

**Cost Benefit Analysis
Wet Weather TMDL For the
San Diego Region**

Background

- **San Diego Region has a bacteria TMDL for 22 beach and creek waterbodies during both dry and wet weather**
- **Most waterbodies meet Receiving Water Limitations in dry weather**
 - **Wet weather, most do not**
- **San Diego Region used a reference system approach for setting TMDL targets**
 - **Still not attaining during wet weather**

SCCWRP Conducts an Epidemiology Study

- **Wet weather exposure resulted in a greater risk of illness than dry weather or not surfing**
- **The level of illness is below the EPA's guidelines for risk**
 - **San Diego: 12 excess Gastrointestinal illnesses per 1,000 exposures**
 - **EPA: 32 excess Gastrointestinal illnesses per 1,000 exposures**
- **This is the first time anyone has had the information to create "time-specific" objectives based on risk**
- **What is the cost of compliance vs the benefit of decreased risk?**

Cost Benefit Analysis

- **Goal is to improve the cost efficiency of efforts to ensure the region's beaches and creeks are safe for recreation**
- **Examines not only the costs for bacteria compliance, but also the benefits**
- **Evaluated 14 different potential scenarios for achieving compliance**

Costs and Benefits

Costs

- Programmatic costs
- Capitol Costs
- Operations and maintenance costs

Benefits

- Public Health
- Recreation
- Co-benefits

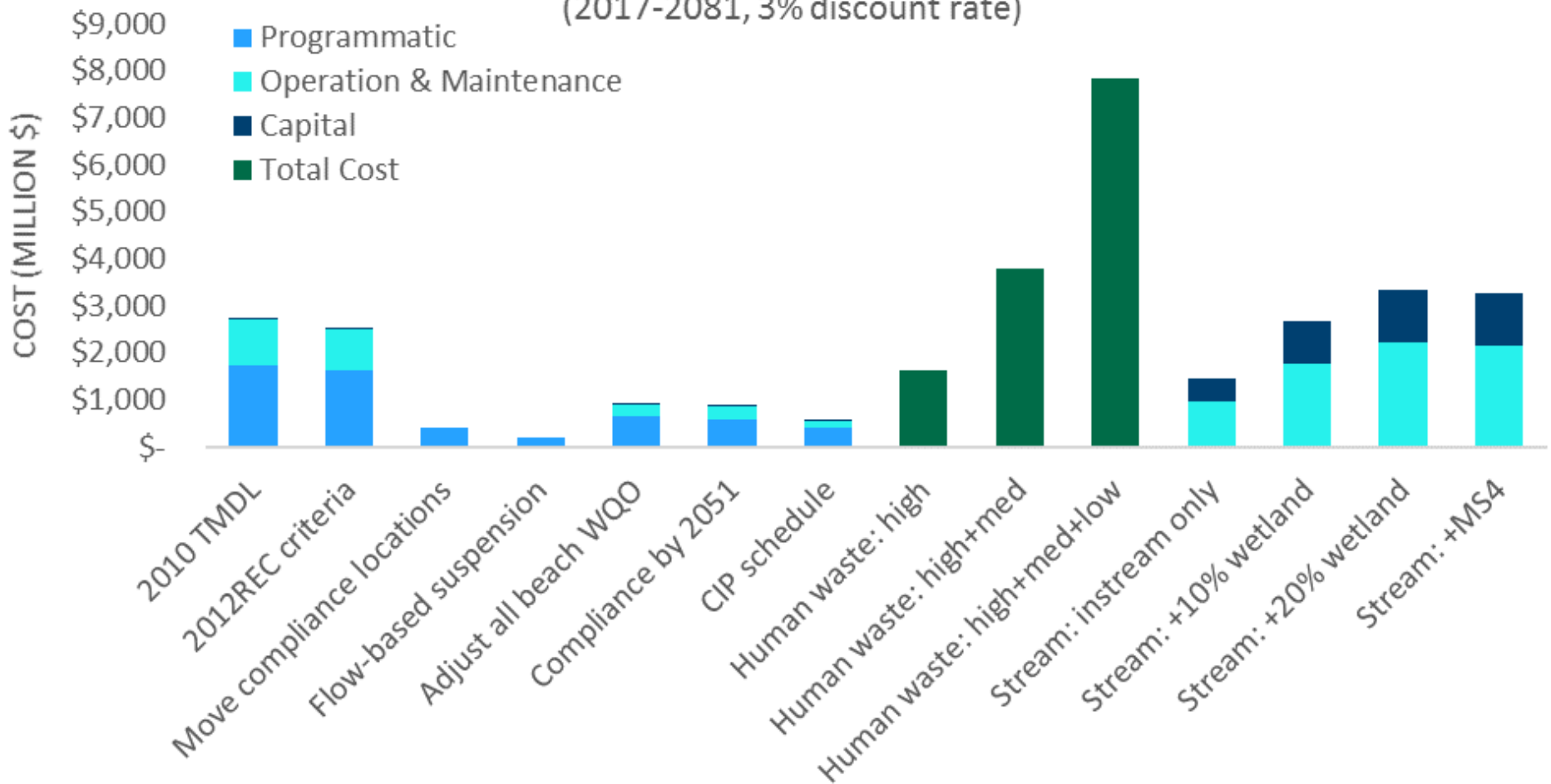
Scenarios

- **Human sources (3)**
- **Stormwater sources (5)**
- **Change compliance schedule (2)**
- **Stream restoration (4)**

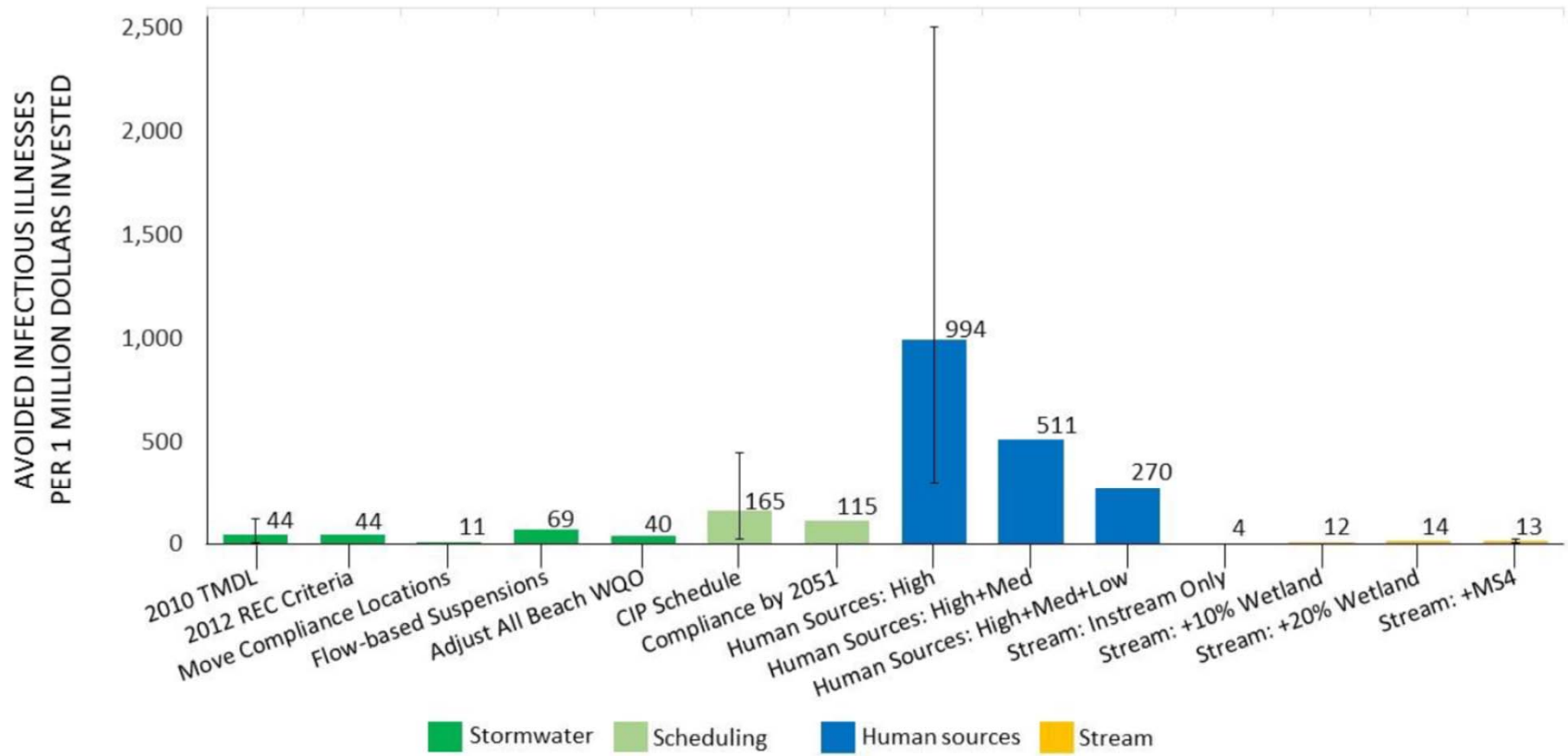
The Conclusions

- **Costs are greater than benefits for all scenarios**
- **The greatest cost efficiencies are for treating human sources**
 - **Stream restoration was the least efficient**
- **Uncertainty analysis doesn't much change the conclusion**

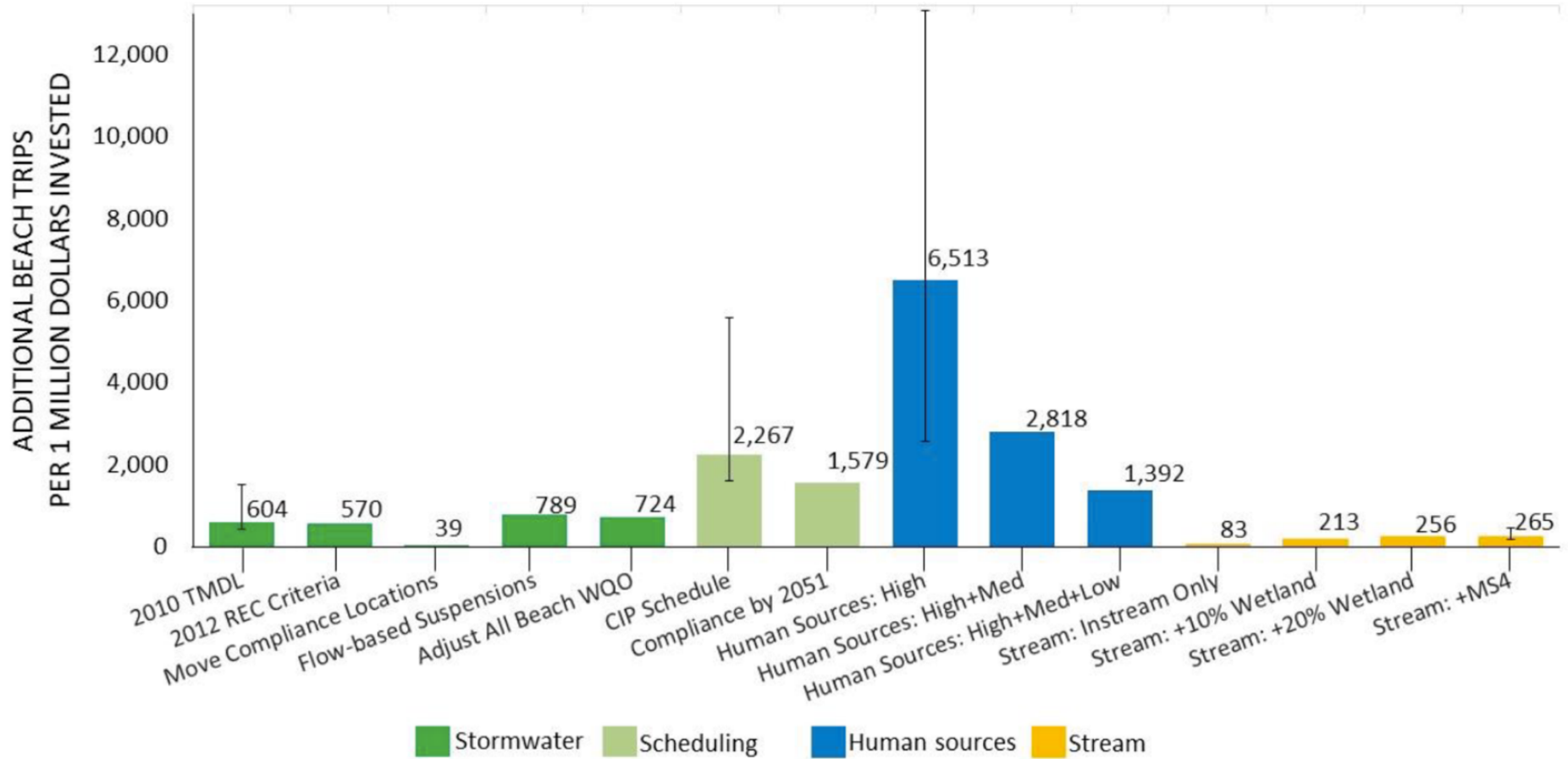
COSTS BY CATEGORY (2017-2081, 3% discount rate)



PUBLIC HEALTH COST-EFFECTIVENESS



RECREATION COST-EFFECTIVENESS



Financial Capability Analysis

		MEDIAN HOUSEHOLD INCOME	COST PER HOUSEHOLD	RESIDENTIAL INDICATOR SCORE	LEVEL OF BURDEN
Current Services					
	Stormwater and Wastewater	\$66,100	\$2,660	4.02%	High
Additional Services					
	Bacteria TMDL	\$66,100	\$391	0.590%	N/A
	Trash Amendment	\$66,100	\$18.50	0.030%	N/A
Current + Additional Services		\$66,100	\$3,070	4.63%	High

The CBA Development Process

- **RWQCB formed a steering committee to provide guidance and oversight**
 - **City and Counties, Advocacy Groups**
- **Contractors applied EPA-approved cost-benefit methods**
 - **Based upon watershed models used in the TMDL**
- **Utilized a Technical Advisory Committee**

SCCWRP's Role

- **Provided background information on benefits**
- **Provided background information on revised water quality objective**
- **Chaired the Technical Advisory Committee**
 - **One expert each: wastewater, stormwater, public health, economics, and water quality**

What's Next?

- **A public workshop was held in August**
- **Both the Epi Study and the CBA will be used in the TMDL and Basin Plan Updates**
 - **The regulated parties have not proposed changes to the RWQCB**
- **Pursuing follow-up studies to quantify human sources in wet weather**