

California MLPA Initiative  
July Blue Ribbon Task Force

# Understanding the Economic Impacts and Values of Marine Protected Areas

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for the Science Advisory Team

# Economics and the MLPA: Goals

(2) To help sustain, conserve, and protect marine life populations, including those of **ECONOMIC VALUE**, and rebuild those that are depleted.

# Economics and the MLPA: 2855 Master Plan

(c) The department and team, in carrying out this chapter, shall take into account ...

(2) SOCIOECONOMIC and environmental IMPACTS of various alternatives

# Outline

- What are the economic uses of marine ecosystem goods and services?
- Where do they occur?
- What is the baseline information?
- How are economic impacts and values affected by MPAs?

# Understanding Economic Uses:

Goods and Services



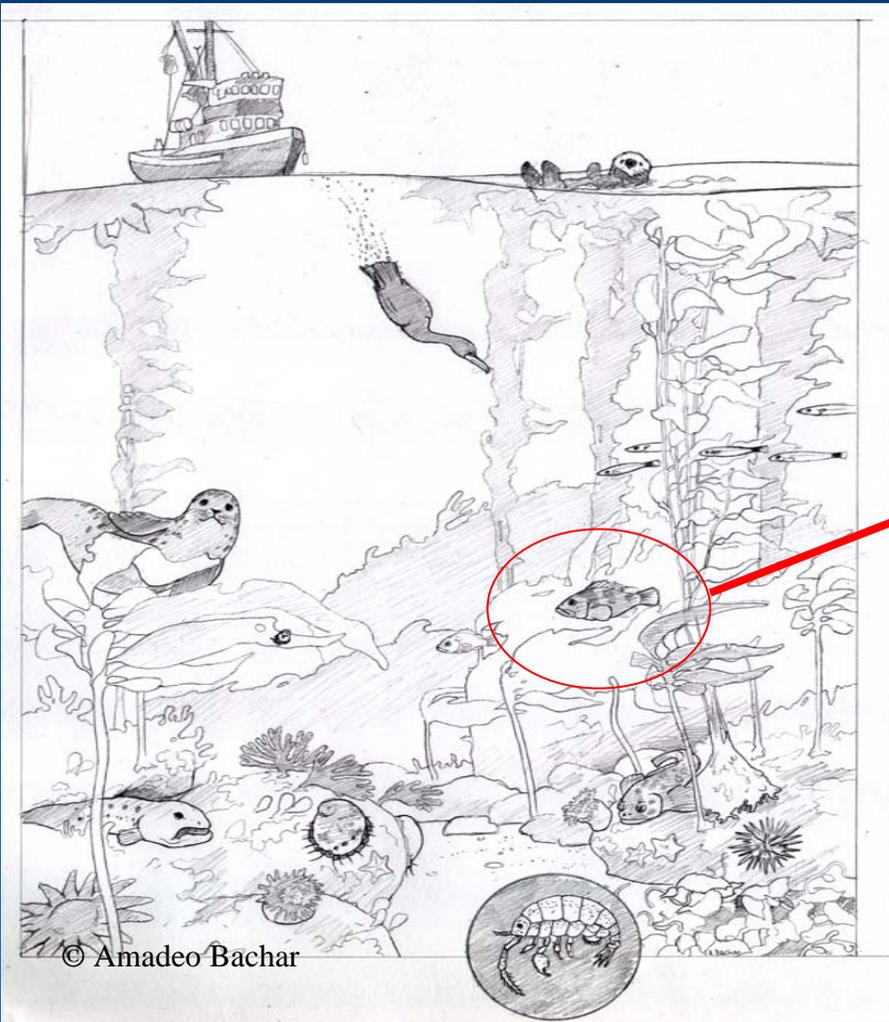
Uses and Users



Economic Impacts and Values

# Understanding Uses: Fish

Goods and Services → Uses and Users



## DIRECT

Commercial Fishing  
Recreational Fishing  
SCUBA Diving  
Science & Research  
Education  
Wildlife Viewing

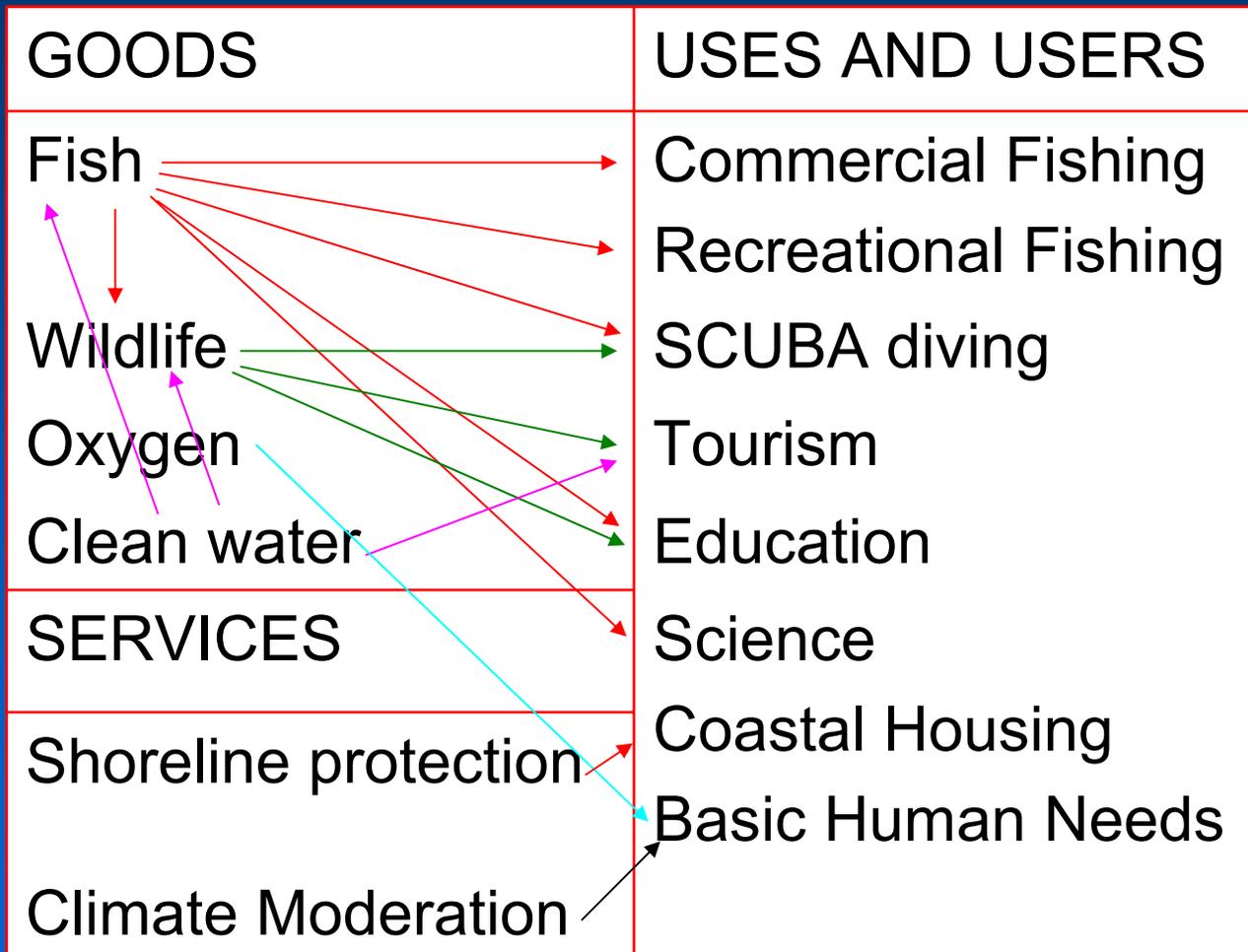
## INDIRECT

Food for other wildlife

# Understanding Uses

GOODS	USES AND USERS
Fish	Commercial Fishing Recreational Fishing
Wildlife	SCUBA diving
Oxygen	Tourism
Clean water	Education
SERVICES	Science
Shoreline protection	Coastal Housing Basic Human Needs
Climate Moderation	

# Understanding Uses: multi-dimensional



# Uses Strongly Reflected in Markets



Aquaria, Aquaculture, Commercial fishing,  
Diving and Dive charters, Marina services,  
Recreational fishing (CPFV and private),  
Tourism,



# Uses Not Completely Reflected in Markets

Examples:



1) Partially Reflected: Boating, Diving, Recreational (subsistence) fishing,

2) Poorly Reflected: Wildlife viewing, Surfing, Swimming



Economic Impacts  
≠  
Economic Value

and

Value (Economics)  
≠  
Value (English)

# Economic Impacts

- Use gross receipts to calculate:
  - Jobs
  - Wages
  - Taxes

Commercial Uses: Gross Revenues

Non-market Uses: Gross  
Expenditures/Revenues

# Economic Value

- Contribution of Activity to Society
- Value Beyond Costs (which represent how inputs could be used elsewhere)
- Commercial ~ Profits (Net Revenues)
- Non-market ~ Value Beyond Price Paid  
(Consumer Surplus)

# Economic Value vs. Gross Values

## Examples:

### Commercial Fishing in the Channel Islands

Gross revenues = \$37 million

Net Revenues ~ \$8 million

### Tourism in the Florida Keys

Gross Revenues = \$1.5 billion

Net Revenues = \$300 million



# Examples of Non-Market Values

Diving at An Artificial Reef in San Diego

\$110/person/day<sup>1</sup>

Beach Going In CA

\$2 billion/year<sup>2</sup>

Fishing in the West Coast

\$99/person/day<sup>3</sup>

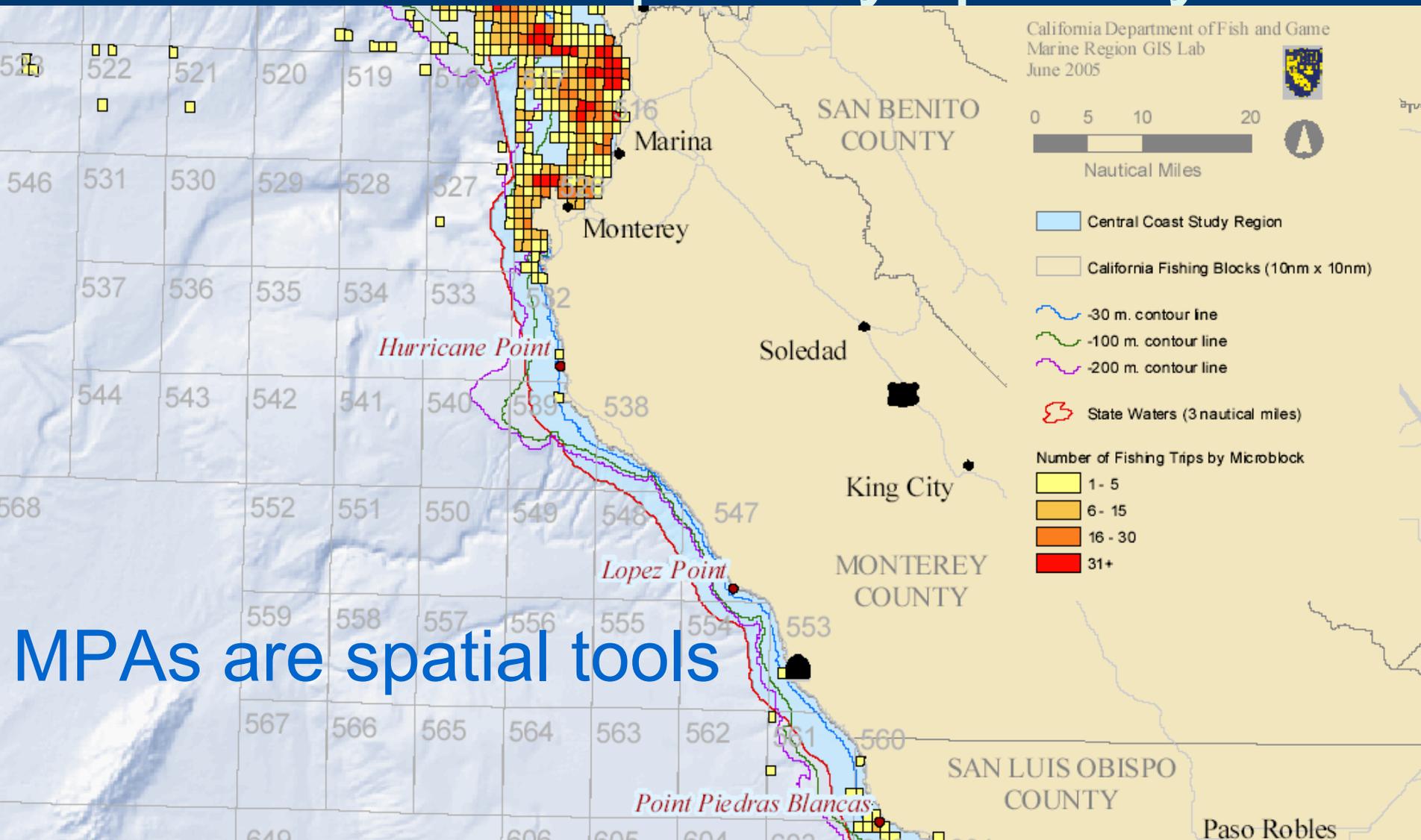
<sup>1</sup>Pendleton (2005), <sup>2</sup>Pendleton and Kildow (2005), <sup>3</sup>Bell 1984



# Why Is Economic Value Important?

- For Commercial Fishing Imagine
  - Gross Revenues Unchanged
  - Costs Rise
- Has fishery suffered economic hardship?
  - Gross Revenue Approach – NO
  - Economic Value Approach - Yes

# Goods, Services, Uses and Users are spatially “patchy”



# Data

*What are the current uses of the site that are likely to be affected. - Master Plan Framework*

## **Step One: Understand Economic Baseline Data**

### **Spatial Use Data and Economic Data**

- Commercial Fisheries Data**
- Recreational Fishing Data**
- Non-consumptive Uses**

# Data

## ***Caveat:***

### Focus on Gross Revenues and Expenditures

- Ex-vessel values for fisheries
- Expenditures by Recreational Users
- Tourism Revenues

## ***Warning!***

*Economic Impacts*  $\neq$  *Economic Values*

# Collecting Baseline Data: Methodology

At the November Blue Ribbon Task Force  
we will discuss

- Methods for valuing market uses
- Methods for valuing non-consumptive uses
- Methods for quantifying non-economic uses

# How Do MPAs Change These Values

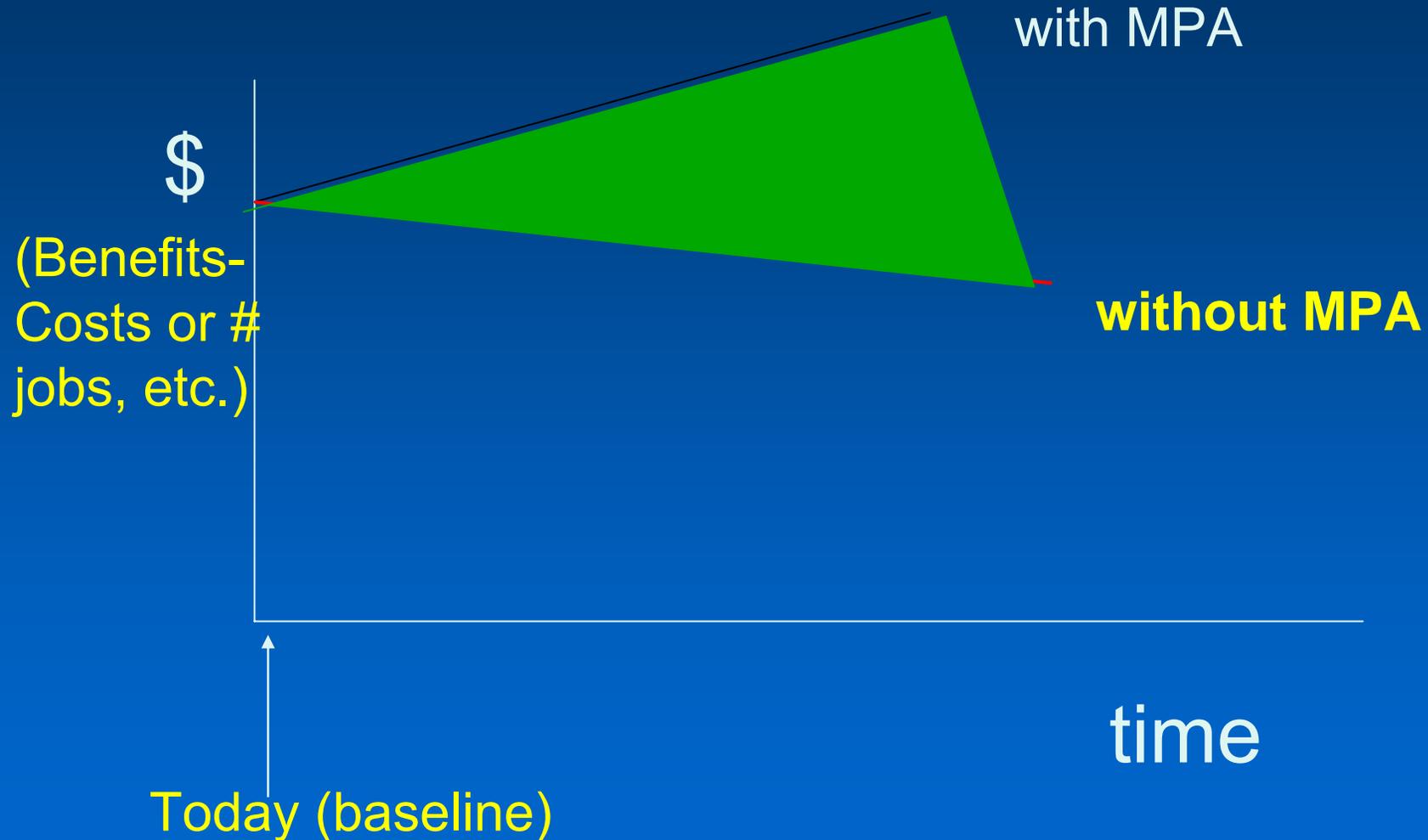
THE goals of the MPLA do not require an analysis of impacts, but the *team* is instructed to take these impacts into account.

# Value of Resource $\neq$ Value of MPA

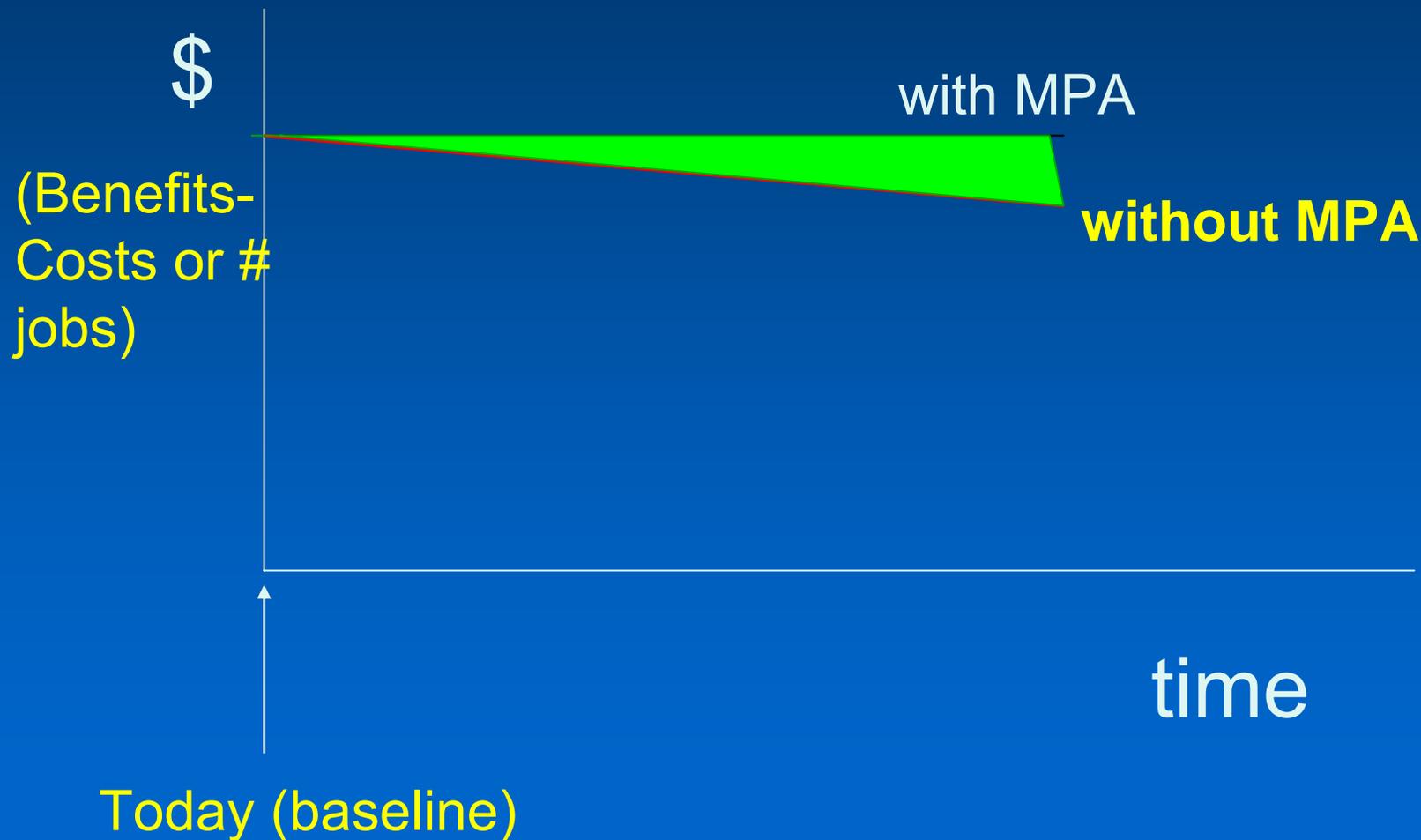
MPAs influence level of economic value and impacts.

Represent a change in the expected baseline.

# MPA Impacts: Well Designed MPA



# MPA Impacts: Moderately Effective/ Ineffective



# MPA Impacts: Things to Consider

- 1) Gross Values do not represent economic value , but an indicator of economic impacts (jobs, wages, etc.)
- 2) Net Values do not represent change unless you lose all of the ecosystem good or service.
- 3) Impact of an MPA is the difference between net value with and without and MPA.

# Potential Impacts



## Losses

### 1) COMMERCIAL FISHING

- Gross Revenues (econ. impact)
- Net Revenues (econ. value)



### 2) RECREATIONAL FISHING

- Gross Rev/Exp (econ. impact)
- Net Rev/Exp (econ. value )
- Lost non-market value (econ. value)

# Potential Impacts



## Gains

Diving, Wildlife Viewing, Science, Education, Recreational fishing

1) Change in Gross Expenditures (economic impacts)

2) Change in Net Expenditures (economic values)

3) Change in Non-market Values (economic value)



# Analyzing Alternate MPAs in Central Coast

- Potential Changes in the Gross Value of Commercial Fishing
- Potential Changes in Recreational Fishing Use
- Potential Changes in Non-consumptive User Numbers

None of these figures provide explicit estimates of economic values.

# Looking Forward

## Using Other Research

- 1) Cost and Earnings Studies for Commercial Fishing
  
- 2) Expenditure and Non-Market Values
  - National Ocean Economics Program
    - More than 70 studies of non-market marine values for the US.

# Recapping: Economics and the MLPA Initiative

## 1) WHAT'S AT STAKE

Baseline economic data indicates potential economic contribution of uses

## 2) WHAT ARE LIKELY IMPACTS?

Impacts on fishing

Spillover impacts

Economic impacts on non-consumptive *and*  
consumptive users

## 3) ADAPTIVE MANAGEMENT

Are MPAs working from an economic perspective?

What are changes in users, uses, and values?