Item #3

PROGRAMMATIC MONITORING/MODELING DESIGN TO ADDRESS THE NEW FOCUS FOR MANAGEMENT QUESTIONS

SOURCES PATHWAYS AND LOADINGS WORKGROUP MEETING SPRING 2014

May 29, 2014

L. McKee
J. Hunt

QUESTIONS FOR THE WORKGROUP

Q1. Do the programmatic elements from the previous five-year term remain appropriate for addressing the key management questions going forward?

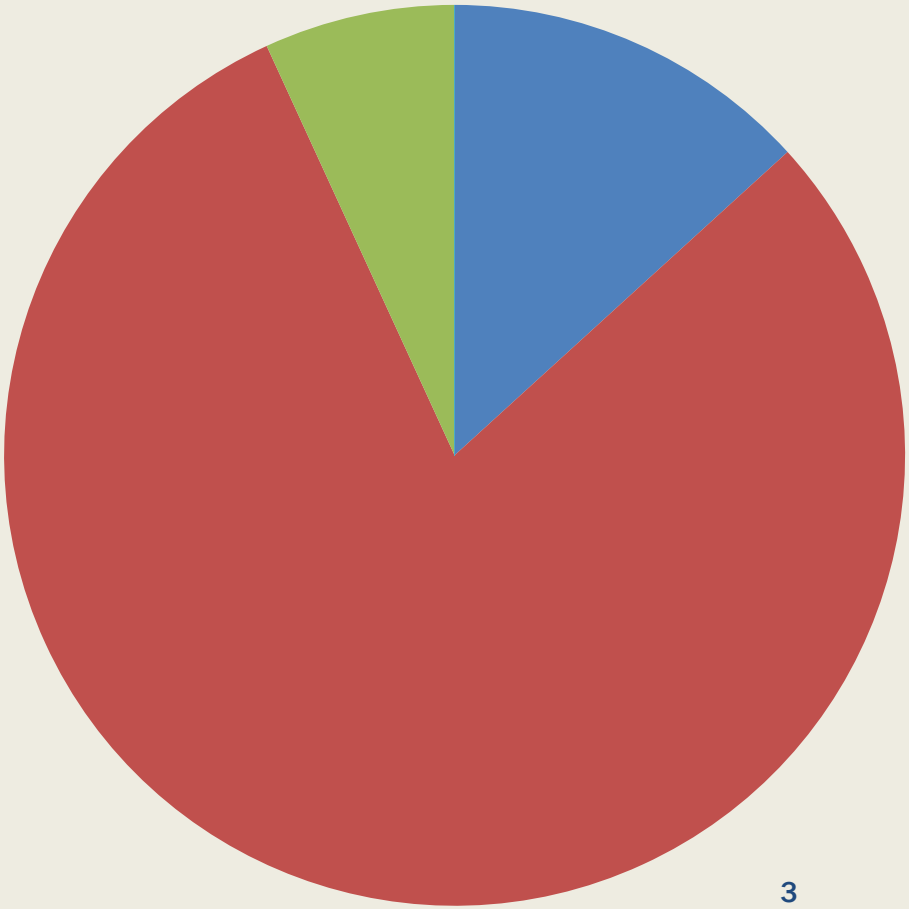
- Do we have the right balance?
- Other program elements missing?

Q2. Is the proposed report outline suitable for synthesizing current knowledge and supporting recommendations and rationale for refocused monitoring/ modeling components?

- Any missing report elements?
- Other tried and tested analytical or interpretive methods?

PREVIOUS PROGRAMMATIC DESIGN

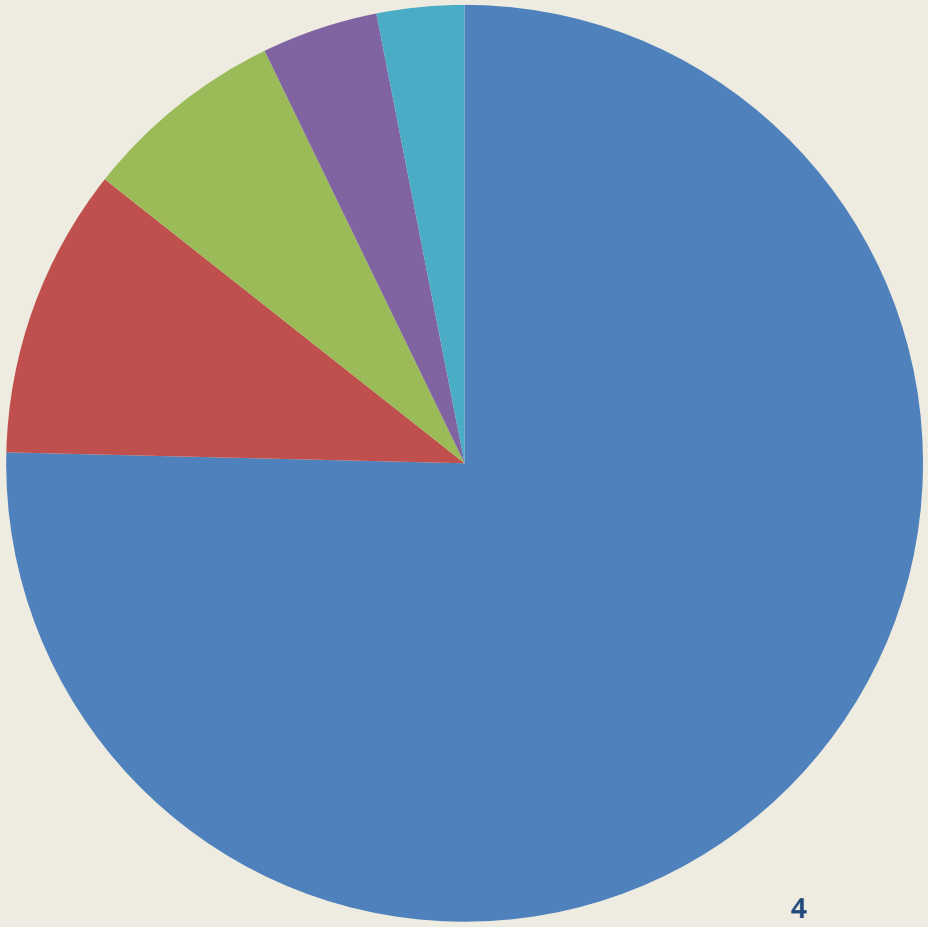
e.g. WY 2014 RMP SPLWG Effort



- MQ 1 - Identify high leverage watersheds/ areas
- MQ2a: Quantify base line concentrations & loads in single (no regret) watersheds
- MQ2b. Estimate regional scale loads to support TMDLs
- MQ3. Measure trends
- MQ4. Project impacts of management actions

PROPOSED FUTURE PROGRAM DESIGN

Proposed WY 2015-19 RMP SPLWG Effort



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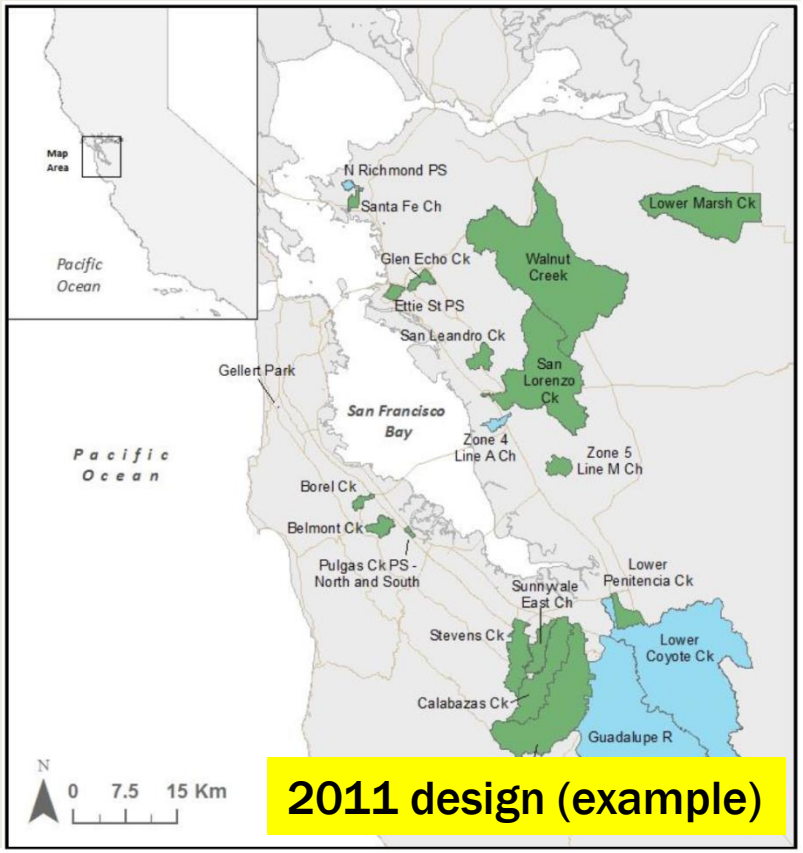
NEXT PERMIT PROPOSED DESIGN: MQ 1

Effort	Time Period	Level of Effort
Characterization monitoring	WY2015-WY2018	67%

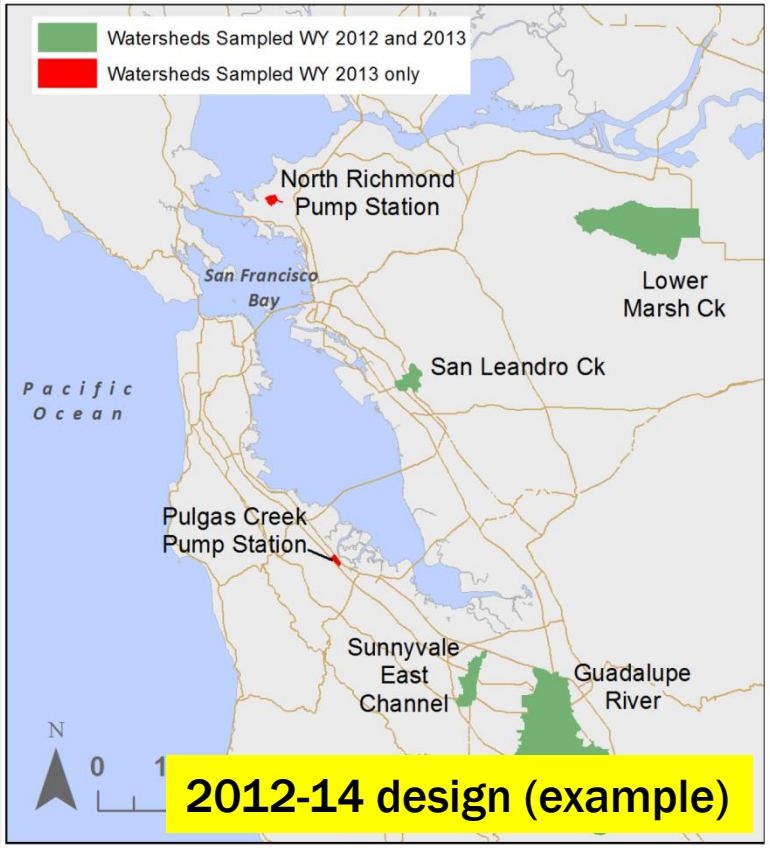
- Monitoring at catchment or sub-catchment (focusing on smaller industrialized areas)
- 1 or 2 storms per site
- 20-25 locations/year
- Revisiting locations only where evidence suggests inadequate characterization
- **5 Year Outcome**: A large number of locations characterized
- Note, parallel work on MQ1 may occur through Bay Margins foodwebs model or other special studies data



NEXT PERMIT PROPOSED DESIGN: MQ 2A

Effort	Time Period	Level of Effort
Loads monitoring	WY2015-WY2018	9%

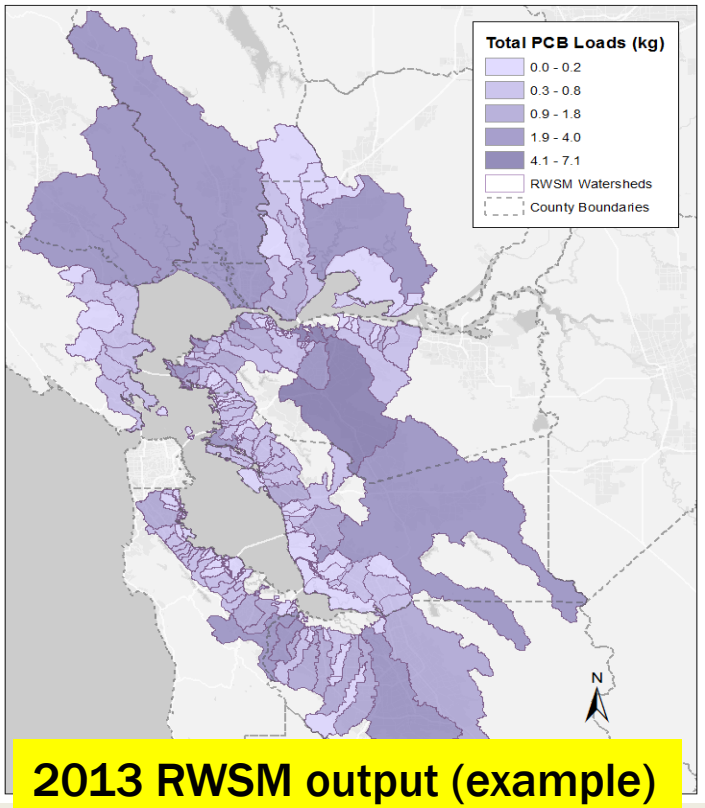
- Monitoring at catchment outlets using same monitoring technique proposed for MQ1.
- Strategically sample 1 site/year at watersheds with existing USGS gauges
- Revisiting locations only where evidence suggests inadequate characterization
- **5 Year Outcome:** First order load estimates for larger watersheds



NEXT PERMIT PROPOSED DESIGN: MQ 2B

Effort	Time Period	Level of Effort
Modeling	WY2015-WY2018	6%

- Refinement of PCB & Hg RWSM
  - Primary use for (sub) regional PCB and Hg loads
  - Possible use for identifying high leverage watersheds, land uses, and source areas?
- Possible additional use for loads:
  - Selenium
  - Nutrients
  - CECs?
- Possible further development for MQ4
- **5 Year Outcome:** Planning level load estimates for the region

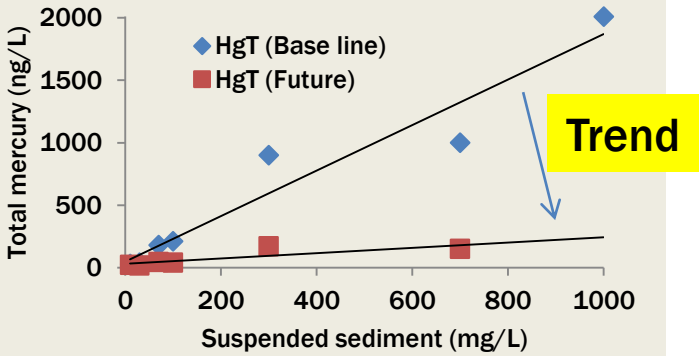


2013 RWSM output (example)

NEXT PERMIT PROPOSED DESIGN: MQ3

Effort	Time Period	Level of Effort
Loads monitoring	WY2015-WY2018	4%

- Funding each year to support trend analysis and measure management effectiveness
  - Guadalupe River at Highway 101
    - Monitor when predicted rainfall intensity in excess of 2 inches/hour in historic mining district
  - Other watersheds to be determined
  - Further explore the power to detect trends based on existing baseline data

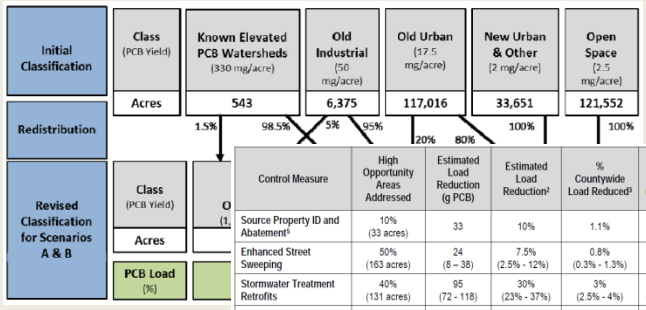


		PCBs		
Year	Number of Years to Reach Target	Power for Current Sample Size**	Power for n = 7	Power for n = 10
2007	10	95	66	79
	20	100	90	97
	25	100	95	99
	40	100	99	100
2008	10	100	91	97
	20	100	100	100
	25	100	100	100
	40	100	100	100
2009	10	100	100	100
	20	100	100	100
	25	100	100	100
	40	100	100	100

NEXT PERMIT PROPOSED DESIGN: MQ 4

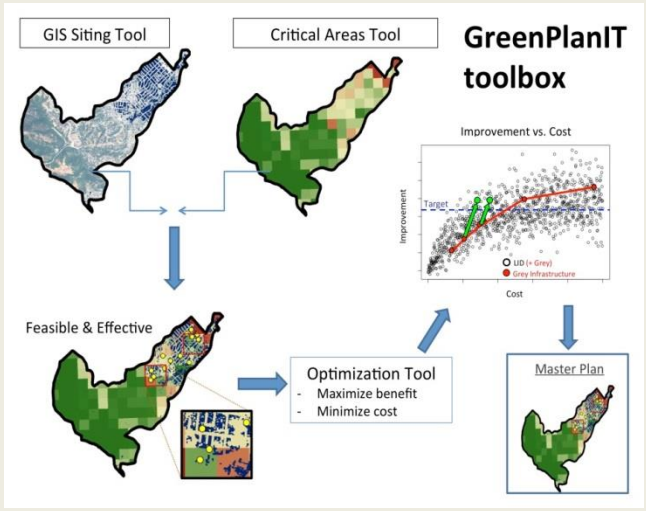
Effort	Time Period	Level of Effort
Management measures	WY2015-WY2018	3%

- Methodological decision to be determined
- Options include:
  - Adoption, refinement, or added support for a BASMAA developed methodology
  - Further development of the RWSM
  - Adoption of an alternative modelling platform (SWMM) building upon the GreenPlanIT tool.



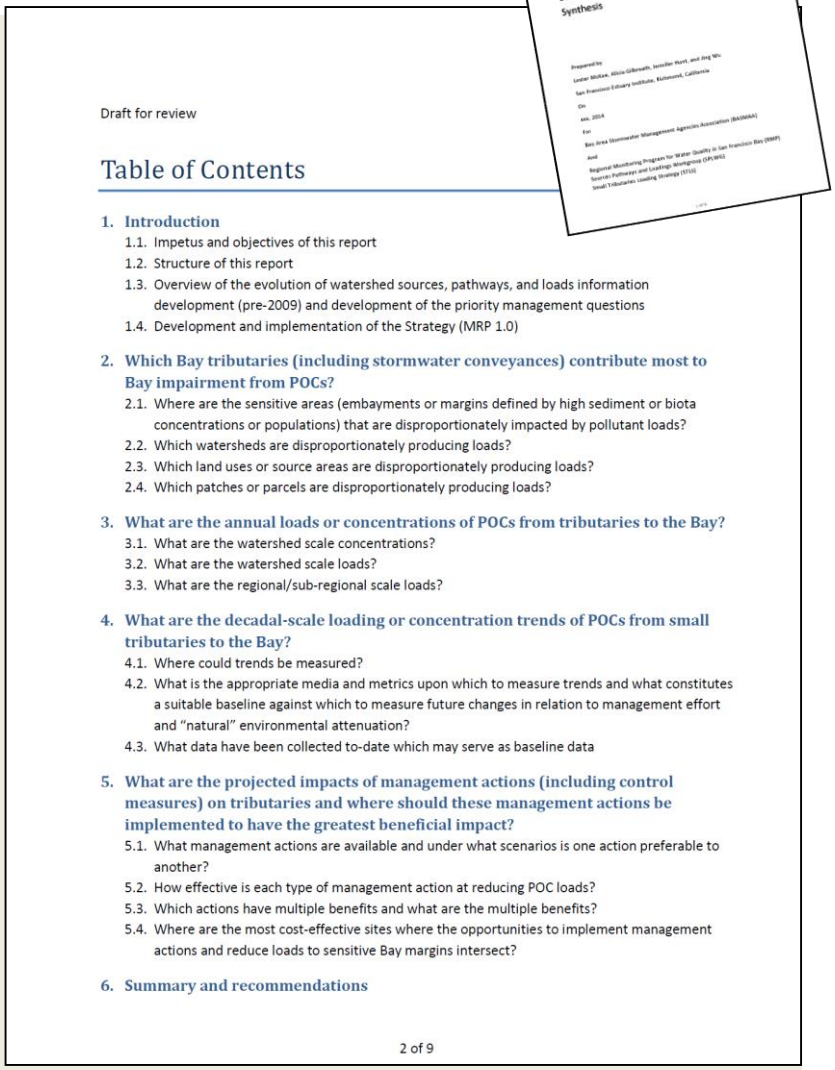
BASMAA, 2014

Control Measure	High Opportunity Areas Addressed	Estimated Load Reduction (g PCB)	Estimated Load Reduction[2]	% Countywide Load Reduced[3]	Estimated Cost Effectiveness ($/g PCB removed)	Estimated Annual Cost to Permittees[4] ($/Year)	Estimated Cost to Permittees Over 20 Years ($)
Source Property ID and Abatement[5]	10% (33 acres)	33	10%	1.1%	$1,900 ($460 - $3,600)	$62,000 ($15,000 - $120,000)	$186,000 ($45,000 - $360,000)
Enhanced Street Sweeping	50% (163 acres)	24 (8 – 38)	7.5% (2.5% - 12%)	0.8% (0.3% - 1.3%)	$2,100 ($480 - $6,400)	$50,000 ($18,000 - $51,000)	$1M ($360,0000 - $1M)
Stormwater Treatment Retrofits	40% (131 acres)	95 (72 - 118)	30% (23% - 37%)	3% (2.5% - 4%)	$39,000 ($19,000 - $67,000)	$3.7M ($1.4M - $7.9M)	$74M ($27M - $160M)
Totals	100% (327 acres)	151 (112 - 189)	46% (34% - 58%)	5% (4% - 6.5%)	$25,000 ($13,000 - $43,000)	$3.8M ($1.4M - $8M)	$76M ($29M - $160M)



MULTIYEAR SYNTHESIS REPORT

- **Sources, Pathways and Loadings: Multi-Year Synthesis**
  - Concise summery of progress to-date on addressing management questions
  - Document information gaps
  - Document the rationale for changing priority focus
  - Document justification for proposed changes to the monitoring and modeling elements to support further information development during the next five year permit term



Sources, Pathways and Loadings: Multi-Year Synthesis

Draft for review

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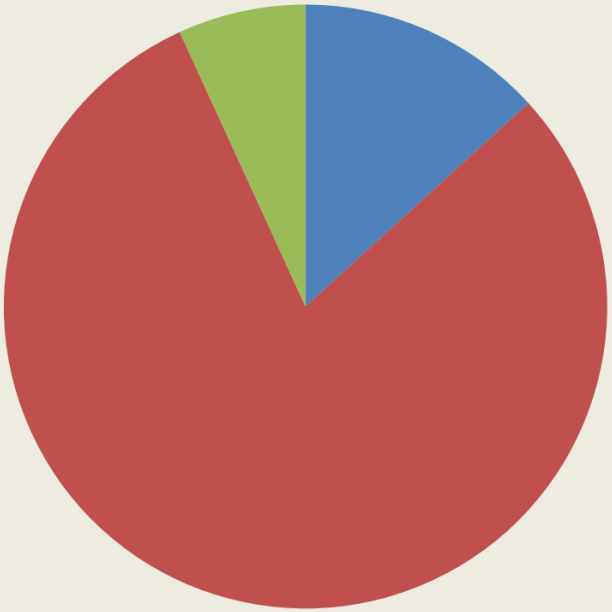
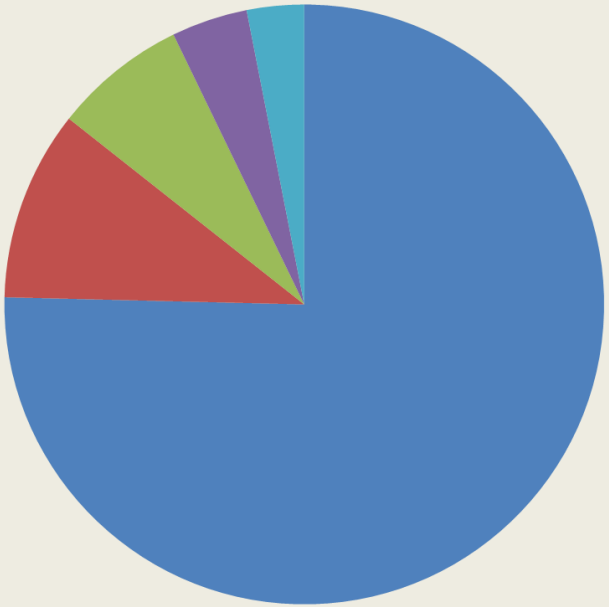
SUMMARY – PROGRAMMATIC SHIFT

Previous Focus of Effort



Proposed WY 2015-19 RMP SPLWG Effort



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