





### **Scenarios 101**

# Envision Coastal Futures for Grays Harbor

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#### **Grays Harbor County Coastal Futures Project**



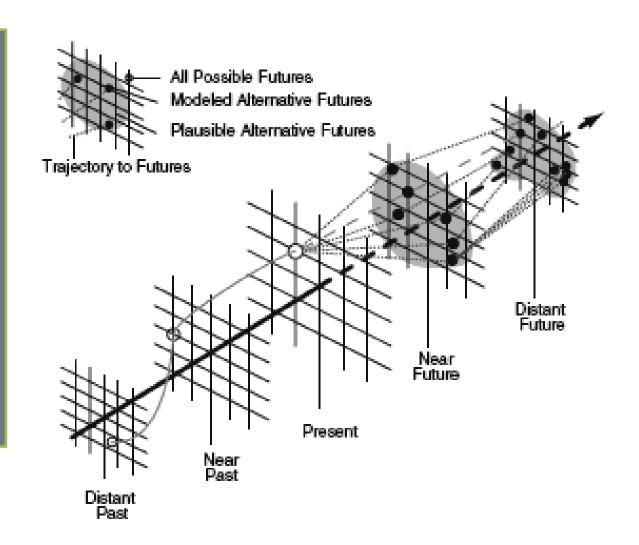




### Trajectories of Change and Alternative Futures

Scenario analysis "aims to identify the several most important issues responsive to policy and planning decisions, along with the widest range of options pertaining to these issues... A scenario is then created to reflect choices among the possible options for each policy in the set."

From Steinitz et al. 2003



### **Grays Harbor County Coastal Futures Project**









Implement Plan Identify
System,
Develop
Initial
Datasets

Develop System Models

Scientists

Stakeholders



Create

Scenarios

Develop Preferred Scenario

Evaluate Scenarios







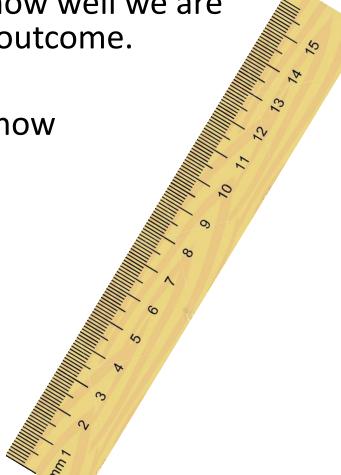
### **Endpoints**

Endpoints are metrics that measure how well we are doing at achieving some desirable outcome.

Endpoints provide a way to evaluate how well a given scenario performs

### **Examples:**

- 1) Value of Property Impacted by a hazard
- 2) Amount Habitat provided for species of concern
- 3) Amount of developable lands
- 4) Costs of hazard mitigation









### **Policies and Strategies**

Landscape policies and strategies are decisions or plans of action for accomplishing desired outcomes.

Policies and Strategies define the **rules** and **management options** that are available to landowners, decision-makers.

#### Examples:

- 1) Add BPS when erosion rates are high and structures are impacted
- 2) Restrict new development in areas that have experienced flooding more than twice in the last 10 years
- 3) Move structures to the safest site on lot when subject to frequent flooding



#### Grays Harbor County Coastal Futures Project















How complex coupled human and natural systems dynamically respond to varying management strategies and driving forces.





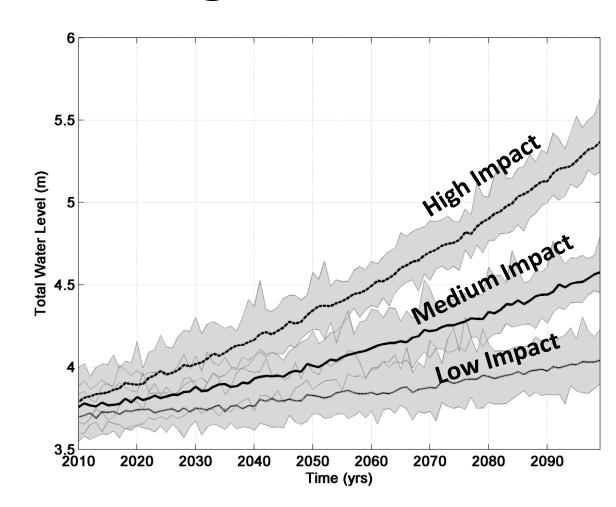


### **Climate Change Scenarios**

sea level rise

wave variability

El Niño variability









### **Co-development of Policy Scenarios**





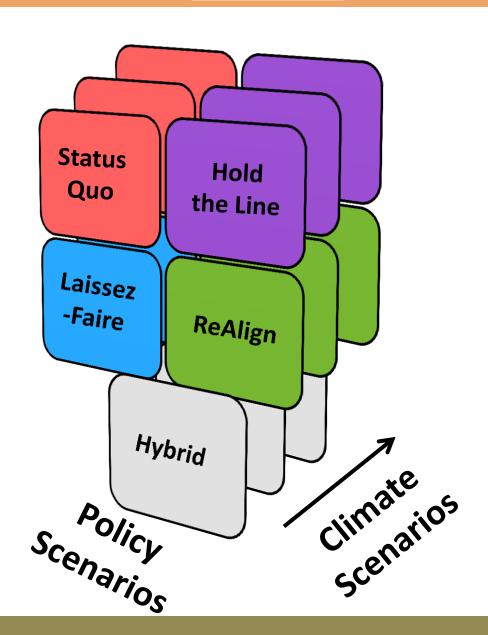




Climate Scenarios (Physical Drivers)

X

**Policy Scenarios** (Human Drivers)



## **Envision – A Modeling Platform for Scenario-Based Planning**

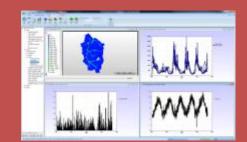


#### **Endpoints**

Landscape Metrics Reflecting "Stuff People Care About", e.g. property protection, habitat, recreation, jobs

Landscape

**Temporal GIS** 



### **Decision Models**

Actors selecting policies and generate land management decision affecting landscape pattern

#### **Visualizations**

Stakeholder Engagement and Understanding

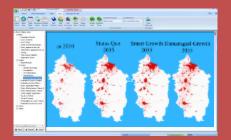
Dynamic Maps, Charts, Flyovers/ Flythroughs...

## Policies and Scenarios

(From Stakeholder Process)

### **Landscape Change Models**

Biophysical/Social/Economic Models (e.g. Climate, Hydrology, Population Growth, Veg Dynamics, Fire, ...)



### Grays Harbor County Coastal Futures Project RISA







### **Envision Grays Harbor**



Soils
Climate
Population Density Pattern
Coastal Hazards
Infrastructure
Coastal Ecosystems ...

**Actors, Policies and Scenarios** 

**Landscape Change Models** 

Population Growth

Land Use, Infrastructure development

Coastal Ecosystem Change Processes

Storm Impacts, ???

#### **Evaluative Models**

**Ecosystem Functions, Services** 

**Infrastructure Costs** 

**Community Adaptive Capacity** 

**Hazard mitigation** 

**???**