



NOAA  
**CORAL REEF**  
CONSERVATION PROGRAM



# Land-Based Sources of Pollution Overview



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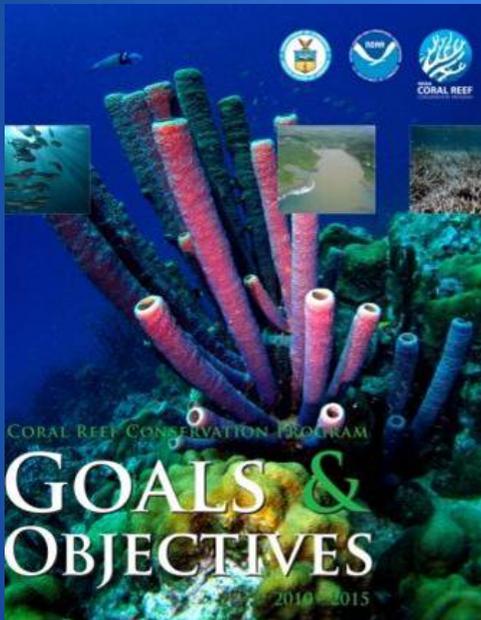
August 24, 2016



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## LBSP Impacts: 3 Goals, 12 Objectives



- 1.Reduce pollutant loading from watersheds to priority coral reef ecosystems.
- 2.Promote in-water management activities to restore priority coral reef ecosystems that have been adversely impacted by accumulated sediments, nutrients, and algae.
- 3.Build and sustain management capacity at the local level through local, state, regional, and Federal coordination of financial, institutional, and human resources to reduce and prevent the impacts of land-based sources of pollution on coral reef ecosystems.



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## Implementation Plan



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**Land-Based Sources of Pollution Implementation Plan**

**FY 2011 – FY 2015**

**Updated: April 2012**

- Finalized April 2011 and updated in 2012
- Narrowed internal, Program focus from 12 objectives to 4, considering:
  - Greatest needs for addressing LBSP impacts at the priority watershed, jurisdiction, and regional scale
  - Where NOAA has the technical capacity and can be most effective
- Summarized progress to date and outlined next steps



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## Objectives of Emphasis

- L1.3: Develop and implement watershed management plans.
- L1.5: Monitoring and Evaluation
- L3.1: Building Local Capacity
- L3.2: Partner Collaboration and Coordination

### Guánica Bay Watershed Management Plan

A Pilot Project for Watershed Planning in Puerto Rico



10/12/08

#### Prepared for

NOAA Coral Reef Program  
Office of Ocean and Coastal Resource Management  
Silver Spring, Maryland

Departamento de Recursos Naturales y Ambientales (DRNA)  
Estado Libre Asociado de Puerto Rico



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## Performance Measures

1. **L1 PM1:** Number of watersheds with completed and approved integrated WMPs. This performance measure aligns with National LBSP Objective 1.3.
2. **L1 PM2:** Number of projects completed from approved WMPs to reduce LBSP in priority coral reef areas. This performance measure aligns with National LBSP Objective 1.3.
3. **L1 PM3:** Stable or decreasing total suspended solids (metric tons/year) measured in target watersheds. This performance measure aligns with National LBSP Objective 1.5.
4. **L2 PM1:** Stable or improving coral demographics (recruitment, size frequency, mortality) in priority coral reef areas. This performance measure aligns with National LBSP Objective 1.5.
5. **L2 PM2:** Number of in-water restoration projects implemented in degraded coral reef ecosystems to reduce accumulated sediments, nutrients, and algae. This performance measure aligns with National LBSP Objective 1.3.
6. **L3. PM1:** Number of active partnerships established with local, state/territory, federal and/or non-governmental organizations with a common goal to reduce LBSP impacts in priority coral reefs areas. This performance measure aligns with National LBSP Objective 3.2.





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## Tracking: Performance Measures

**L1 PM1: Number of priority areas/watersheds with completed and approved integrated watershed management plans (WMPs) or Conservation Action Plans (CAPs)**

**L1 PM2: Number of projects completed from approved WMPs and CAPs to reduce LBSP in priority reef areas**



**L3 PM1: Number of active partnerships established with local, state/territory, federal, and/or non-governmental organizations with a common goal to reduce LBSP impacts in priority coral reef areas**



# Types of LBSP Data



- **Remote sensing :**
  - Ocean color, chlorophyll a, and turbidity
- **Baseline Characterizations and targeted in situ monitoring:**
  - Sediment, nutrient, and chemical contaminant analysis, rain fall, temperature, salinity, pH, dissolved oxygen, turbidity, suspended solids, fecal coliforms, and coral demographics

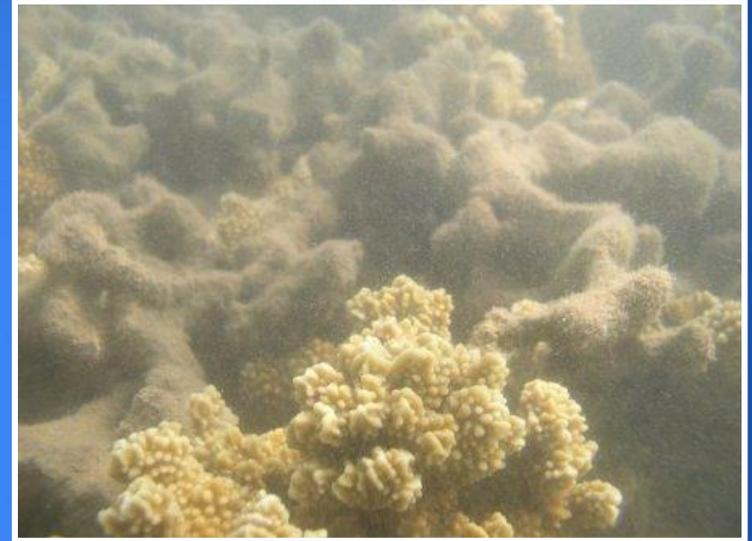


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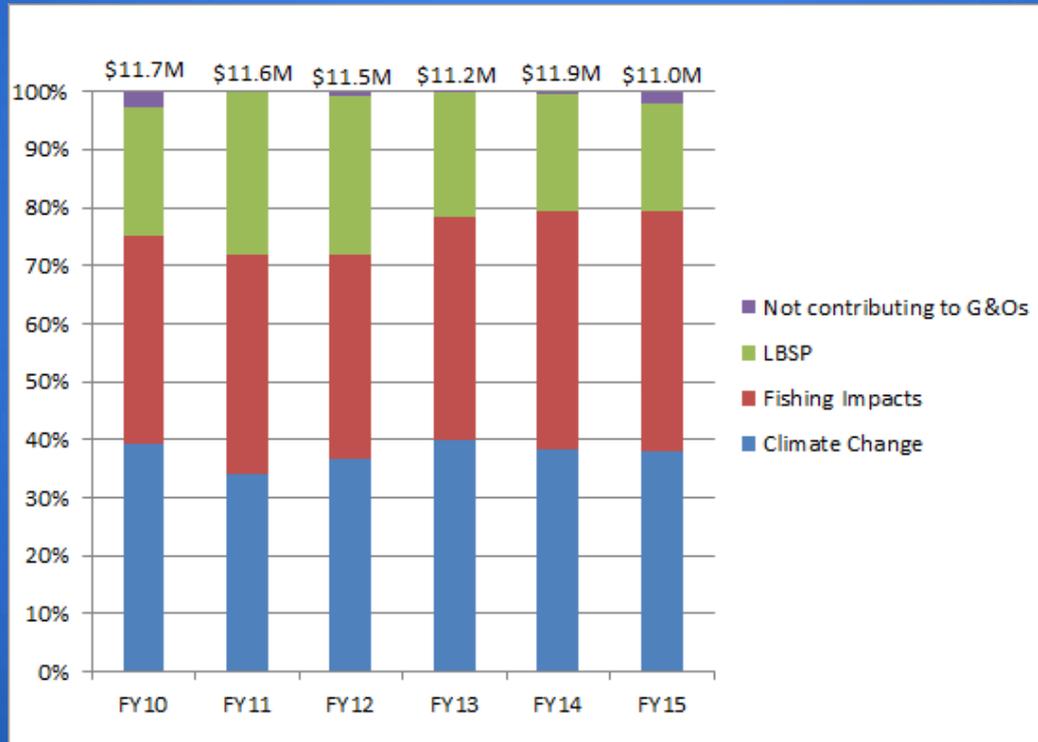
## Uses

- Identifies pollutant hotspots.
- Assesses the efficacy of installed BMPs
- Fills science data gaps to inform WMPs, management decisions, and policies.





# Internal Assessment Results



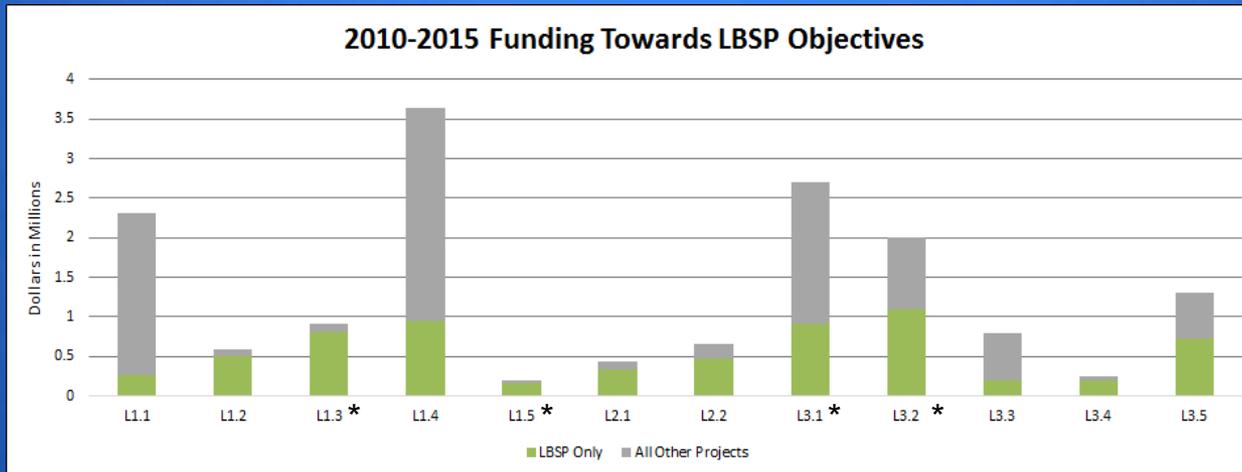
- From FY10-15, investments contributing to addressing LBSP impacts averaged \$2.6M annually, which was 23% of investments analyzed



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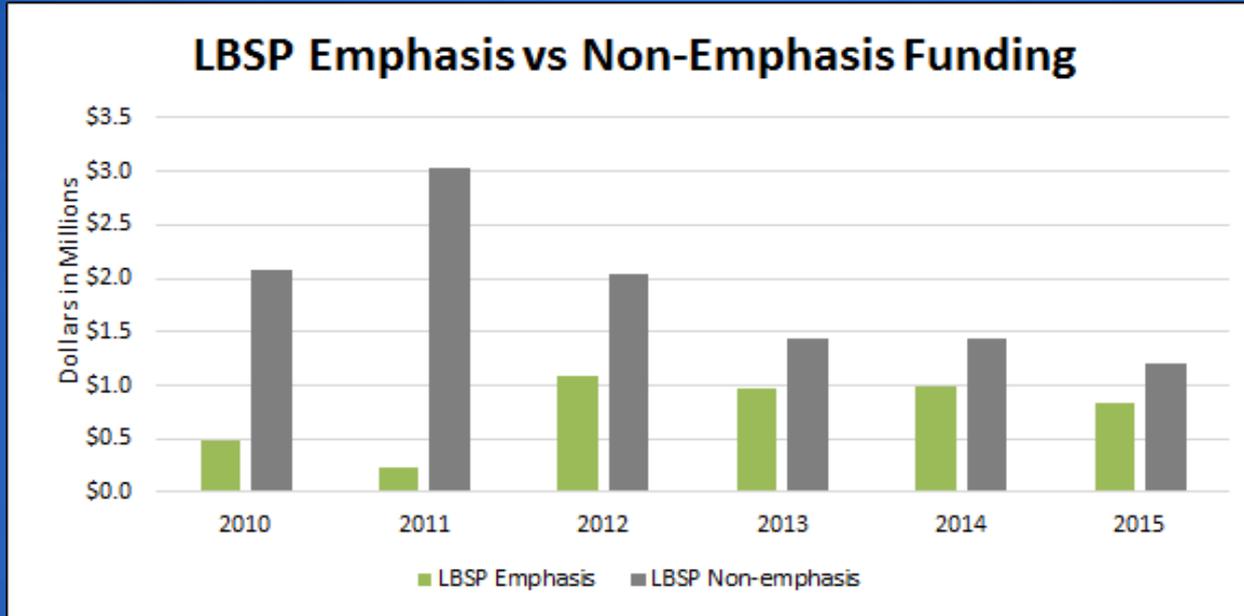
- Largest investments were directed towards filling science gaps to inform management decisions (L1.4, \$3.6M), developing jurisdictional capacity to develop and implement WMPs (L3.1, \$2.7M)\*, and prioritizing coral reef ecosystems and associated watersheds (L1.1, \$2.3M)
- Significant contributions also focused on building partnerships among local, state, federal, and NGOs



\*Objectives of Emphasis per the LBSP Impacts Implementation Plan



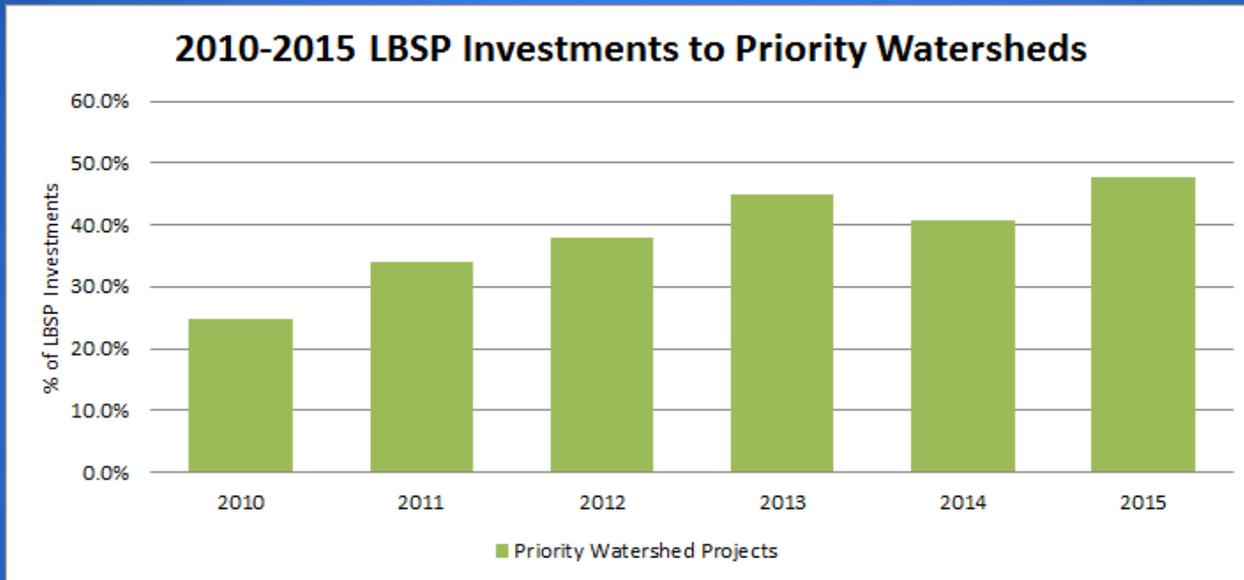
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- Improved alignment between funding investments and objectives of emphasis in FY10 & FY15
- 201 LBSP funded between 2010 to 2015. 153 projects addressed both the objectives of emphasis and other objectives while 48 projects solely addressed non-emphasized objectives.



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- Steady increase in funding to the priority watersheds during 2010-2015 (range from 24.9% in 2010 to 47.8% in 2015)
- Sustained funding directed the US Coral Reef Task Force Watershed Partnership Initiative sites: Guánica, Puerto Rico; West Maui, Hawaii; and Faga'alu, American Samoa



## Lessons Learned

- Broad objectives lacking measurable targets and/or specific, associated performance measures greatly hindered the internal assessment
- Spatial scale of watersheds and types of LBSP threats were not determinant factors in selecting the jurisdictions' priority areas. Led to selecting priority areas that are comprised of multiple watersheds, range in size, are hydrologically complex, and are impacted by threats that fall outside of NOAA's purview.
- Matching up the timing of projects with management processes to utilize the data and information is extremely challenging.
- Performance measures L1 PM3 and L2 PM1 have not been turned on by the program which makes it difficult to assess the efficacy of program investments towards reducing sediment loads and restoring priority coral reef sites.



# Managers' Survey Results

- ❖ Water quality data was one of the lowest rated categories in terms in terms of “satisfaction”, “meeting needs”, and “ease of access” and “satisfaction with documentation”.
  
- ❖ Comments on needed improvements:
  - Collect data (i.e., nitrate, nitrite, phosphate, and suspended solids) at watershed level.
  - Link national status and trends to local water quality programs