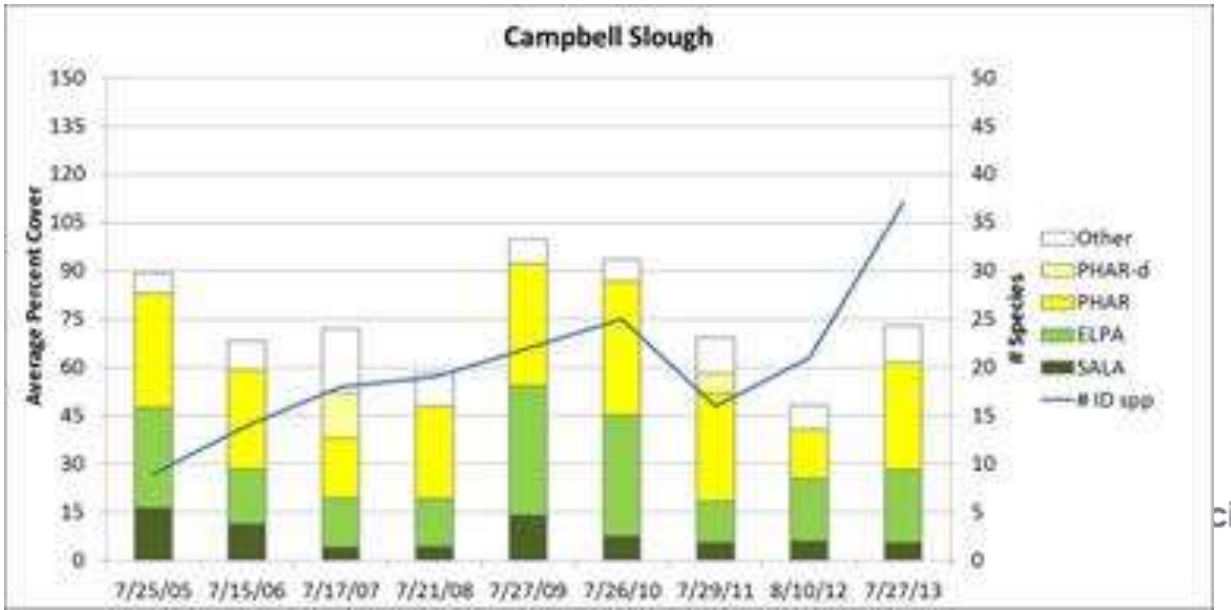

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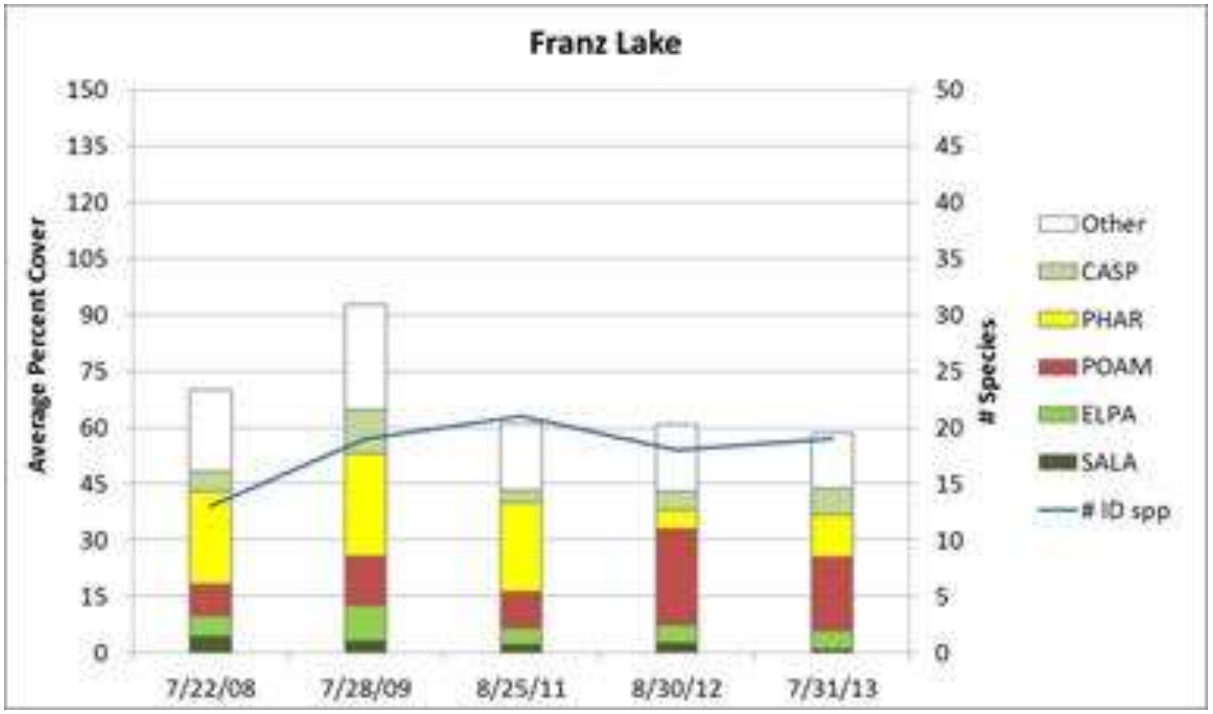

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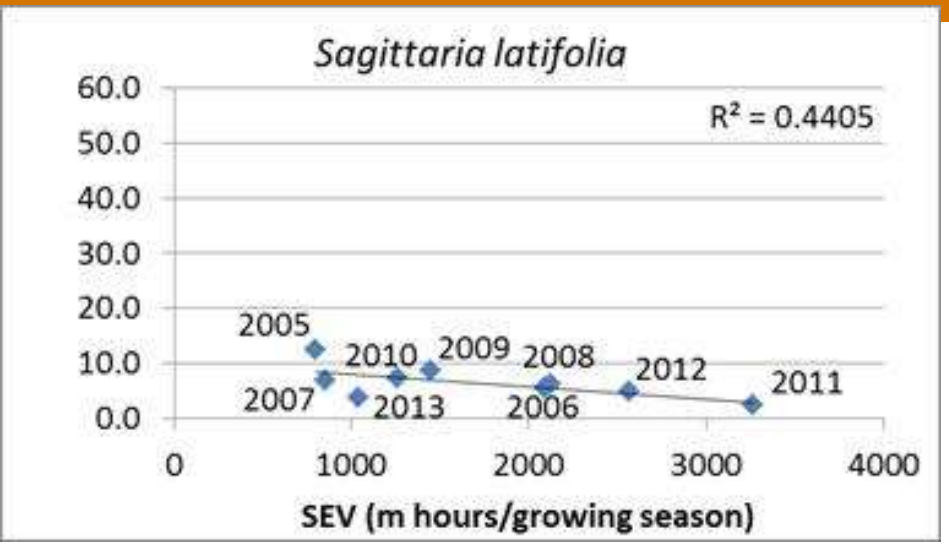
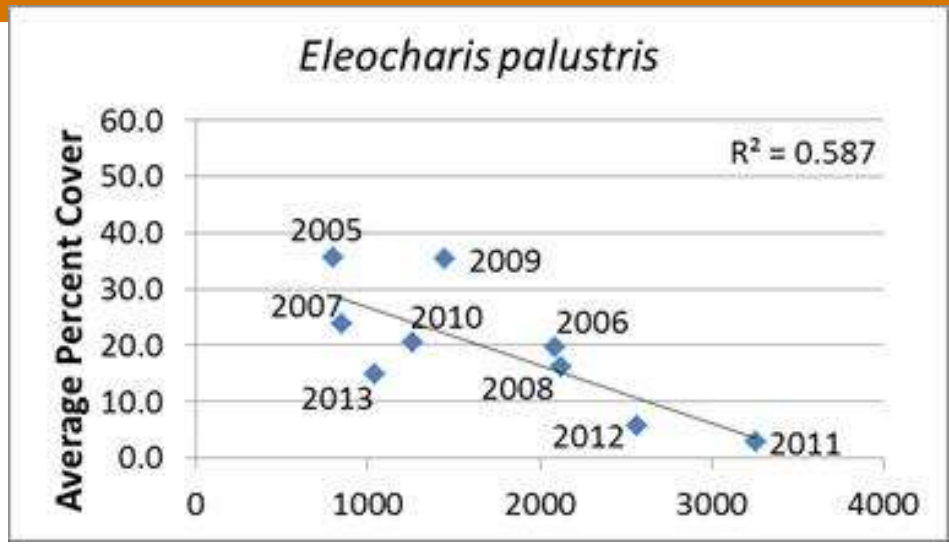
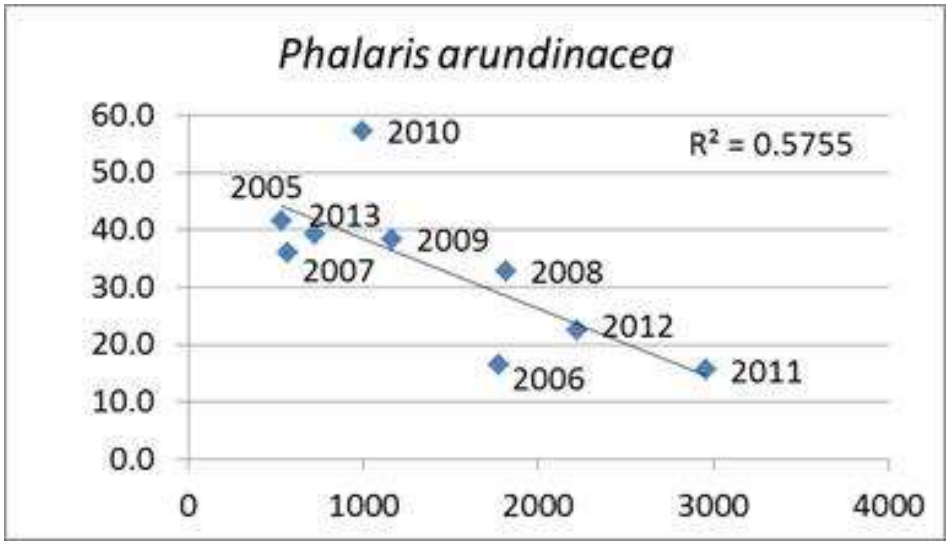
Vegetation - Inundation







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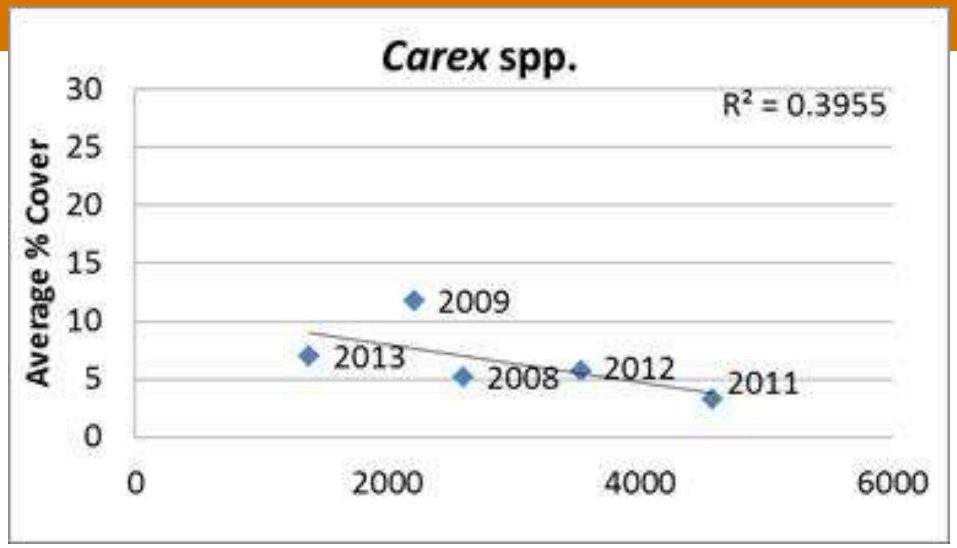
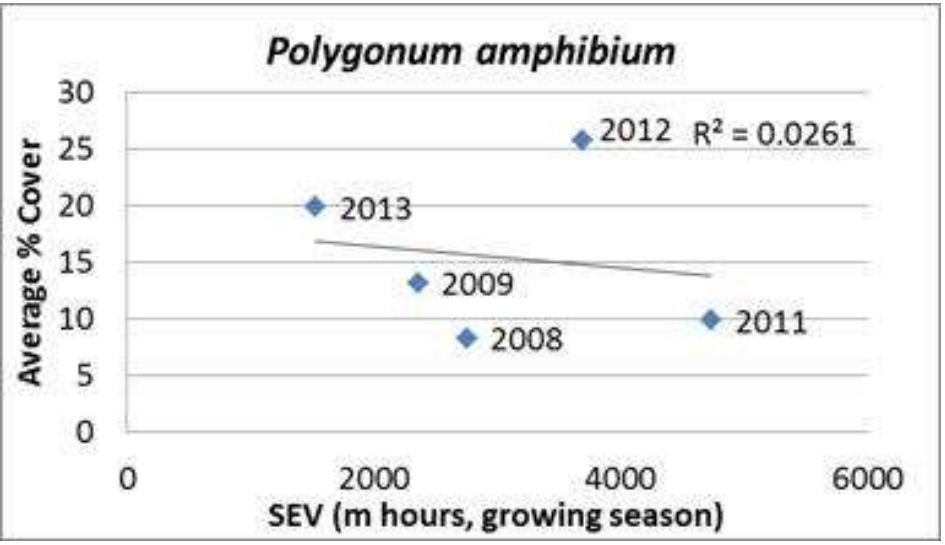
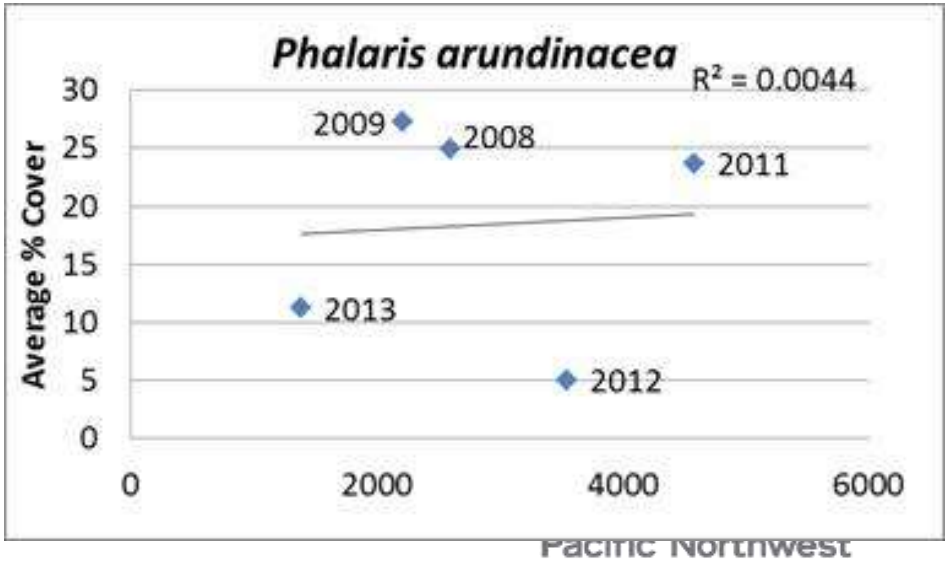
Vegetation - Inundation



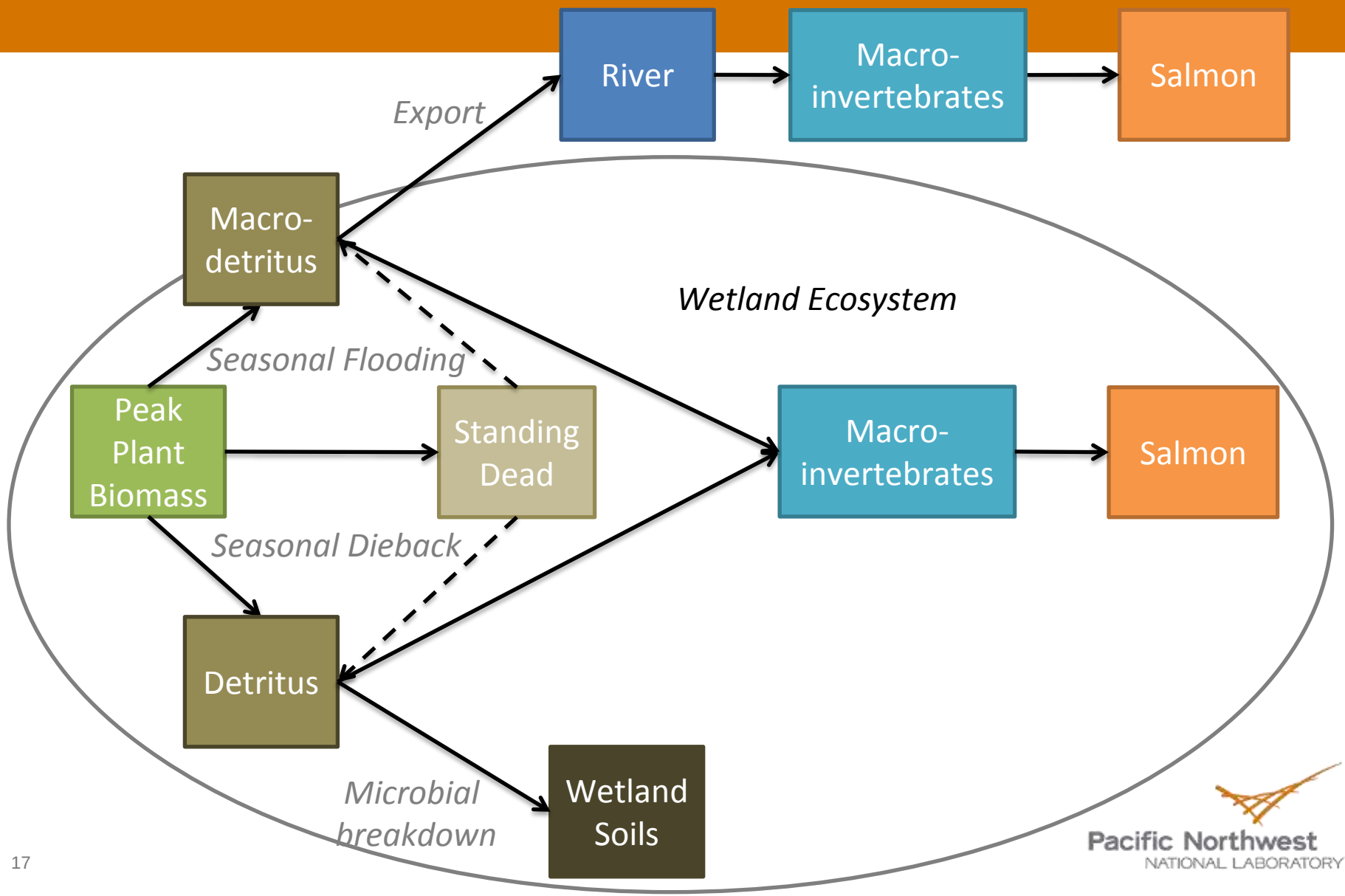




Primary Productivity

- Species Composition
- Vegetation Strata
- Temporal Patterns
  - Seasonal
  - Inter-annual
- Spatial Patterns
  - Elevation gradient
  - Estuarine gradient
- Contribution to Ecosystem

Primary Productivity - Conceptual Model



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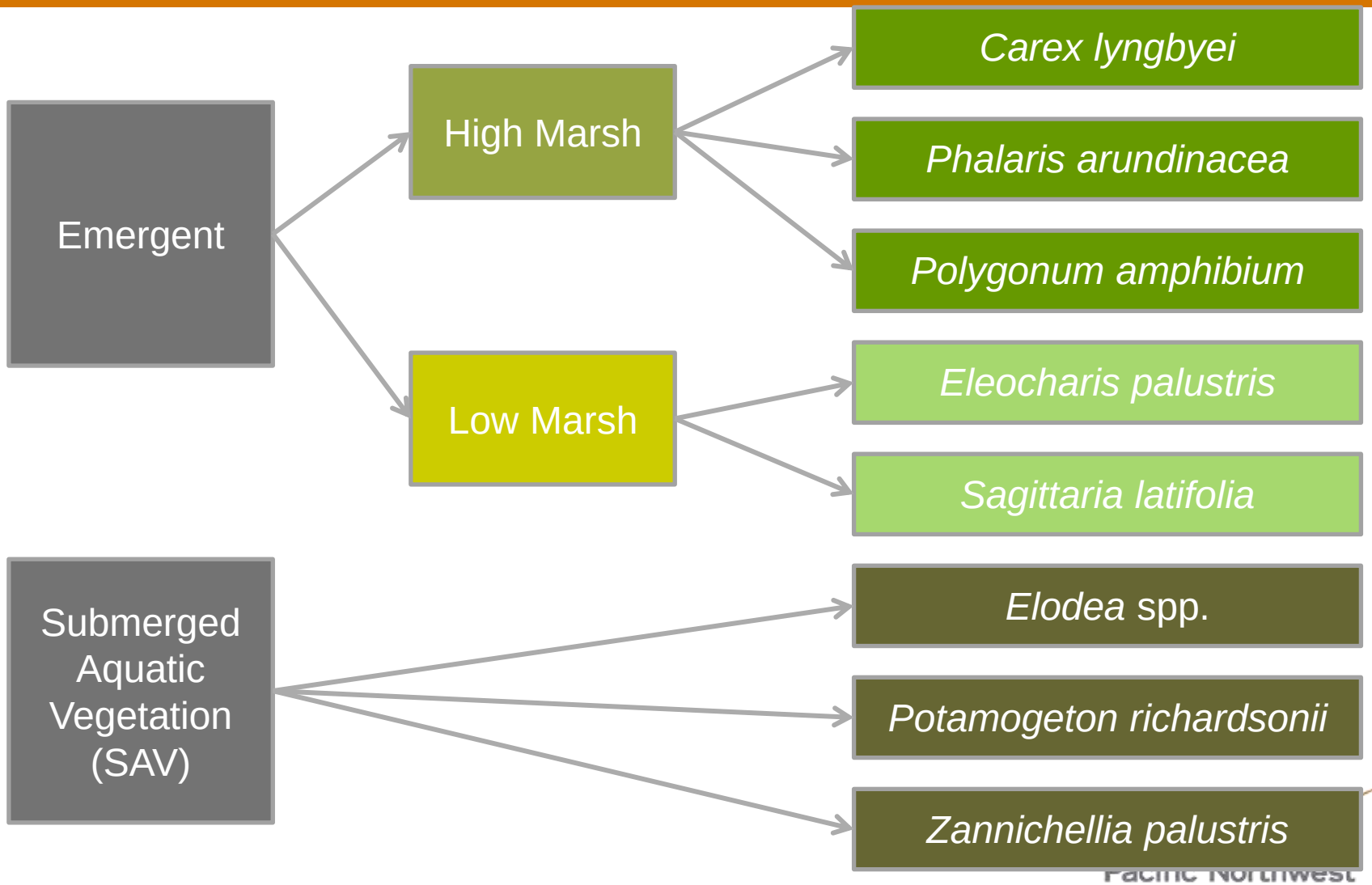
Primary Productivity - Sampling Methods

- Summer sampling at “peak” of production (July/August)
  - Estimate of total annual production
- Winter sampling, prior to spring new growth
  - Calculate difference = estimate of contribution to ecosystem
- Samples processed
  - Live and dead separated
  - Dried and weighed

Primary Productivity – Vegetation Strata

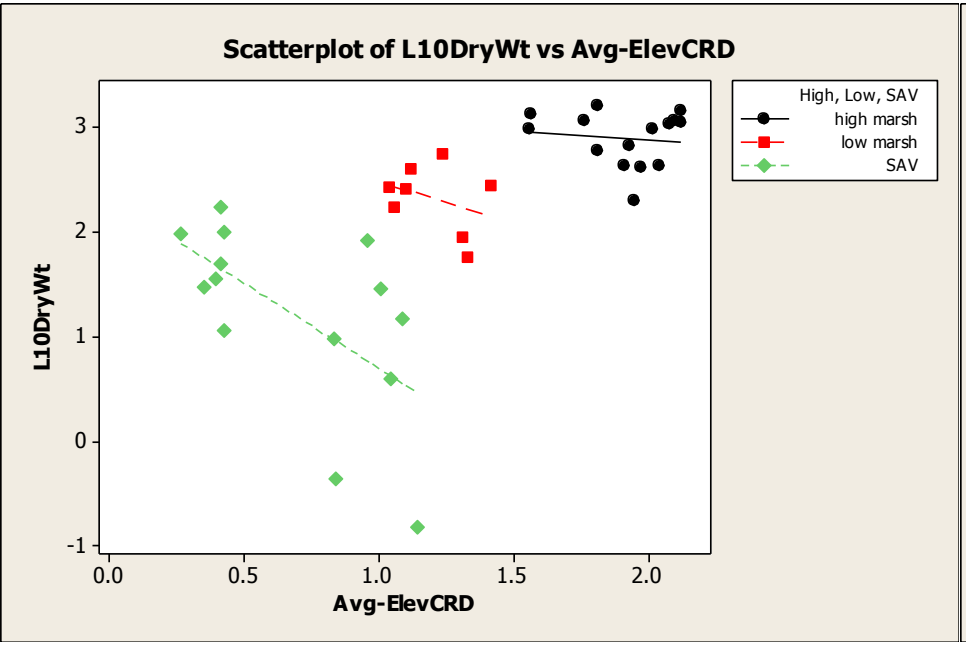


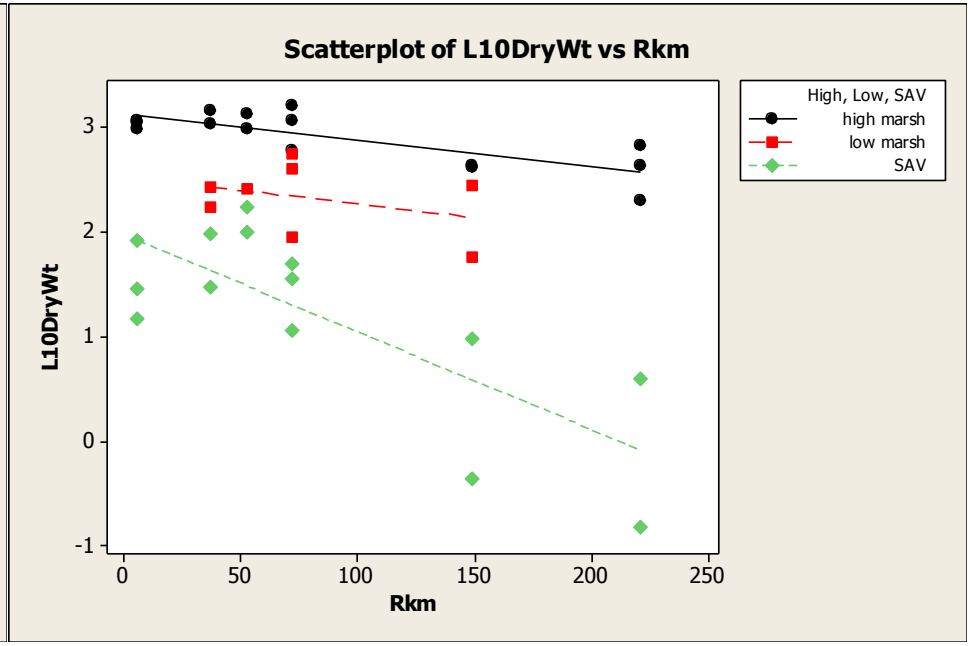
Year	2011		2012			2013	Total
Season	Summer	Winter	Summer	Fall	Winter	Summer	
BBM							
high marsh	7	7	10		10	10	44
low marsh							
SAV	4	4	6		6	6	26
SRM							
high marsh			5		5	9	19
low marsh			5		5	9	19
SAV			6		6	6	18
WI2							
high marsh			5		9	9	23
low marsh			4				4
SAV			4		4	6	14
WHC							
high marsh	6	4	5		8	6	29
low marsh	2	4	6		3	9	24
SAV	8	8	6		6	6	34
CS1							
high marsh	3	4				6	13
low marsh	5	4				11	20
SAV	8	8				6	22
FLM							
high marsh	8	7	7	8	5	9	49
low marsh		1			2		3
SAV			6	8	6	6	26
Total	**51**	**51**	**75**	**16**	**75**	**114**	**388**

Species Composition

Dominant Species	Common Name	Species Code	Percent of Samples Containing Dominant Species
Emergent Species			
Carex lyngbyei	Lyngby sedge	CALY	23
Phalaris arundinacea	reed canary grass	PHAR	16
Polygonum amphibium	water smartweed	POAM	3
Eleocharis palustris	common spike rush	ELPA	5
Sagittaria latifolia	wapato	SALA	6
Submerged Aquatic Species (SAV)			
***Elodea* spp.**	waterweed	ELSP	4
Potamogeton richardsonii	Richardson's pondweed	PORI	4
Zannichellia palustris	horned pondweed	ZAPA	5
Non-specific Categories			
High marsh			5
Low marsh			5
SAV			24

Primary Productivity





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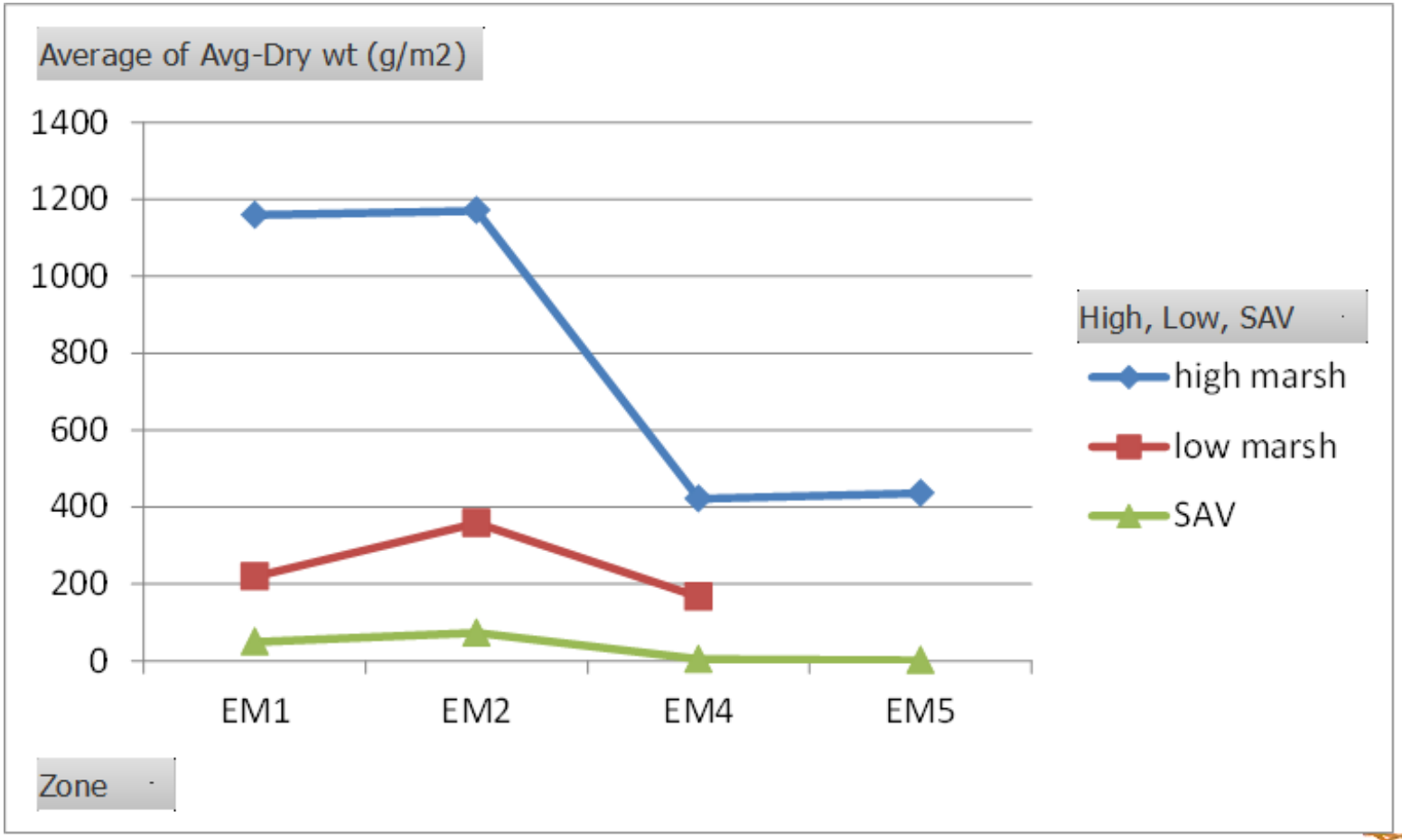
Primary Productivity



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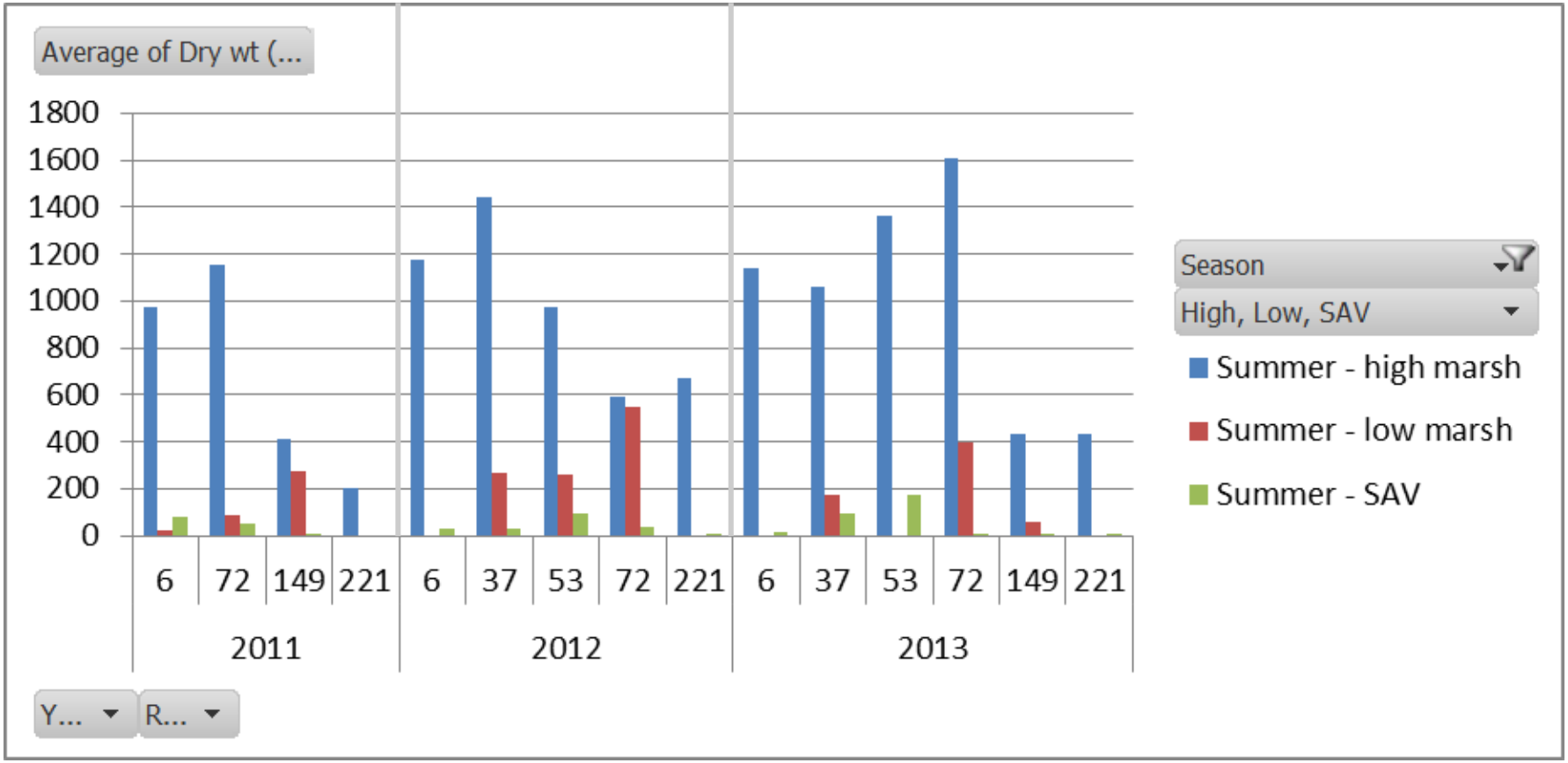
Primary Productivity



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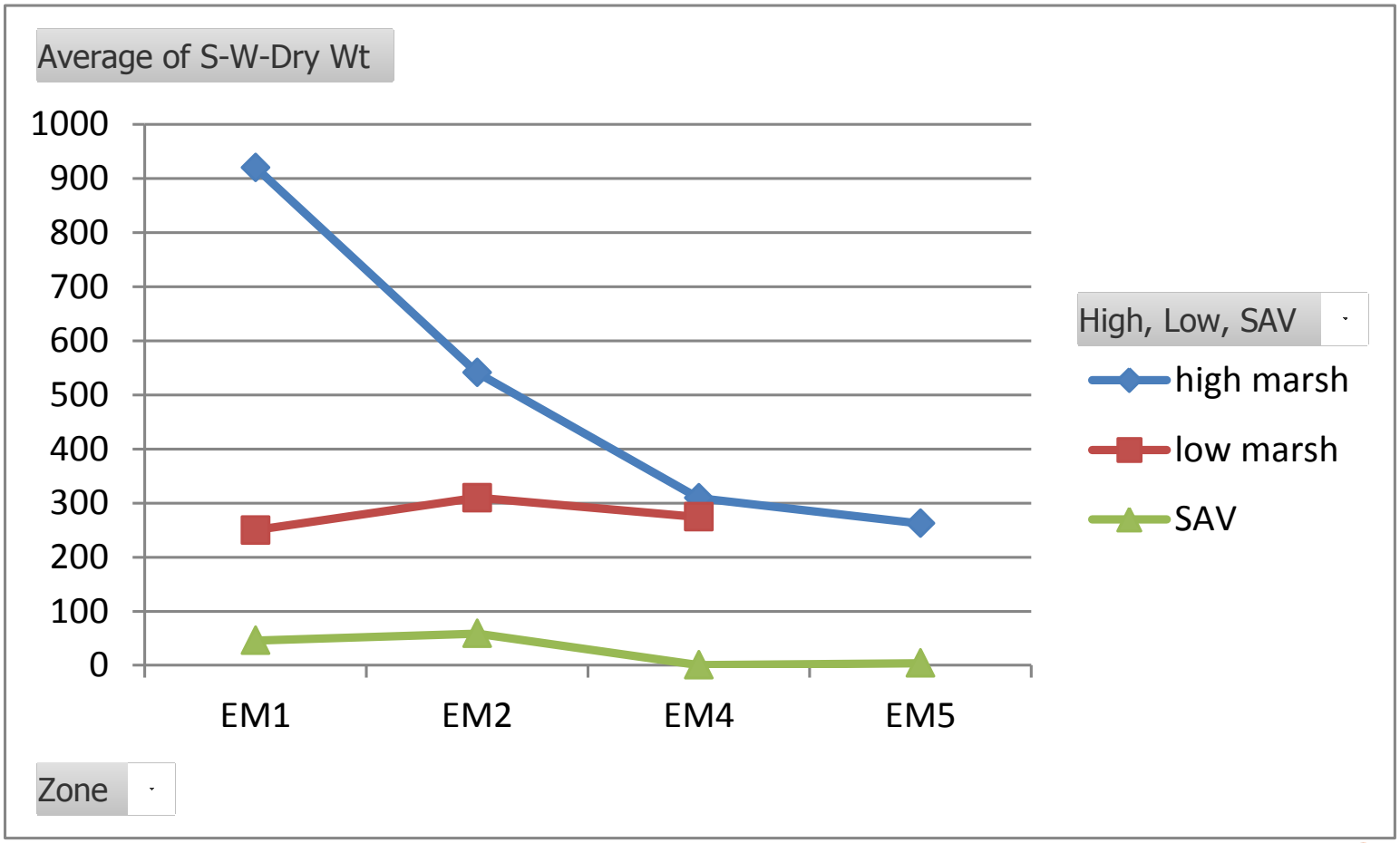
Primary Productivity – Ecosystem Contribution



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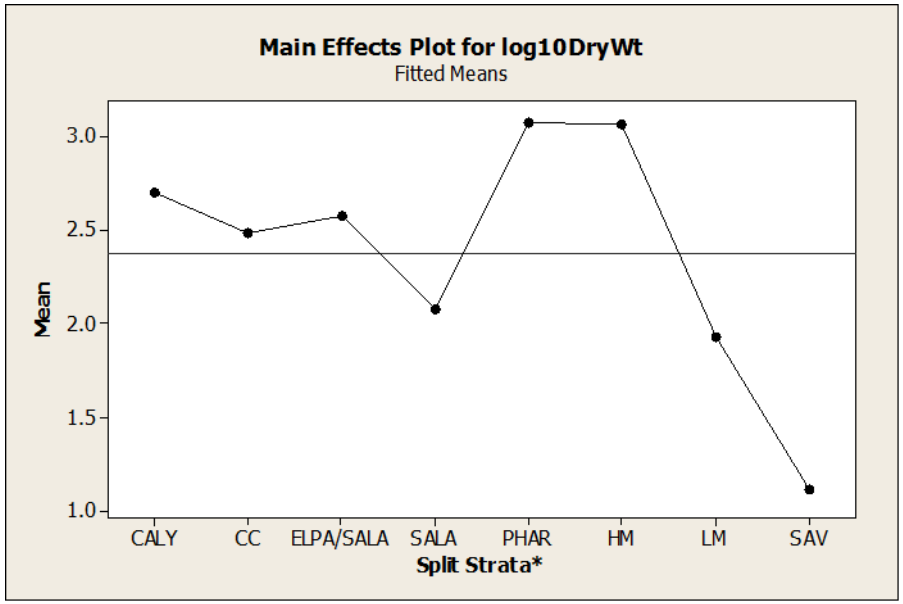
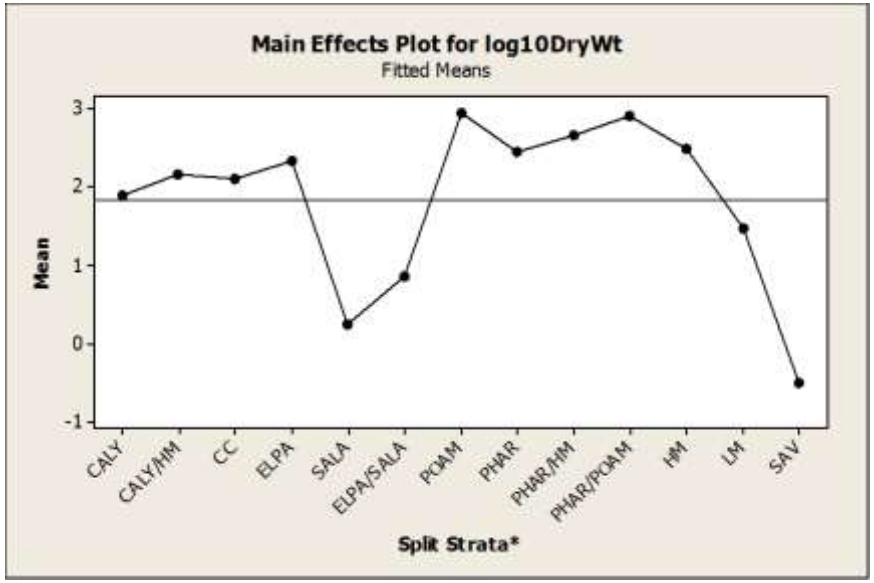
Primary Productivity – Species Level





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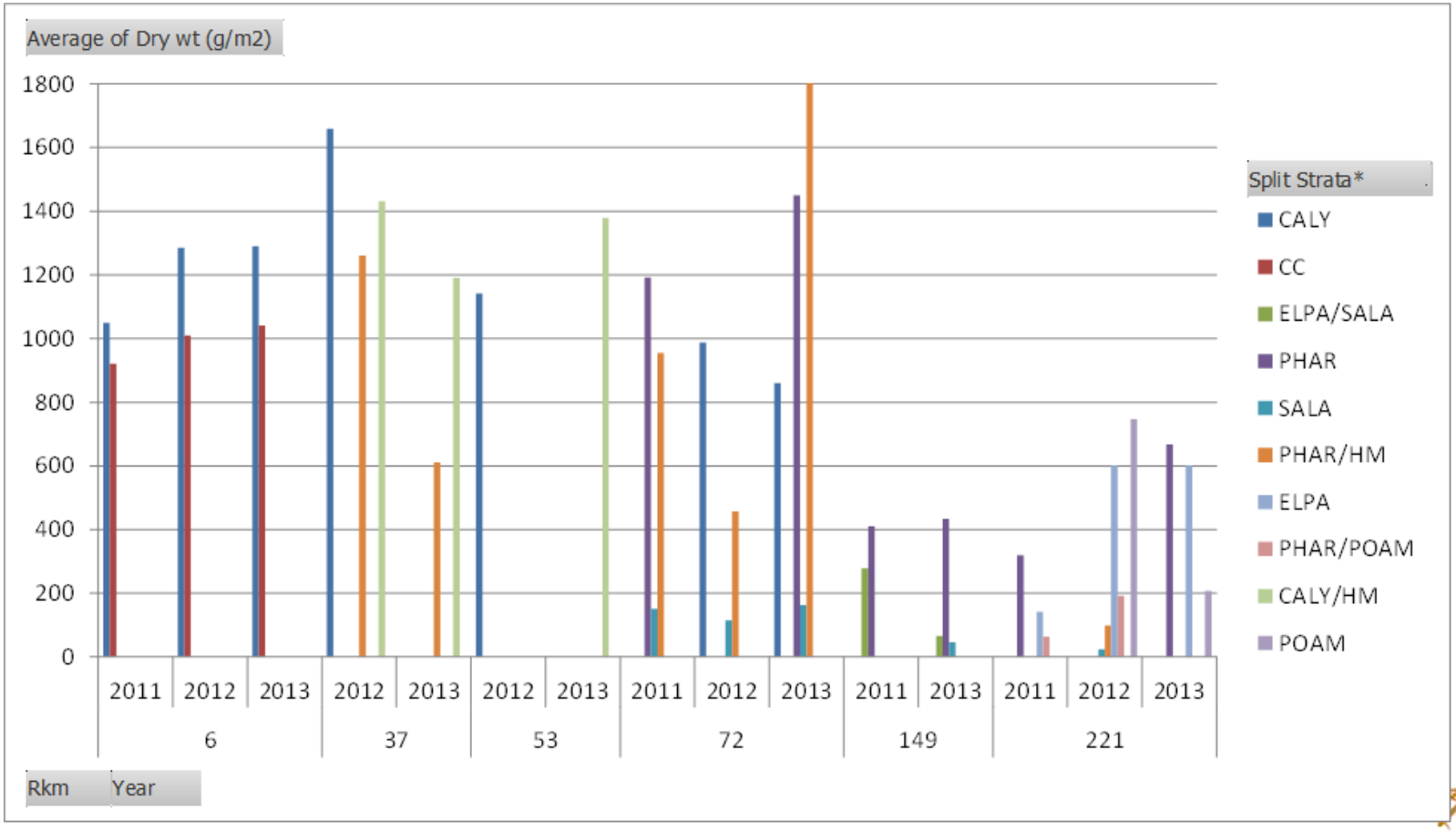
Primary Productivity – Species Level

Summer



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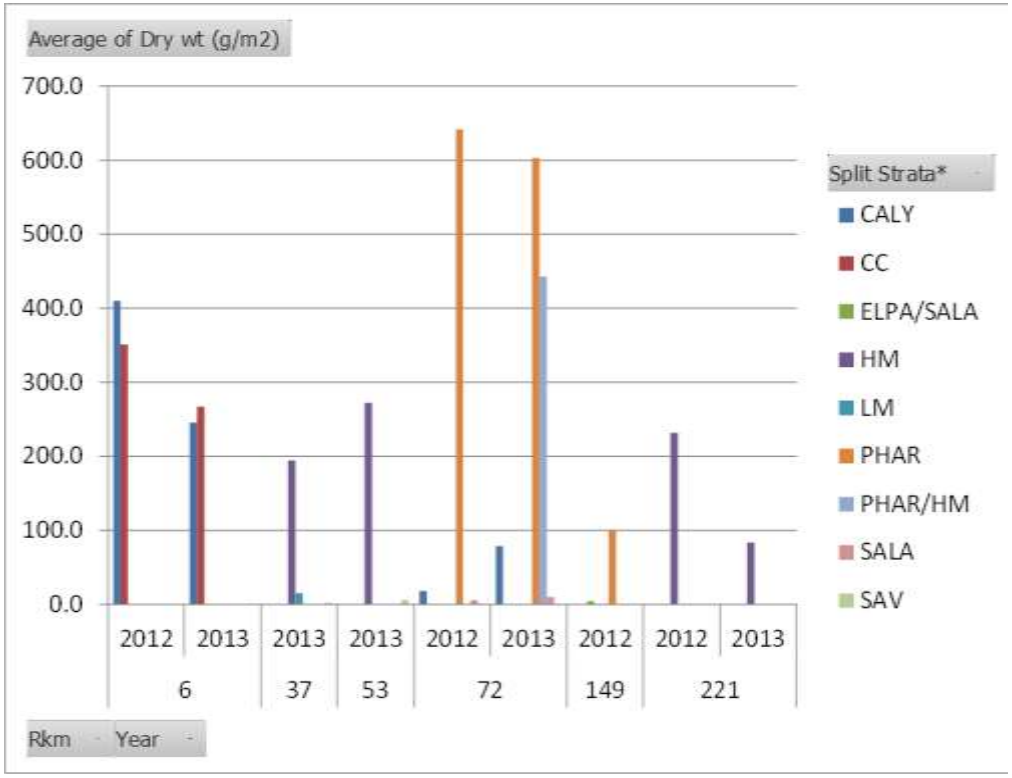
Primary Productivity – Species Level

Winter



Summer – Winter = Export

CALY = 1038 g/m^2

PHAR = 323 g/m^2

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