



NOAA CORAL REEF CONSERVATION PROGRAM



Fishing Impacts Overview



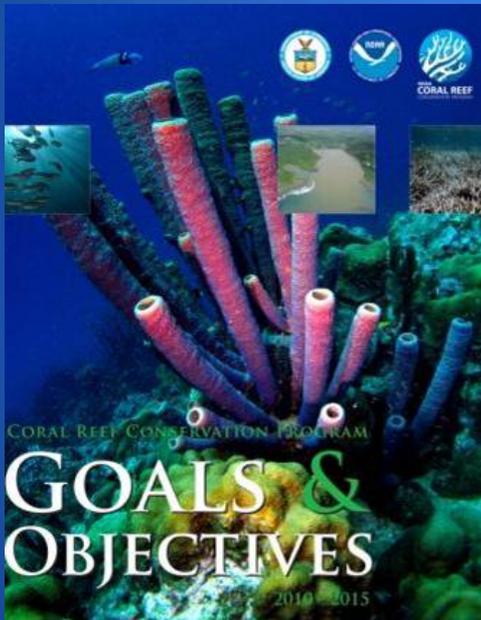
Tauna Rankin
August 25, 2016



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Fishing Impacts: 4 Goals, 19 Objectives



- 1) Increase abundance and average size of key fishery species.
- 2) Support effective implementation and management of MPAs.
- 3) Increase stakeholder engagement and capacity to improve compliance and enforcement.
- 4) Increase public and policy maker understanding of fishing impacts and support for effective management options.



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Performance Measures

- F1 PM1: Stable or increasing biomass (g/m^2) of key taxa in areas outside of Marine Protected Areas (MPAs)
- F2 PM1: Stable or increasing biomass (g/m^2) of key taxa in MPAs
- F2 PM2: Increase in management effectiveness of priority coral reef MPAs, measured using the CRCP MPA Management Assessment Checklist
- F2 PM3: Number of acres of coral reefs effectively conserved within designated MPAs (GPRA)
- F3 PM1: Percent of jurisdictional residents who have observed non-compliance with local fisheries management regulations
- F4 PM1: Percent of jurisdictional residents who support management approaches including MPAs that reduce fishing impacts to coral reefs





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Implementation Plan

- Finalized April 2013
- Narrowed internal, Program focus from 19 objectives to 4, considering:
 - *Greatest needs for addressing fishing impacts at the jurisdictional and regional scale*
 - *Where NOAA has technical capacity and can be most effective*
- Summarized progress to date and outlined next steps





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Objectives of Emphasis

- F1.3: Obtain life history and ecological information on key species/functional groups
- F1.4: Obtain necessary fishing effort information
- F2.1: Identify, characterize, and rank areas for protection
- F2.5: Conduct biological & socioeconomic research & monitoring to assess MPA performance





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Types of Data: Fish population demographics



- E.g. abundance, density, biomass, diversity/richness
- Via diver visual surveys, ROV surveys, stereo video, active acoustics



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Types of Data: Life history & ecological



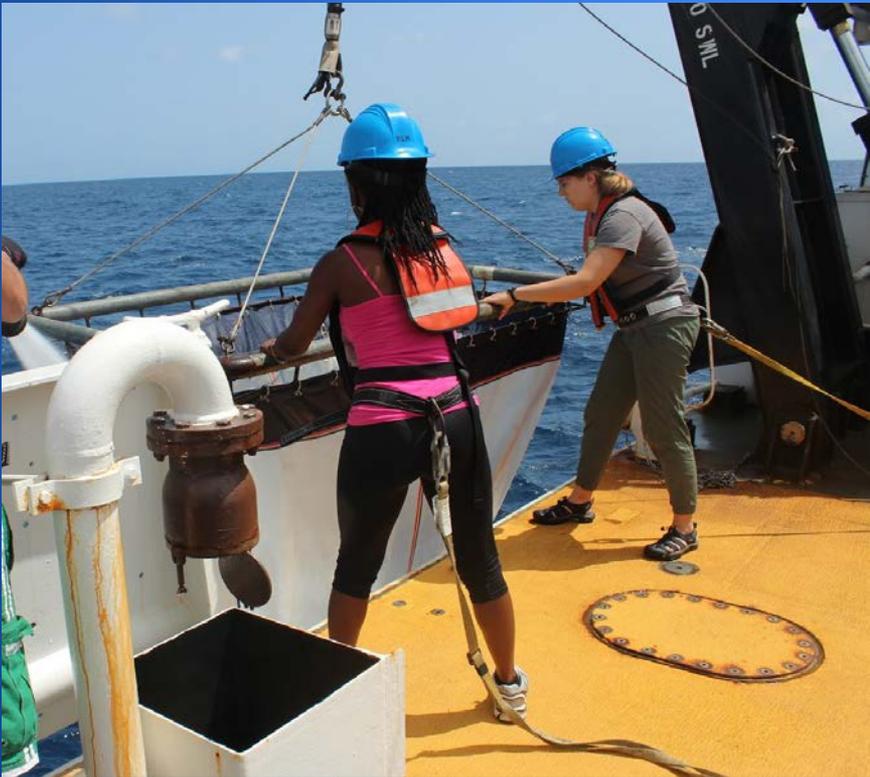
- E.g. age and growth, feeding preferences and behaviors, spawning behaviors
- Otoliths, gonads, behavioral observations, passive acoustics



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Types of Data: Movement, transport, connectivity



- E.g. larval fish distribution, current profiles, residence times, habitat utilization patterns
- Ichthyoplankton sampling, CTDs, acoustic tracking, mark-and-recapture



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Types of Data: Socioeconomic & fisheries dependent

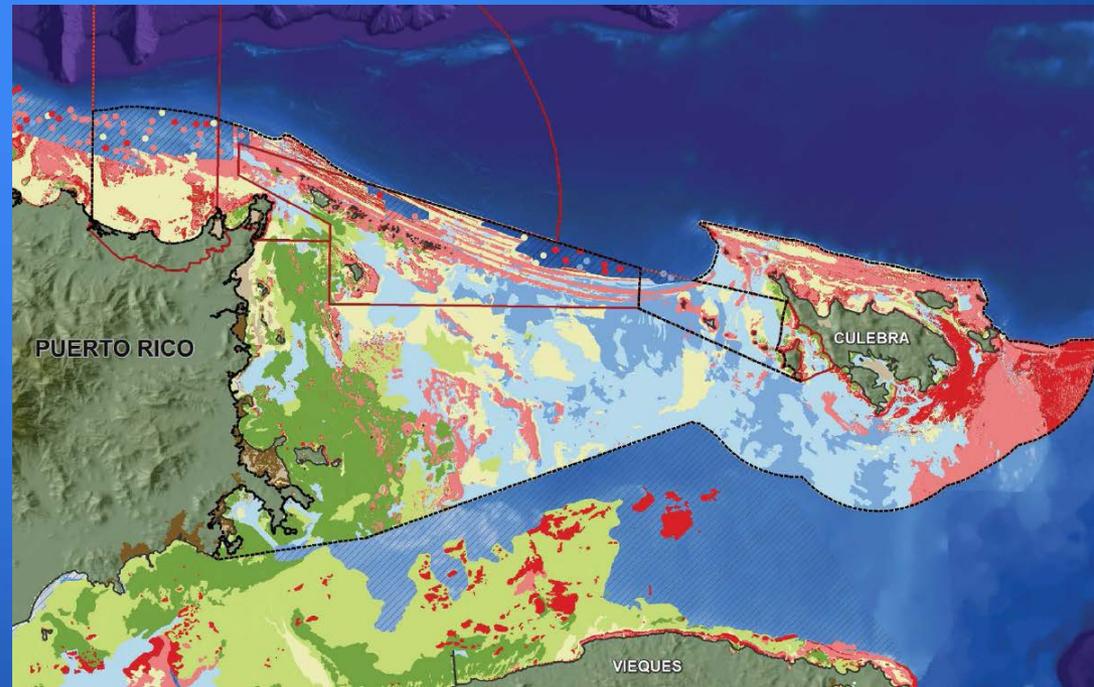


- E.g. Human uses, knowledge attitudes and perceptions, catch, effort, target species
- Household surveys, intercept surveys, creel surveys, participatory mapping



Types of Data: Other

- E.g. mapping layers, benthic communities/ condition, ecosystem modeling
- Uses: statistical design, indirect effects, ecosystem interactions



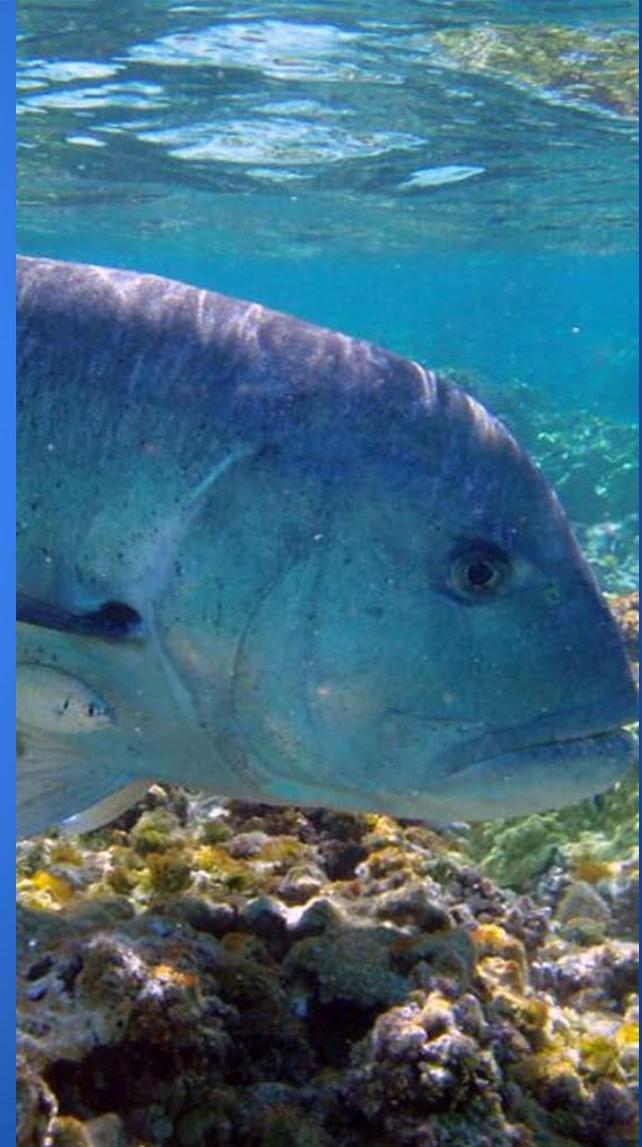


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Objectives of Emphasis

- F1.3: Obtain life history and ecological information on key species/functional groups
- F1.4: Obtain necessary fishing effort information
- F2.1: Identify, characterize, and rank areas for protection
- F2.5: Conduct MPA effectiveness research & monitoring





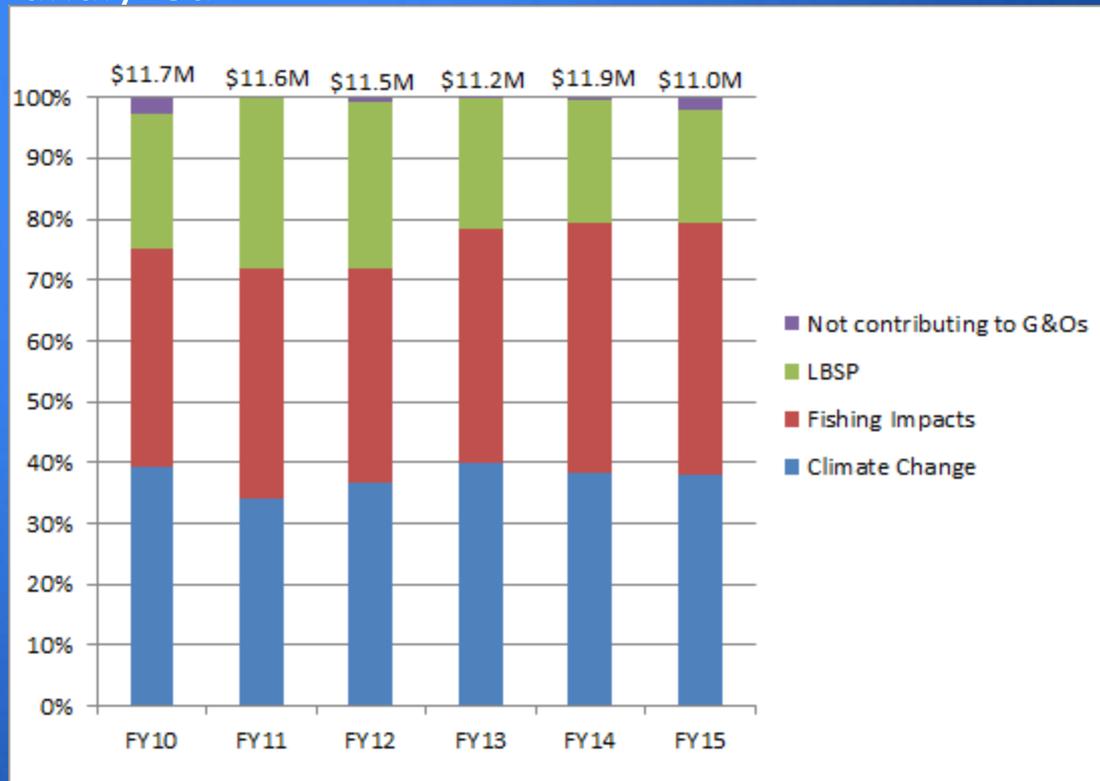
Uses/Highlights

- **Stock assessments** (federally managed fishery species)
 - *Between 2010-15, CRCP data contributed to at least 4 stock assessments in the Atlantic/Caribbean and 19 species in Hawaii*
- **Essential Fish Habitat reviews**
 - *South Atlantic & Gulf – 2011; Caribbean - 2012*
- **ESA Status reviews**
 - *E.g. goliath & Nassau grouper*
- **State/territorial regulations/rule making**
 - *E.g. new bag and size limits for parrotfish and goatfish on Maui*
- **MPA management plans and zoning**
 - *CRCP supported biological baseline and performance assessments for at least 13 MPAs*



Internal Assessment Results

- From FY10-15, investments contributing to addressing fishing impacts estimated ~\$4.2-\$4.8M annually
- 35-41% of investments analyzed

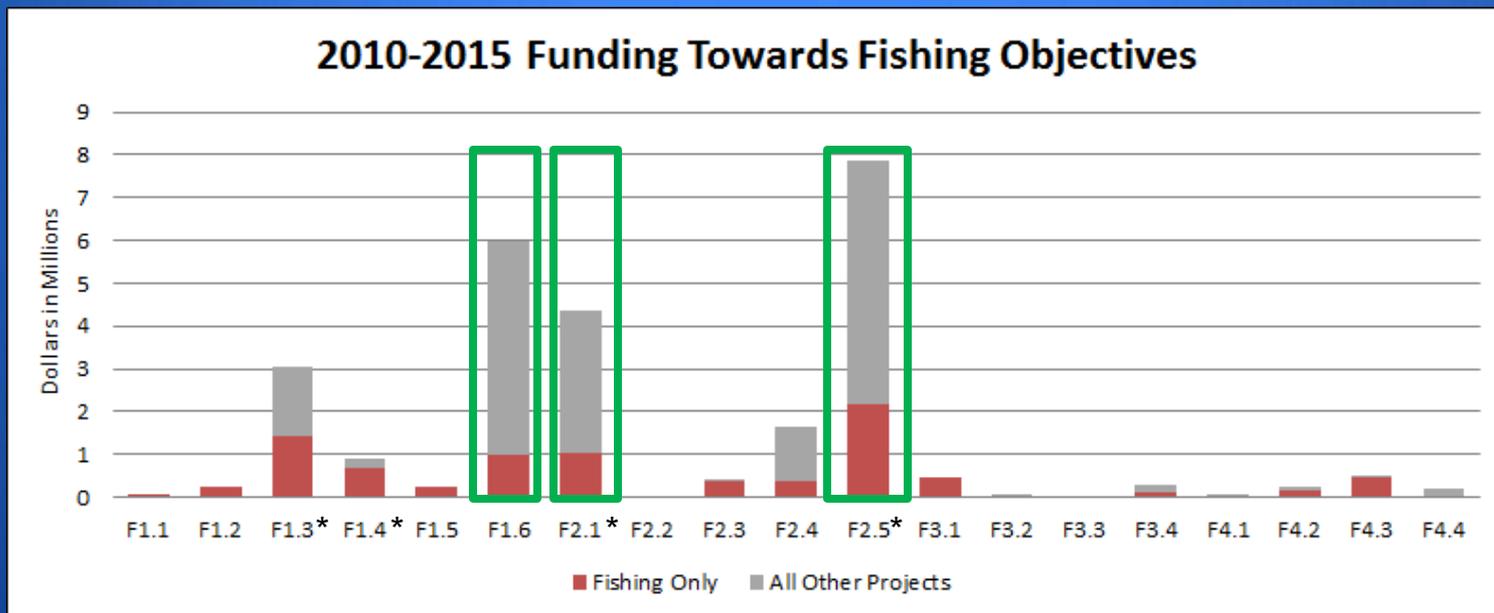




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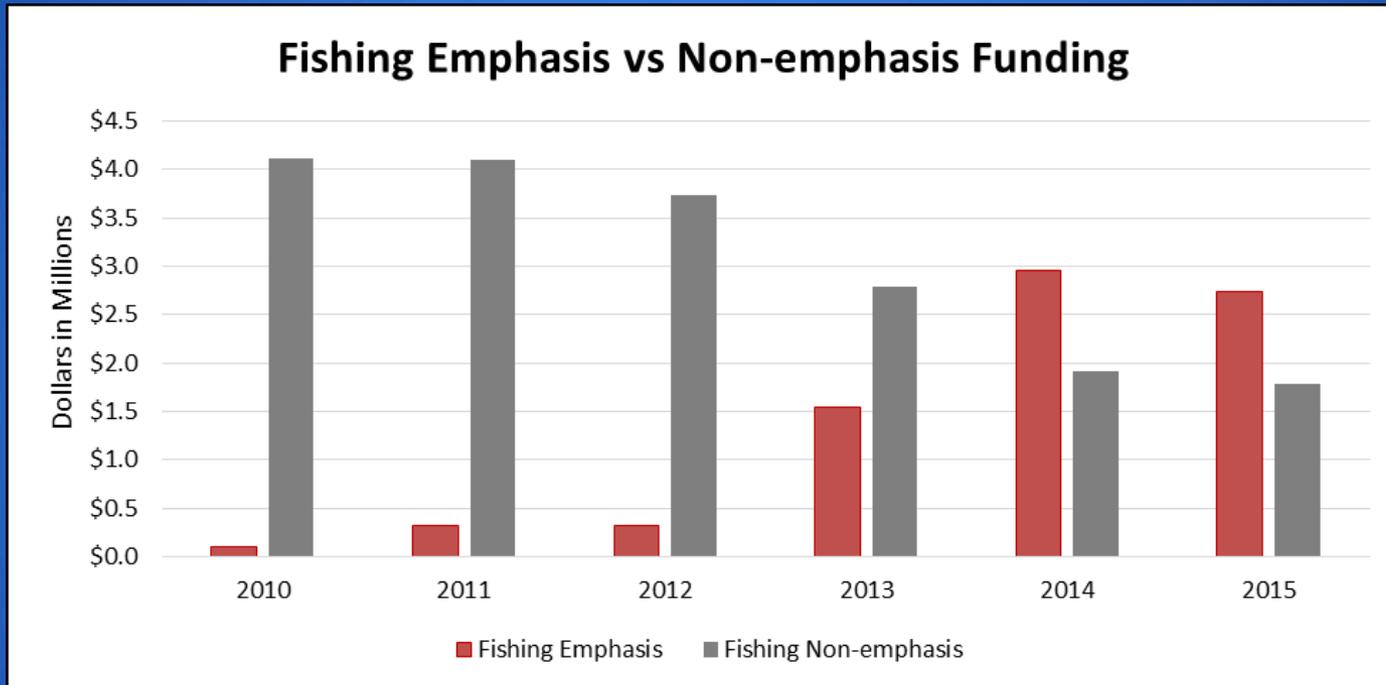
- Largest investments in:
 - MPA effectiveness monitoring (F2.5)*,
 - identifying candidate areas for protection (F2.1)*, and
 - other fisheries management effectiveness monitoring (F1.6)
- Significant contributions from mapping and national monitoring investments



*Objectives of Emphasis per the Fishing Impacts Implementation Plan



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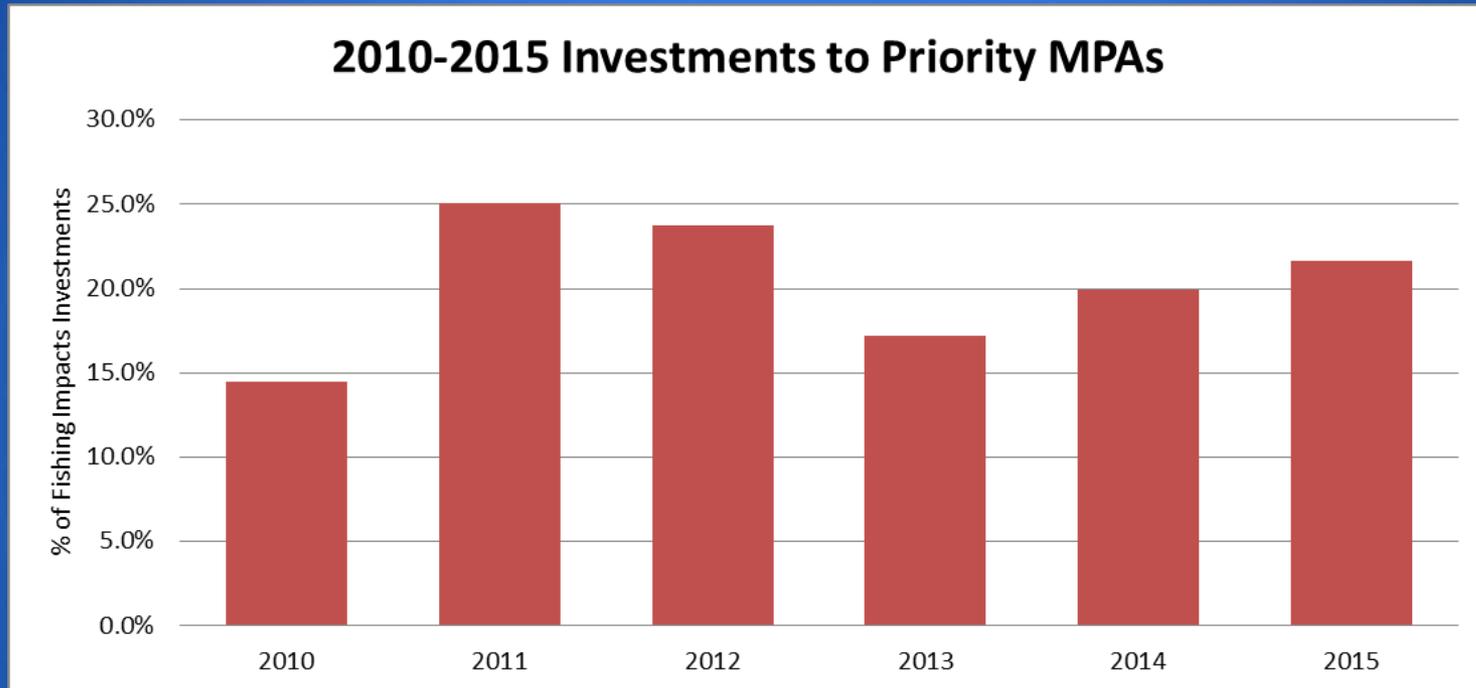
➤ Dramatic shift in funding investments to objectives of emphasis in FY14 & FY15

➤ *Prior to FY14, objectives of emphasis shifted annually*

➤ *Improving MPA management was a focus of requests for proposals from FY11-13*



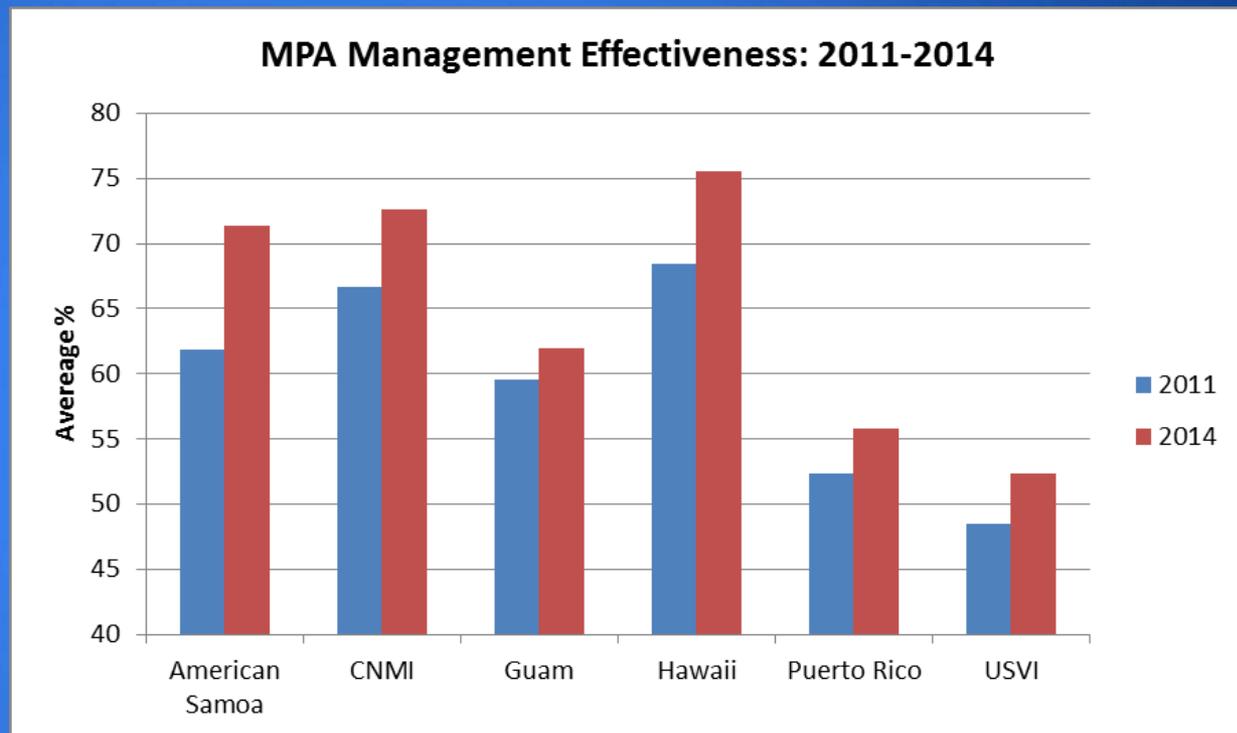
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- ~15-25% of fishing impacts investments supported priority MPAs
 - *Not including broad-scale/NCRMP monitoring*
 - *Not all MPAs have fishing restrictions*



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➤ ~18/20 priority MPAs improved in management capacity since 2011

➤ ~5% improvement across MPAs

➤ Performance measure F2 PM2 met

➤ Improvement in all jurisdictions



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Lessons Learned

- Broad objectives lacking measurable targets and/or specific, associated performance measures greatly hindered this assessment
- Management partner (e.g. fishery management council) involvement was key to the success of most projects.
- Matching up the timing of projects with management processes to utilize the data and information is extremely challenging.
- Both federal and state management partners are requesting more, short and easily digestible products that summarize key results and can be used to communicate them with policy makers and the public.





Managers' Survey

- ❖ Fish/fishery species population & life history data rated among top 5 most important data types
- ❖ Fish/fishery species life history data also received among the largest number of dissatisfied responses
- ❖ Comments on needed improvements:
 - *Life history information missing for numerous species*
 - *Higher spatial/temporal resolution needed for monitoring*
 - *Some local monitoring programs have been scaled back to allow for NCRMP*





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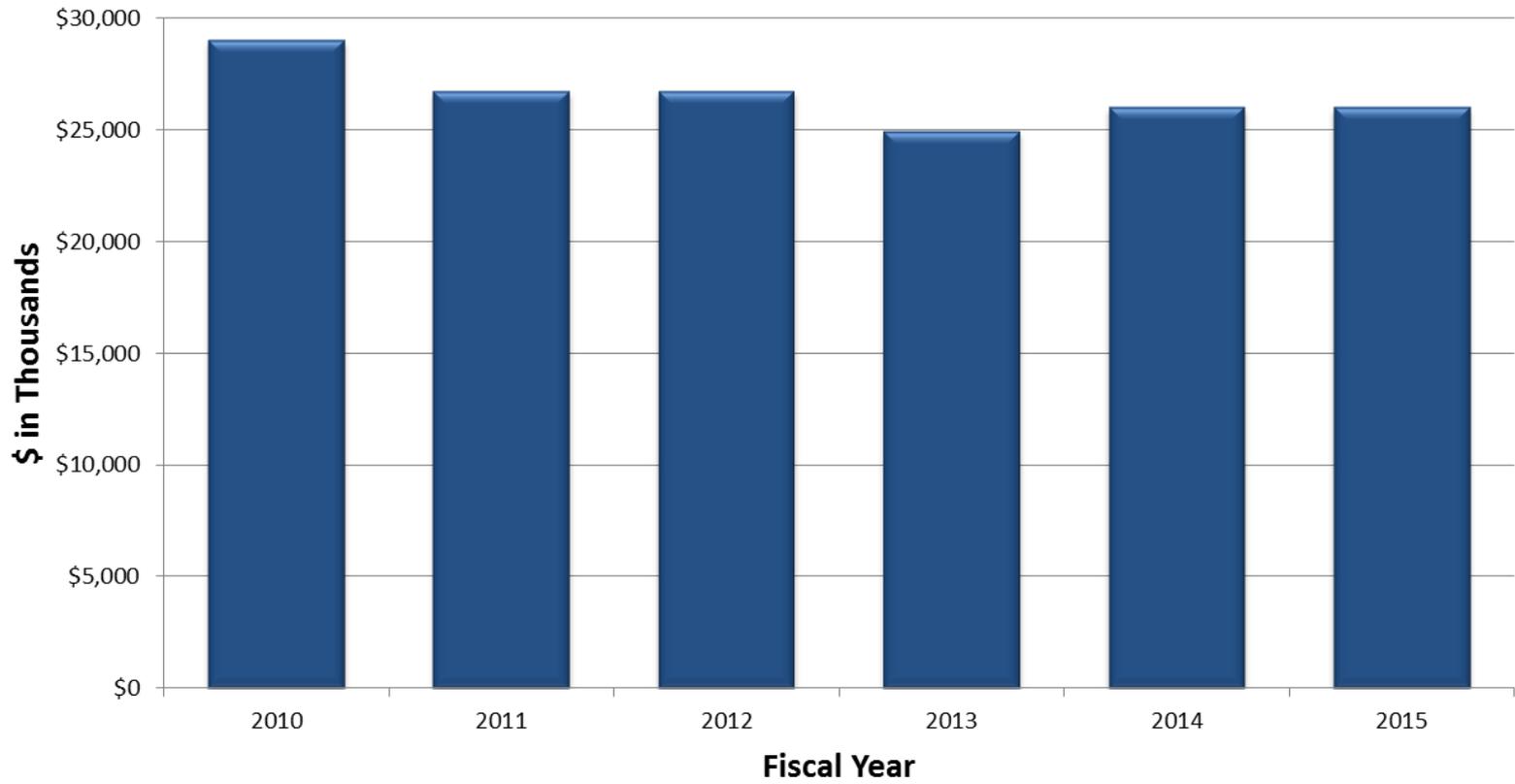


Framing Questions

- ❖ Do our coral reef fisheries science activities meet critical fisheries management needs?
- ❖ Has CRCP struck the right balance between long-term status and trends and short-term assessments and data collection?
- ❖ Are there appropriate shifts in investment from existing activities to unmet needs?
- ❖ Are there better ways to coordinate amongst overlapping programs or mandates?



Coral Program Appropriations 2010-15



Example Budget Break-out

