



From Covert to Overt: Bringing Adaptation Action to the Forefront in Washington Coastal Communities



Photo: NASA Visible Earth

Katrina Hoffman
Coastal Resources Specialist
Washington Sea Grant

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NEMO U7
1 October 2010



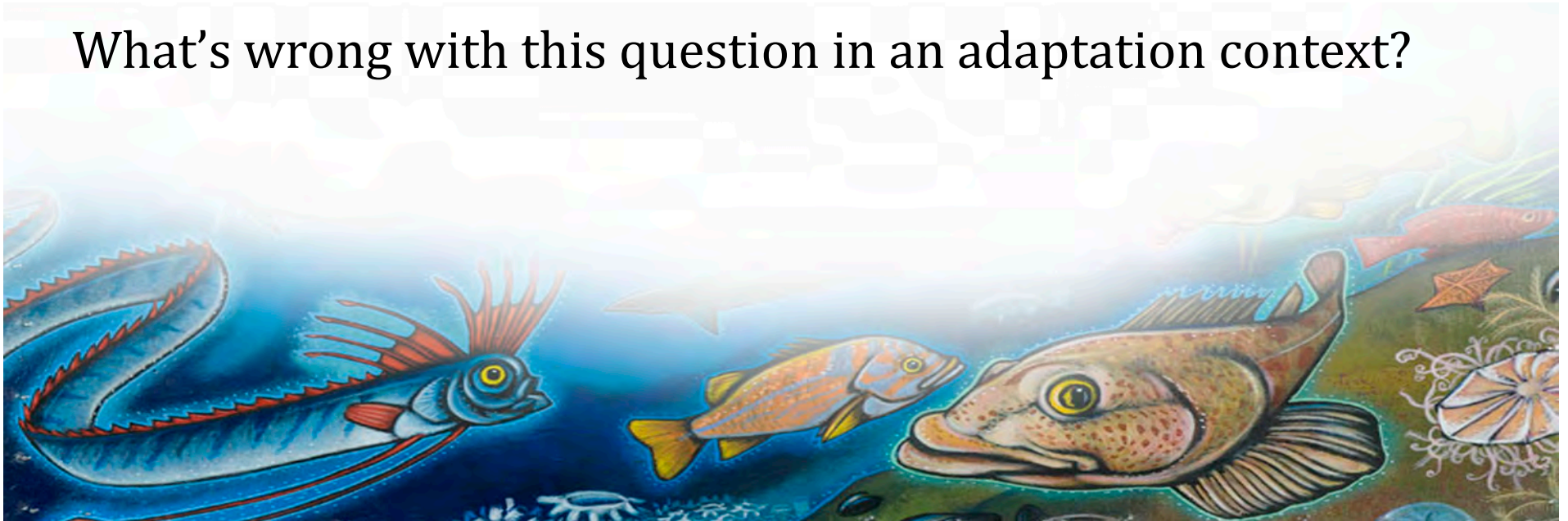
Definitions and Context

(They're important!)

Comment submitted after an **ADAPTATION** training:

“I was surprised that carbon sequestration was not discussed at all.”

What's wrong with this question in an adaptation context?



Adaptation vs. Mitigation

ADAPTATION

- “Adjustment in natural or human systems in response to actual or expected climatic changes or their impacts, so as to reduce harm or exploit beneficial opportunities.” (USAID adaptation guidebook)
- “Adaptation to climate change is vital in order to reduce the impacts of climate change that are happening now and increase resilience to future impacts.” (UNFCCC)

MITIGATION

- Taking actions to reduce greenhouse gas emissions and to enhance sinks aimed at reducing the extent of global warming. (IPCC Glossary Working Group III)

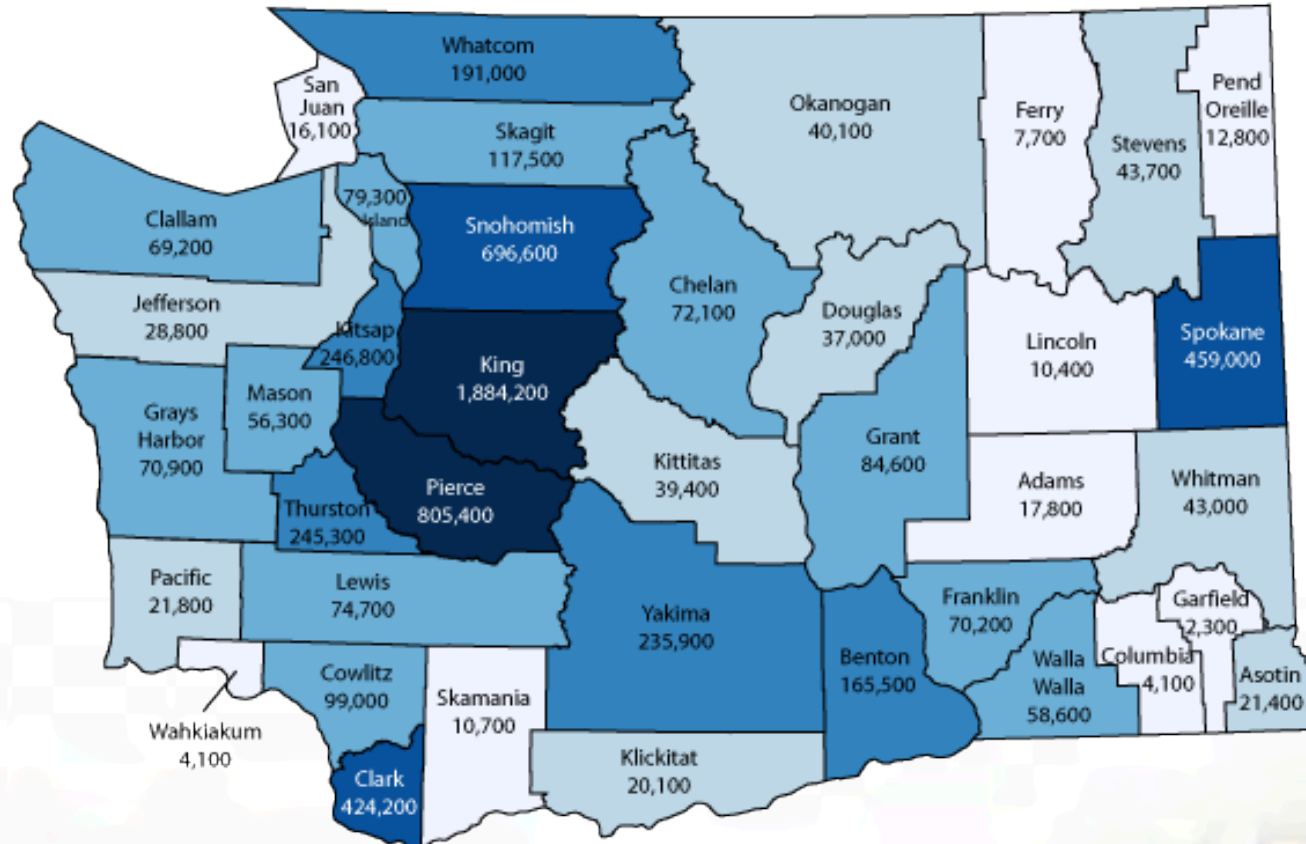


In a nutshell...

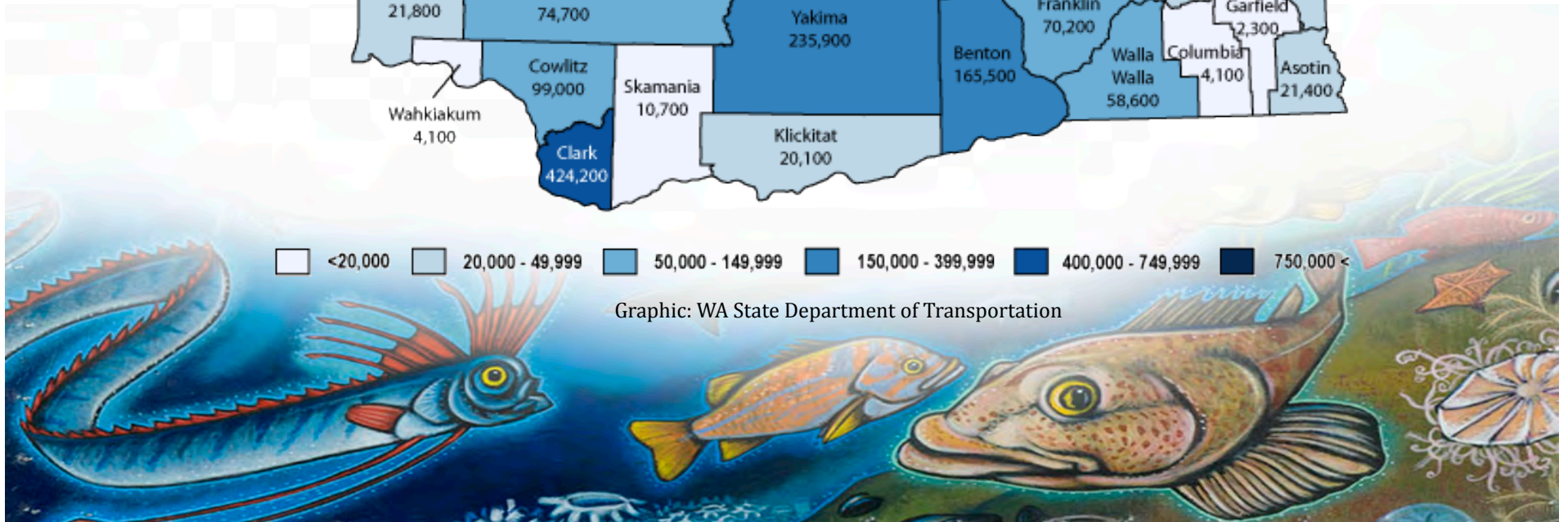
- Both are action oriented;
- Mitigation actions are aimed at **SOURCES** of warming
- Adaptation actions are aimed at **IMPACTS** of warming
 - ✧ Adaptive actions *acknowledge* that impacts are **already occurring**, and/or **will occur** in the future
- Intricately linked to vulnerability and resilience.



WA Counties (pop.)



Graphic: WA State Department of Transportation



Washington State Cities

Population	# of Cities
> 100,000	6
50,000 – 99,999	12
20,000 – 49,999	28
5,000 – 19,999	68
1,000 – 4,999	86
< 1,000	81

Data source: Washington State Office of Financial Management

- We are a state of small cities.





National Climate Project



NOAA Coastal Services Center
National Estuarine Research Reserve Association

CTP Mission: To offer **practical, science-based** training to professionals who make decisions about coastal management.



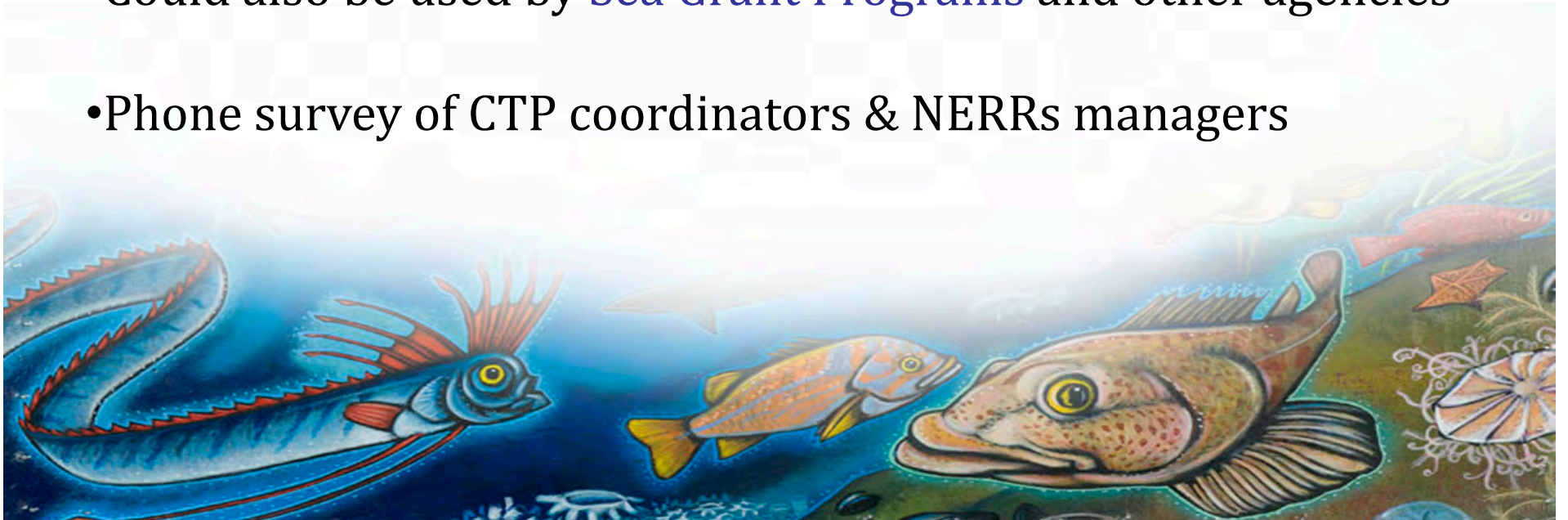
COASTAL
TRAINING
PROGRAM

Cathy Angell, CTP Coordinator,
Padilla Bay NERR



Initial Goals & Methods

- Develop a **product** to address a certain aspect of climate change for coastal decision-makers
- To be useful for **Coastal Training Programs** around the country
- Could also be used by **Sea Grant Programs** and other agencies
- Phone survey of CTP coordinators & NERRs managers



Product

- Customizable training workshop
 - **How can decision-makers take action?**
 - Identify areas of risk
 - Establish planning priorities
 - Create adaptation strategies
 - Coordinate with other entities





Course Development Partners

*Cathy Angell



Padilla Bay
National Estuarine Research Reserve



Katrina Hoffman



King County

Elizabeth Willmott



Lara Whitely Binder



PREPARING FOR CLIMATE CHANGE

A Guidebook for Local, Regional,
and State Governments



Written by
Center for Science in the Earth System (The Climate Impacts Group)
Joint Institute for the Study of the Atmosphere and Ocean
University of Washington

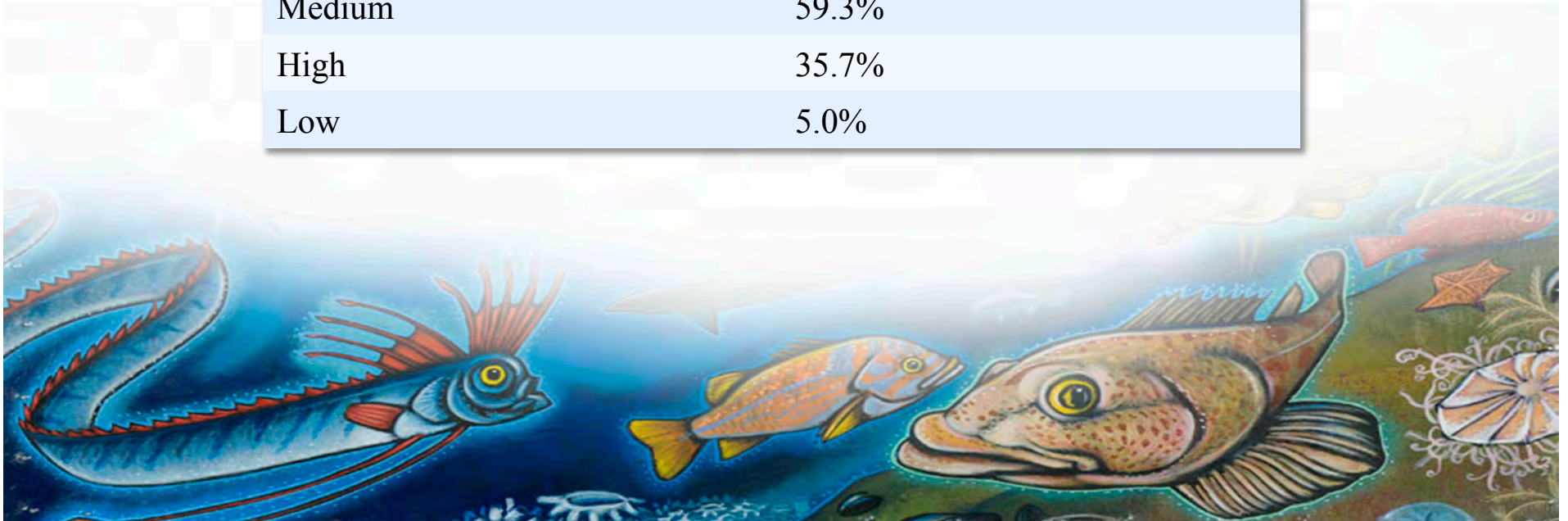
King County, Washington

With an introduction by King County Executive Ron Sims



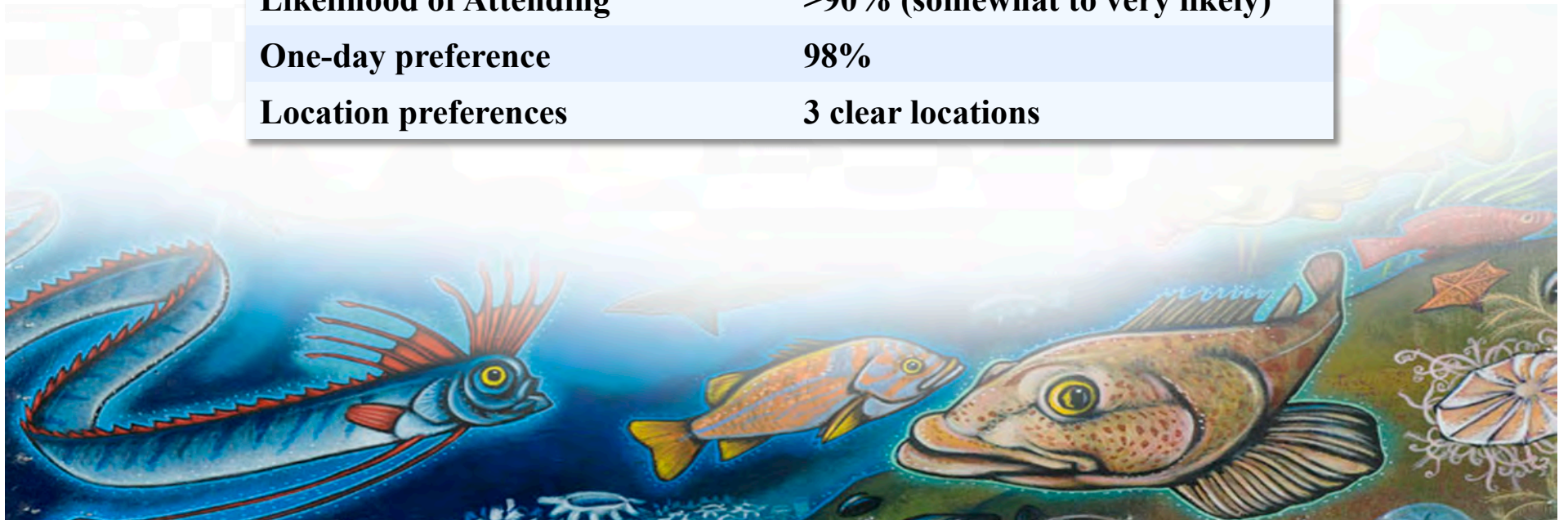
Needs Assessment Survey

Respondents:	n = 209
Planners	52.8%
Job Affiliation:	
Local government	44.8%
Level of awareness about climate issues	
Medium	59.3%
High	35.7%
Low	5.0%



Needs Assessment Survey

Respondents:	n = 209
Climate Impacts of Concern	17 items; Likert scale
Impacts to Management	16 items; Likert scale
Planning Issues	14 items; Likert scale
Likelihood of Attending	>90% (somewhat to very likely)
One-day preference	98%
Location preferences	3 clear locations



“Planning for Climate Change”

A training is born!

- Four trainings (March 2009 & 2010)
 - >140 shoreline planners and coastal managers trained



AGENDA TOPICS

Global and Pacific NW Climate Change

Lara Whitely Binder, Climate Impacts Group

Sea Level Rise and Coastal Impacts

Hugh Shipman, Coastal Geologist, WA Dept. of Ecology



Preparing for Climate Change Suggested Steps

1. Initiate a climate planning effort
 - **Listen to the science**
 - **Scope the impacts to your sectors**
 - **Build support – and build a team**
 - **Identify planning areas most affected by climate change**
2. Conduct a climate resiliency study
3. Set goals and develop your plan
4. Implement your plan
5. Measure progress

Drawn from *Preparing for Climate Change: A Guidebook for Local, Regional and State Governments*, by the Climate Impacts Group and King County, and published by ICLEI – September 2007.



Fundamental Concepts in Planning for Climate Change

Case studies:

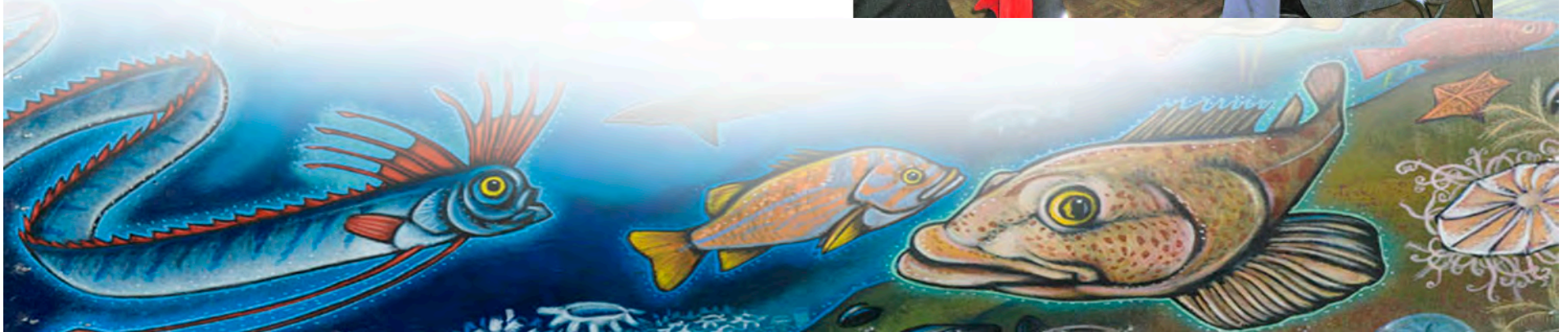
1. Swinomish Tribe
 - Vulnerability assessment
2. City of Olympia
 - Stormwater re-route
3. King County
 - Wastewater treatment plant siting & outfalls



Community Engagement and Addressing Barriers to Adaptation

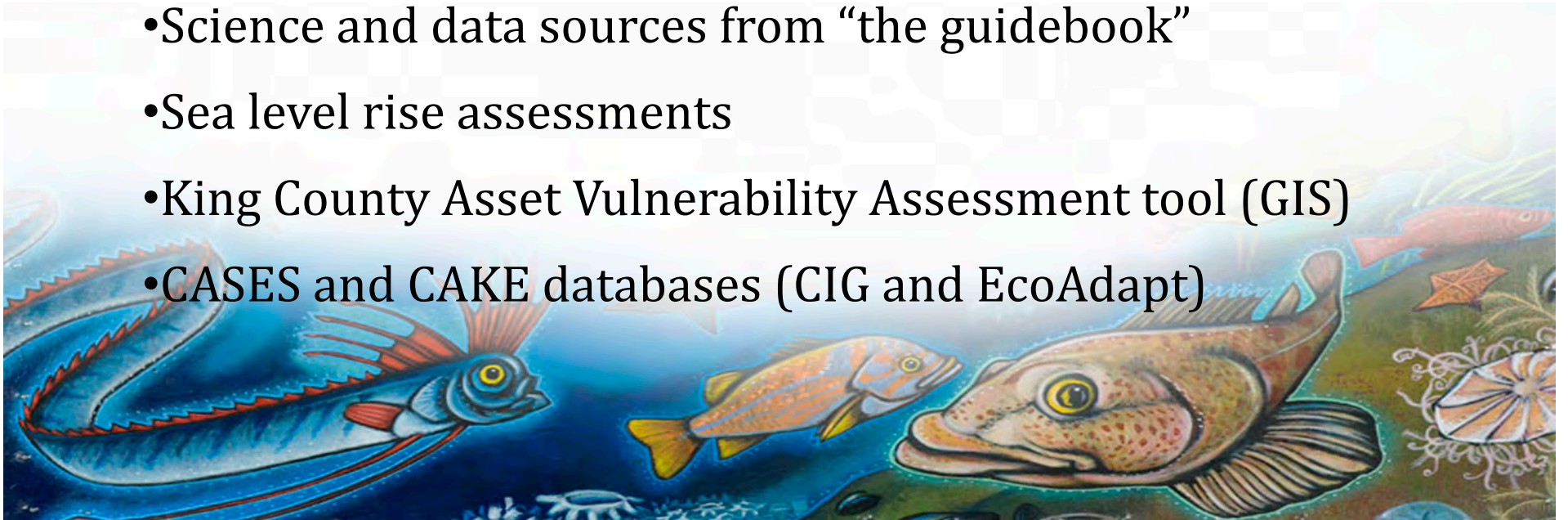
Lara Whitely Binder & Kat Hoffman

- Top 10 list of barriers
- Low regrets & “win-win” strategies
- Build capacity
- Reframe issues
- One-size does not fit all
- Difficult choices ahead



Technical Tools and Resources

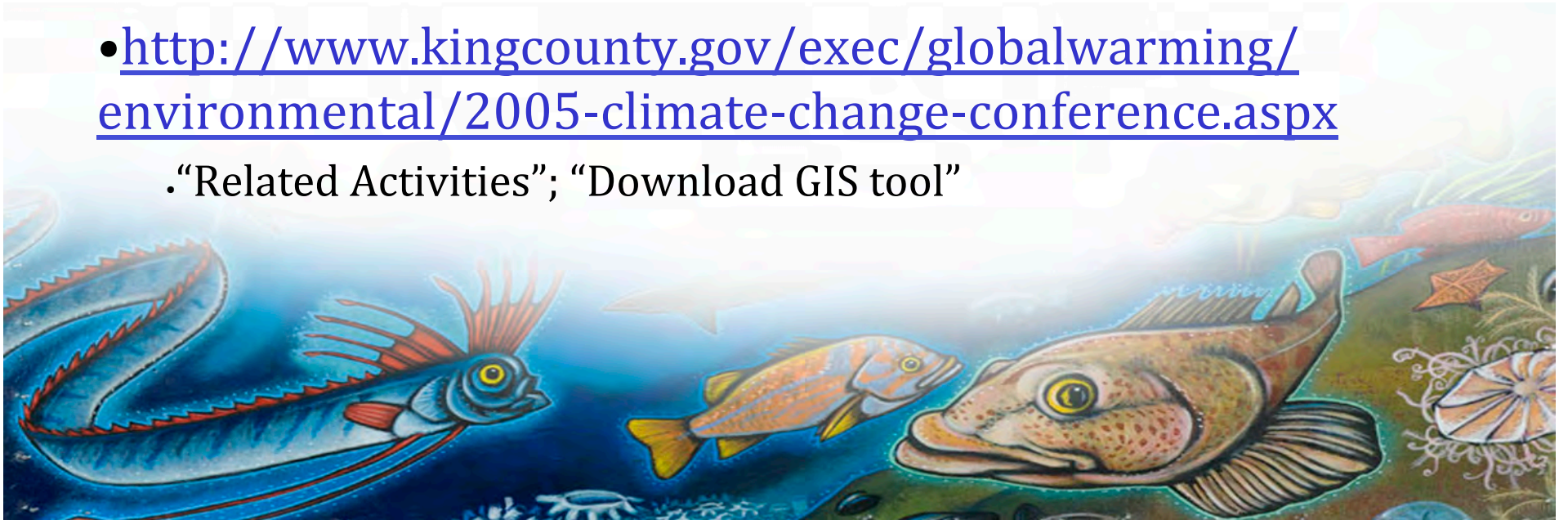
- NOAA Climate Adaptation portal
- EPA Climate Ready Estuaries site
- UW Climate Impacts Group—WA impacts assessment
- NOAA-funded RISAs
- Science and data sources from “the guidebook”
- Sea level rise assessments
- King County Asset Vulnerability Assessment tool (GIS)
- CASES and CAKE databases (CIG and EcoAdapt)



King County Asset Vulnerability Tool

- Goal: To share methodology with others through a GIS based tool.
- Generic to provide transferability outside King County
- Simple for those with limited access to quality climate data
- Extensive enough for those with complex assets and data
- <http://www.kingcounty.gov/exec/globalwarming/environmental/2005-climate-change-conference.aspx>

.“Related Activities”; “Download GIS tool”



Asset Vulnerability Tool

Sea Level Rise

Enter the anticipated sea-level rise.

Sea level change (mm)

Year

Estimates of the past | Instrumental record | Projections of the future

Sea level rise is the result of thermal expansion and melting ice, both glacial and ice cap. Global sea level rise is expected to be 7 inches by 2050 and 23 inches by 2100 according to the UN IPCC (IPCC,2007). A summary of the IPCC work can be downloaded here:

[IPCC AR4 Technical Summary](#)

Effects from forces such as tectonic movement and atmospheric variability will produce regional variations to the IPCC global predictions. The University of Washington analyzed the regional differences in the NW and published the results here:

[Sea Level Rise in the Coastal Waters of Washington State](#)

The Puget Sound predictions range from 3 inches in 2050 to 50 inches in 2100 across three different scenarios.

Input Features

Tides MHHW

Sea Level Rise

0.5
2

Storm Surge Height (optional)

1.42
2.27
3.79

PointDensity (optional) 20

3DElevation Field (optional)

3DTin (optional)

3DRaster (optional)

Over Write Output

Output Folder

OK Cancel Environments... << Hide Help Tool Help

SLR_tool.mxd - ArcMap - ArcInfo

File Edit View Bookmarks Insert Selection Tools Window Help

1:6,000

Editor Task: Create New Feature Target:

Labeling Fast

Networks Flow Analysis Trace Task: Find Common Ancestors Topology:

Puget Sound

BEACH DR SW
46TH AVE SW
MURRAY AVE SW
47TH AVE SW
LEDROIT CTS SW
WRIGHT AVE SW
48TH PL SW
FAUNTLEROY WAY SW
SW OHELLO ST
WOODSIDE PL SW
44TH AVE SW
ALIFORNIA AVE SW
SW WILLOW ST
SW MILLS ST
SW MAPLE WAY
SW FRONTENAC ST
SW MYRTLE ST

Identify

Identify from: <Top-most layer >

AF24_Facilities_Test_3
AE*BEACH.MURRAY

Location: 1,254,294.998 200,850.830 Feet

Field	Value
Spot	18.602636
SRGHT	1.42
TIDEHEIGHT	9.01
SLR	10
SEALEVEL	20.43
SLVLDLTA	1.827364
COMMENT	Under water: Point is 1.8273636627 below sea level.

Identified 1 feature

Drawing Arial 10 B I U

1252784.581 201543.538 Feet



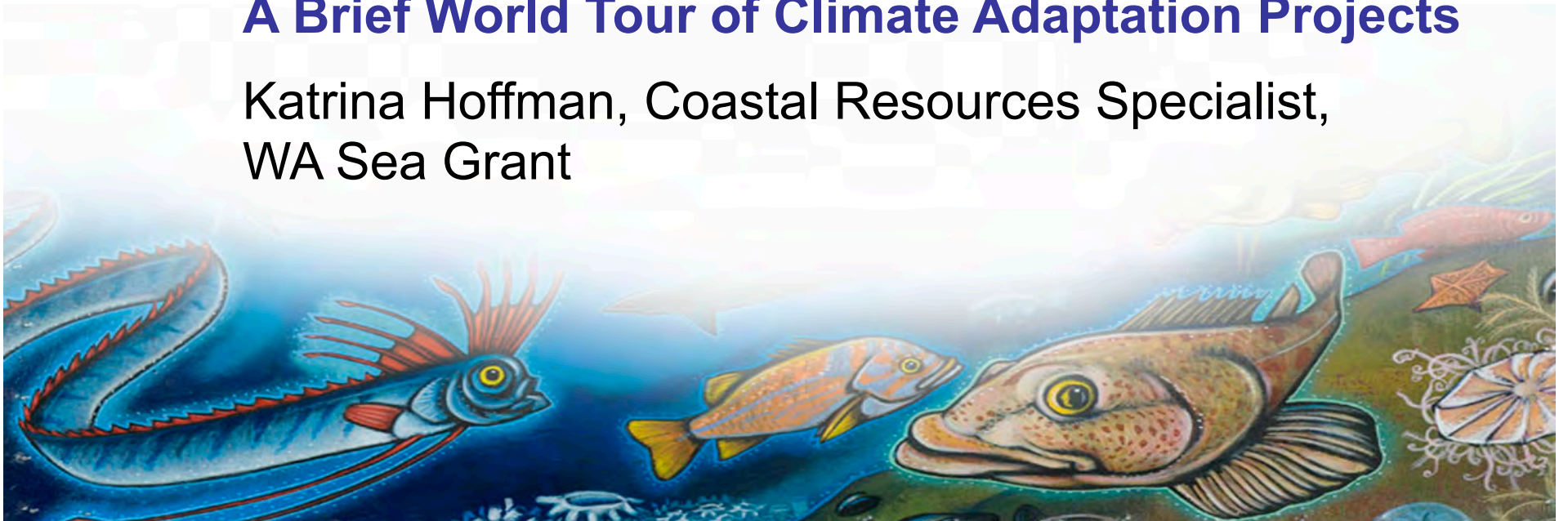
Worksheet Exercise: Identifying Vulnerability in Your Community (participants)

Summary of Washington State's Climate Change Program and Major State Planning Regulations

Spencer Reeder, Lead Policy Strategist on Climate Change, WA Department of Ecology

A Brief World Tour of Climate Adaptation Projects

Katrina Hoffman, Coastal Resources Specialist, WA Sea Grant



All materials available at:
www.nerrs.noaa.gov

Menu: Training; Training Profiles;

“Climate Adaptation for Planners”





TRAINING

"PLANNING FOR CLIMATE CHANGE" WORKSHOP

Class Materials

These materials were handed out during the workshop.

- [Agenda](#) 
- [Process Agenda](#) 
- [Vulnerability Worksheet](#) 
- [Vulnerability Worksheet](#) 
- [Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments](#)



[Facilitation Guidelines](#)
[Workshop Materials](#)
[Evaluation Summaries](#)

▶ [Class Description](#)

▶ [Class Materials](#)

▶ [Binder Contents](#)

▶ [Handouts on Resource Table](#)

▶ [Surveys](#)

▶ [Climate Training Resources](#)

▶ [Project Contacts](#)

▶ [Lessons Learned](#)



[Streaming Video/
PowerPoint
Presentations](#)

Se



Planning for Climate Change



Now Playing: Global and Pacific Northwest Climate Change
Lara Whitely Binder, Outreach Specialist
University of Washington Climate Impacts Group

running time: 00:00 / 42:08



Workshop Topics

- Welcome and Overview
- Global and Pacific Northwest Climate Change
- Sea Level Rise and Coastal Impacts
- Q & A Discussion
- Fundamental Concepts in Planning for Climate Change (Workshop 1)
- Fundamental Concepts in Planning for Climate Change (Workshop 2)
- Community Engagement and Addressing Barriers to Adaptation
- Technical Tools and Resources
- Worksheet Exercise - Identifying Vulnerabilities in your Community
- Summary of Washington State's Climate Change Program
- Closing Remarks and a Brief World Tour of Climate Adaptation Projects



Documents



Powerpoint Presentation Complete



Powerpoint Presentation Annotated

Done

Internet

100%

Performance Indicators

Averages across four trainings:

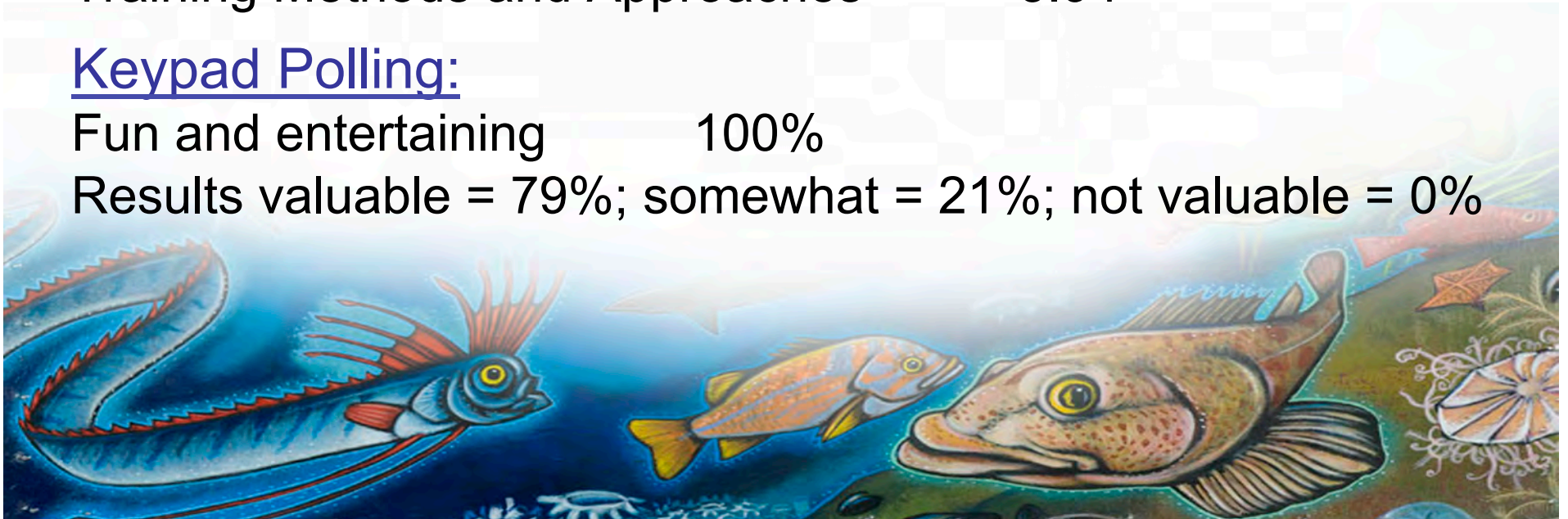
Improved Understanding	97%
Intent to Apply in Job	94%
Heard new perspectives	88%

Satisfaction (5 pt. scale; 1=unsatisfied; 3=satisfied; 5=extremely satisfied):

Content and Materials	4.25
Training Methods and Approaches	3.94

Keypad Polling:

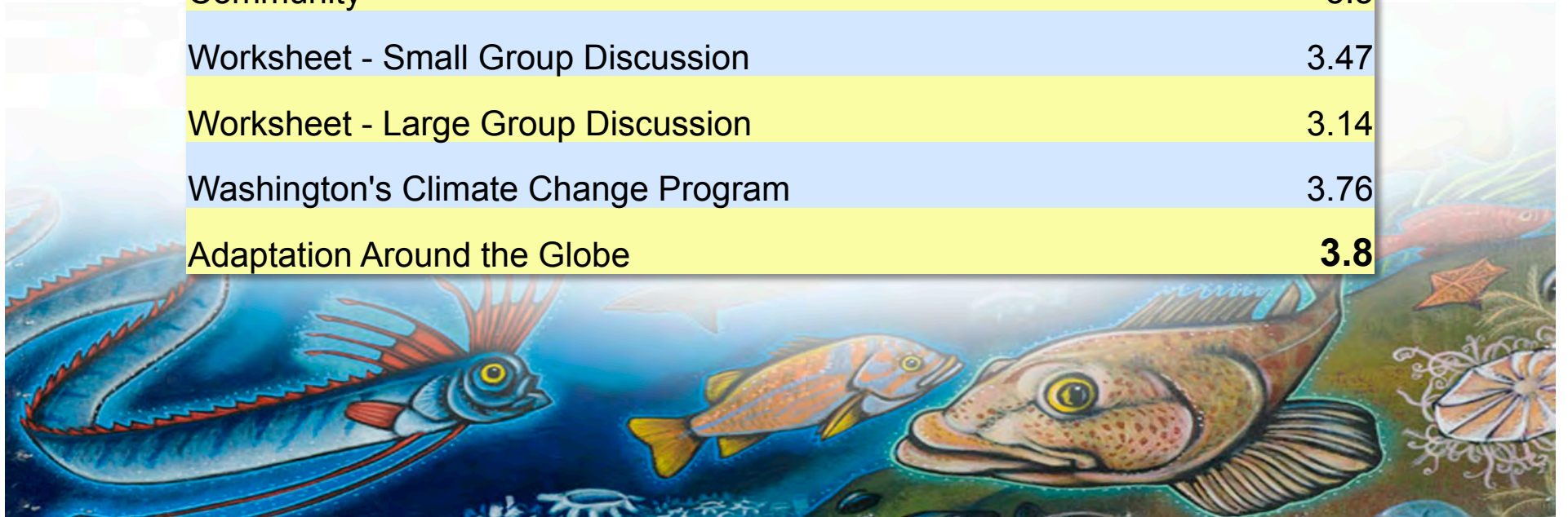
Fun and entertaining	100%
Results valuable = 79%; somewhat = 21%; not valuable = 0%	



Training Usefulness

5-pt. scale; 1 = not useful; 3 = useful; 5 = extremely useful

Global and Pacific NW Climate Change	4.19
Impacts of Sea Level Rise on Washington Coasts	4.46
Adaption Fundamentals: The Why's and How's of Adapting to Climate Change	3.99
Community Engagement and Addressing Barriers to Adaptation	3.95
Worksheet - Written Exercise - Identifying Vulnerabilities in Your Community	3.3
Worksheet - Small Group Discussion	3.47
Worksheet - Large Group Discussion	3.14
Washington's Climate Change Program	3.76
Adaptation Around the Globe	3.8



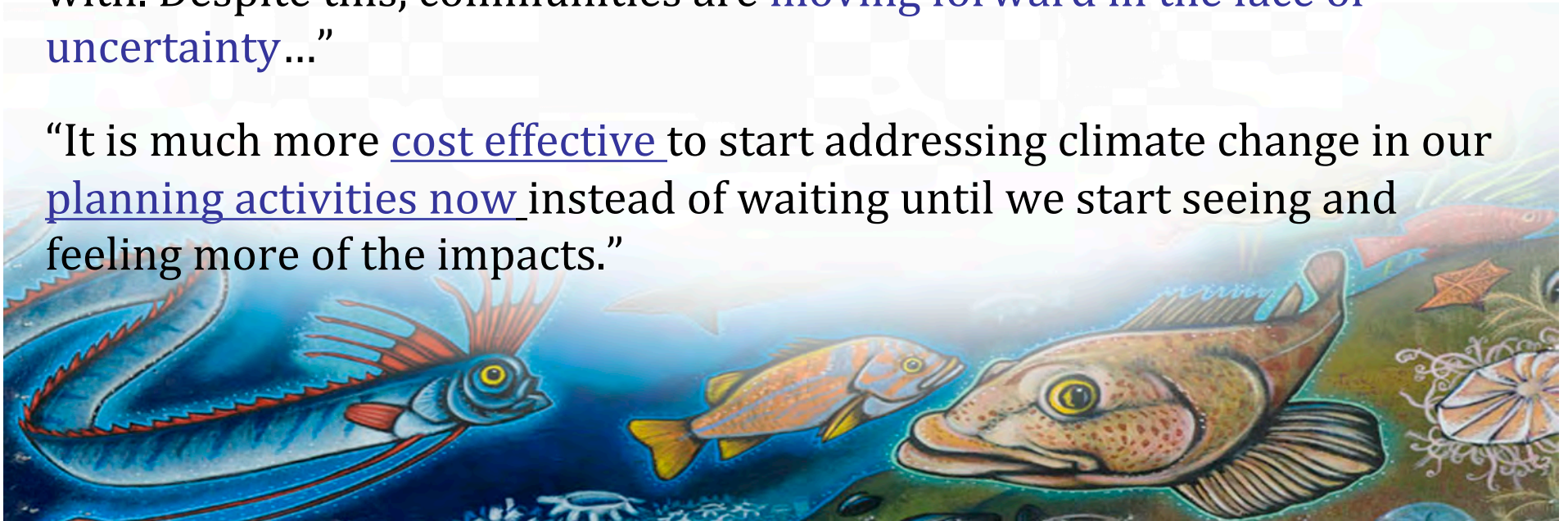
What did you learn?

“How to frame climate change as a risk management issue and incorporate other agencies into the planning process.”

“We should be viewing everything through the lens of climate change, as opposed to it being ‘just another thing’ to have to plan for.”

“Hearing from the Olympia case study that the key planner was ‘not the climate change expert’ resonated with circumstances that I locally work with. Despite this, communities are moving forward in the face of uncertainty...”

“It is much more cost effective to start addressing climate change in our planning activities now instead of waiting until we start seeing and feeling more of the impacts.”



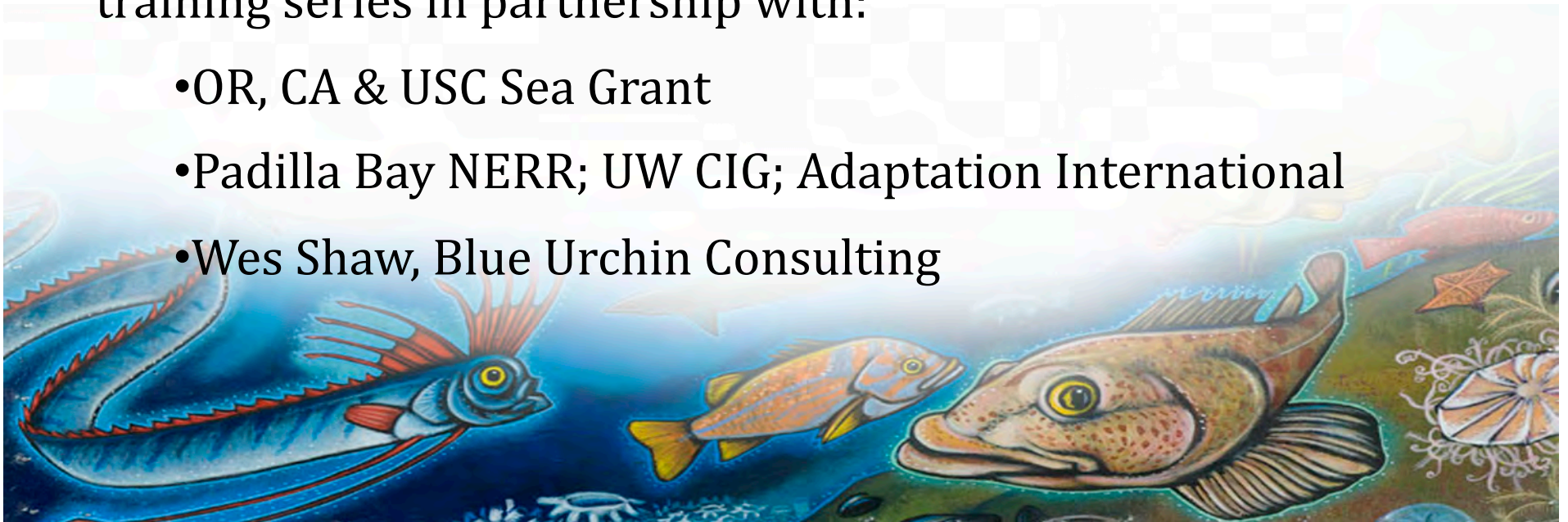
Planners want...

- More case study examples of planning concepts in action
- Regulatory language examples that other communities are using
- Vulnerability spatial assessment tools (like King County tool)
- Regulatory incentives/requirements to incorporate climate change in planning
- To know how climate variability can be incorporated in codes and planning processes.



Future Opportunities

- WA Dept. of Ecology—NOAA Coastal Management Fellow to develop sea level rise guidance for shoreline master program updates (Hoffman on advisory committee)
- WA Sea Grant coordinating vulnerability workshop for West Coast groundfish fisheries
- WSG response to NOAA CREST RFP—12 webinar climate training series in partnership with:
 - OR, CA & USC Sea Grant
 - Padilla Bay NERR; UW CIG; Adaptation International
 - Wes Shaw, Blue Urchin Consulting

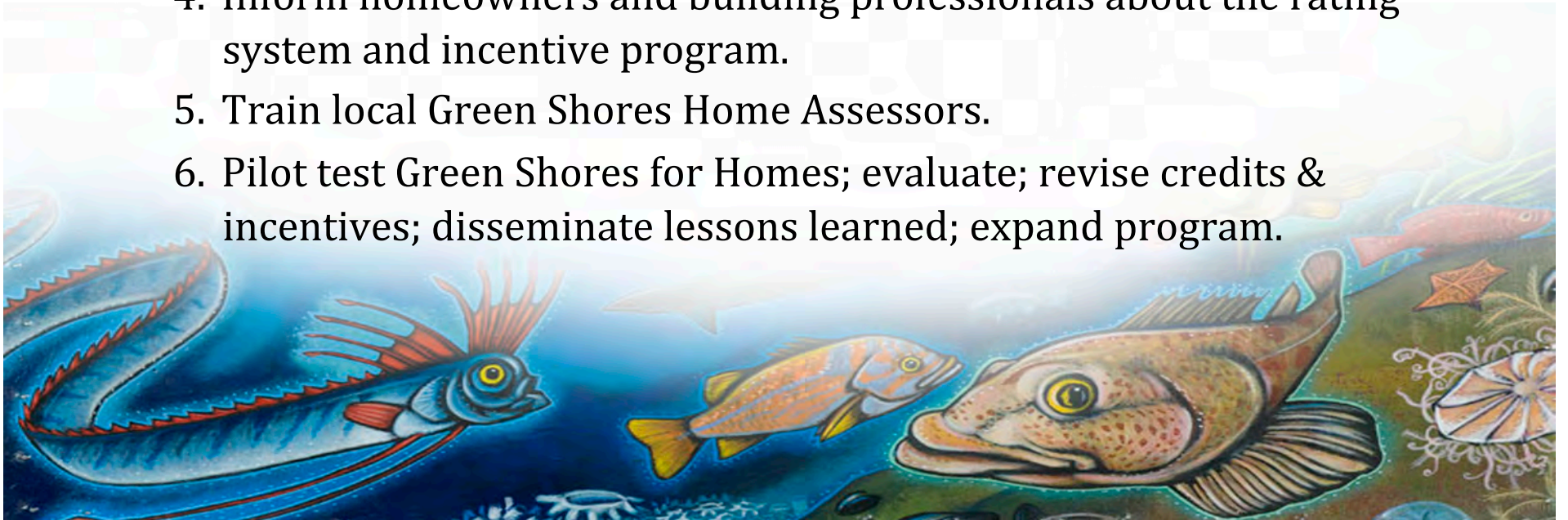


Future Opportunities

Green Shores for Homes

City of Seattle, San Juan County, WA Sea Grant, B.C./WA tech team

1. Prioritize areas amenable to alternative shoreline development in two watersheds.
2. Develop Green Shores for Homes credits/rating system.
3. Local gov't identify credit thresholds & offer incentives.
4. Inform homeowners and building professionals about the rating system and incentive program.
5. Train local Green Shores Home Assessors.
6. Pilot test Green Shores for Homes; evaluate; revise credits & incentives; disseminate lessons learned; expand program.



**“They always say time changes things,
but you actually have to change them
yourself.”**

--Andy Warhol



QUESTIONS?

