

A child wearing a grey cap and an orange t-shirt is seen from behind, pointing their right hand towards a world map. The map is rendered in white and light blue, set against a bright blue sky with wispy white clouds. The child is positioned in the lower right corner of the frame.

Using Story Maps to Engage the Public in Ocean Science

Jennifer Anne Lentz, Ph.D.

Education Specialist at the Aquarium of the Pacific

Ecosystem-Based Management (EBM) Tools Webinar

January 20th, 2015

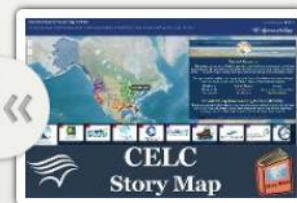
The Aquarium's Story Maps

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Story Maps and other GIS-related projects



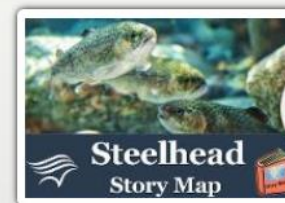
AOP's CELC Story Map



AOP's Magellanic Penguins Story Map



AOP's Seafood Story Map



AOP's Southern California Steelhead Story Map

The Aquarium of the Pacific's mission is to instill a sense of wonder, respect, and stewardship for the Pacific Ocean, its inhabitants, and ecosystems. Our vision is to create an aquarium dedicated to conserving and building Natural Capital (Nature and Nature's services) by building Social Capital (the interactions between and among peoples).

The Aquarium of the Pacific (AOP) is the fourth most-attended aquarium in the nation. It displays over 12,000 animals in more than 50 exhibits that represent the diversity of the Pacific Ocean. Each year more than 1.5 million people visit the Aquarium. Beyond its world-class animal exhibits, the Aquarium offers educational programs for people of all ages from hands-on activities to lectures by leading scientists. Through these programs and a variety of multimedia experiences, the Aquarium provides opportunities to delve deeper into ocean science and learn more about our planet. The Aquarium of the Pacific has redefined the modern aquarium. It is a community gathering place where diverse cultures and the arts are celebrated and a place where important topics facing our planet and our ocean are explored by scientists, policy-makers and stakeholders in the search for sustainable solutions.

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<http://aop.maps.arcgis.com>

We are using Story Maps to help guests learn more about our...

Animals



Exhibits



Experiences



Locations






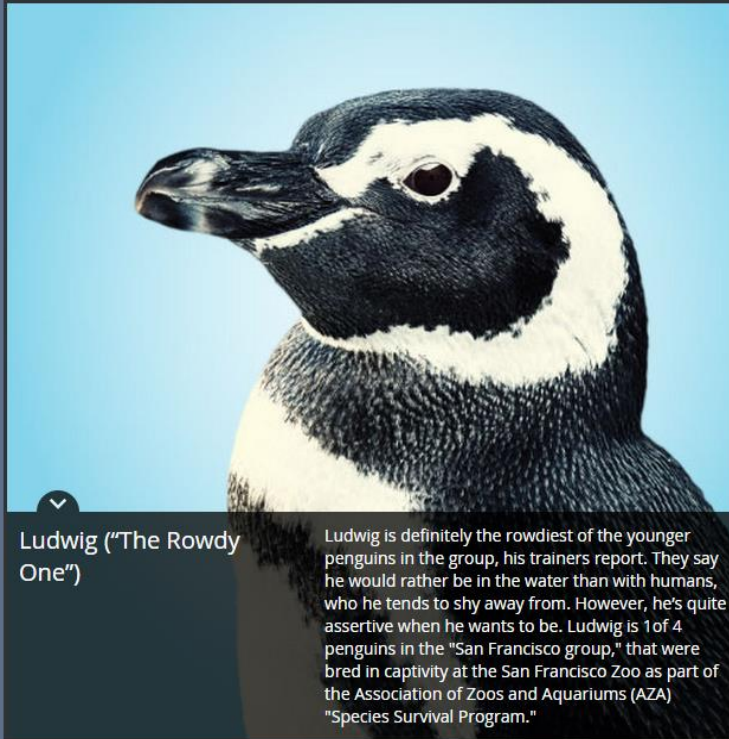
Issues



Example of a Story Map about our Animals

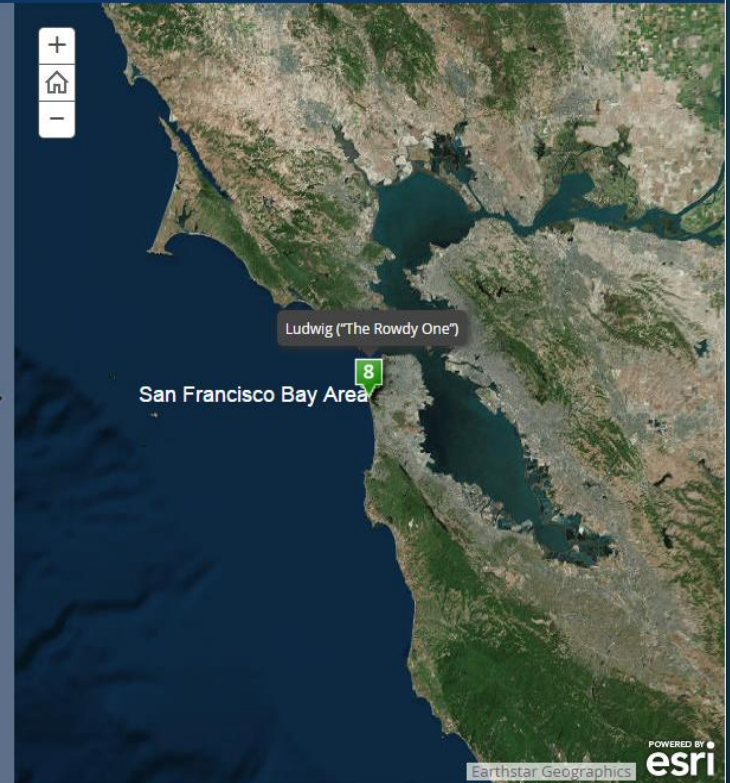
Aquarium of the Pacific's Magellanic Penguins Story Map

An Aquarium of the Pacific (AOP) story map   



Ludwig ("The Rowdy One")

Ludwig is definitely the rowdiest of the younger penguins in the group, his trainers report. They say he would rather be in the water than with humans, who he tends to shy away from. However, he's quite assertive when he wants to be. Ludwig is 1 of 4 penguins in the "San Francisco group," that were bred in captivity at the San Francisco Zoo as part of the Association of Zoos and Aquariums (AZA) "Species Survival Program."



Earthstar Geographics 



Geographic Range



Aquarium of the Pacific's "June Keyes Penguin"



Shim ("The Big One")



Noodles ("The Bruiser")



Patsy ("The Shy One")



Whatever ("The Bold One")



Floyd ("The Curious One")



Ludwig ("The Rowdy One")



Newsom ("The Baby")

Example of a Story Map about our Exhibits

an AOP story map



Southern California Steelhead

Steelhead

Historian John G. "Tom" Tomlinson, Jr., in collaboration with the Aquarium of the Pacific, has written a book documenting the local history of the Southern California Steelhead, including historic photos, postcards, fishery data, newspaper clippings, and rainfall statistics.

This book gathers historical information about this fish species and describes its resilience in the face of the region's changing watersheds, rainfall levels, and manmade infrastructure.

Against the Currents is available for sale in the Pacific Collections gift store or online at shop.aquariumofpacific.org

Learn More

Watch "Southern California Steelhead: Against All Odds" by California Trout



available online at: <http://vimeo.com/79393289>

More information about southern California Steelhead can be found online at:

- The Aquarium's Online Learning Center "Southern California Steelhead" page
- National Marine Fisheries Service (NMFS) [Steelhead profile](#)
- The [Recovery Plan for Southern California Steelhead](#) (Jan. 2012)










Learn More

Example of a Story Map about our Experiences

Visions '13 Expedition Story Map

An Aquarium of the Pacific (AOP) story map   



- 
AOP staff joins the crew of the R/V Thompson
- 
Day 1 (08/04/2013): Port of Newport, OR
- 
Day 2 (08/05/2013): Port of Newport, OR
- 
Day 2 (08/05/2013): Transit Heceta Bank
- 
Day 3 (08/06/2013): Southern Hydrate Ridge
- 
Day 4 (08/07/2013): Slope Base (update 1)
- 
Day 4 (08/07/2013): Slope Base (update 2)
- 
Day 4 (08/07/2013): Slope Base (update 3)
- 
Day 4 (08/07/2013): Slope Base (update 4)

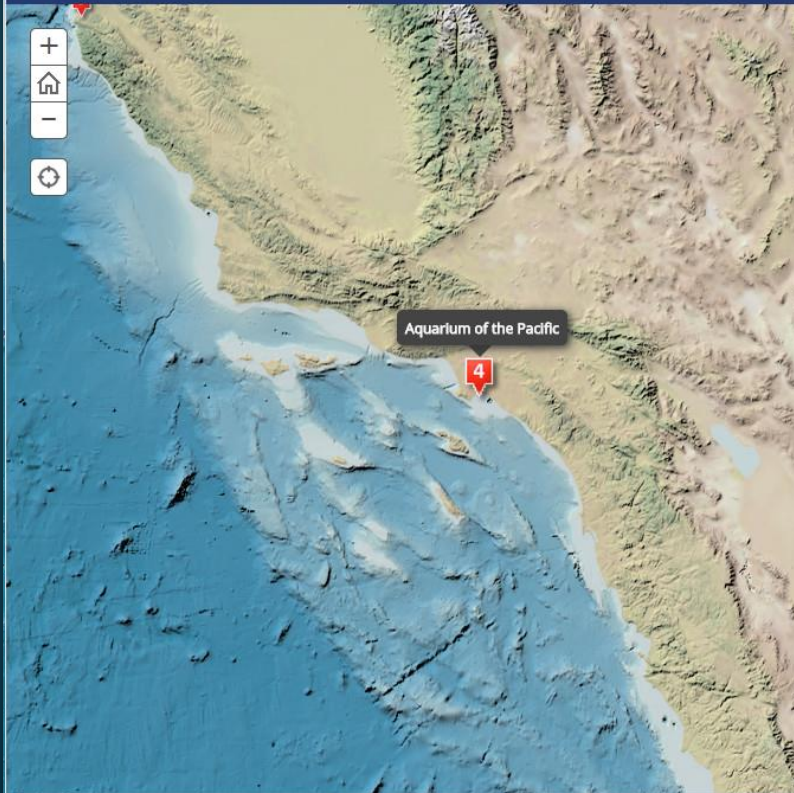
Example of a Story Map about our Locations

Coastal Ecosystem Learning Centers

an AOP story map   

This story map explores Coastal America's network of Coastal Ecosystem Learning Centers (CELCs) distributed throughout the United States, Canada, and Mexico.

 Aquarium of the Pacific



Aquarium of the Pacific

100 Aquarium Way
Long Beach, CA 90802



Coastal America



Waikiki Aquarium



Acuario de Veracruz



Aquarium of the Pacific



Monterey Bay Aquarium



Oregon Coast Aquarium



Hatfield Marine Science Center







Seattle Aquarium



Vancouver Aquarium

Example of a Story Map about an Issue / Topic


An AOP Story Map    

Seafood Story Map

Exclusive Economic Zones (EEZs)

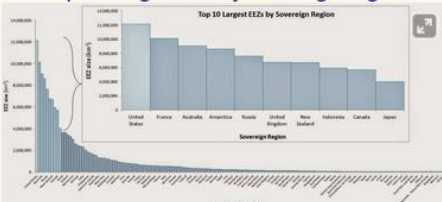
Global Economic Exclusive Zones (EEZs)

Exclusive Economic Zone (EEZ) Size by Sovereign Region



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Top 10 Largest EEZs by Sovereign Region



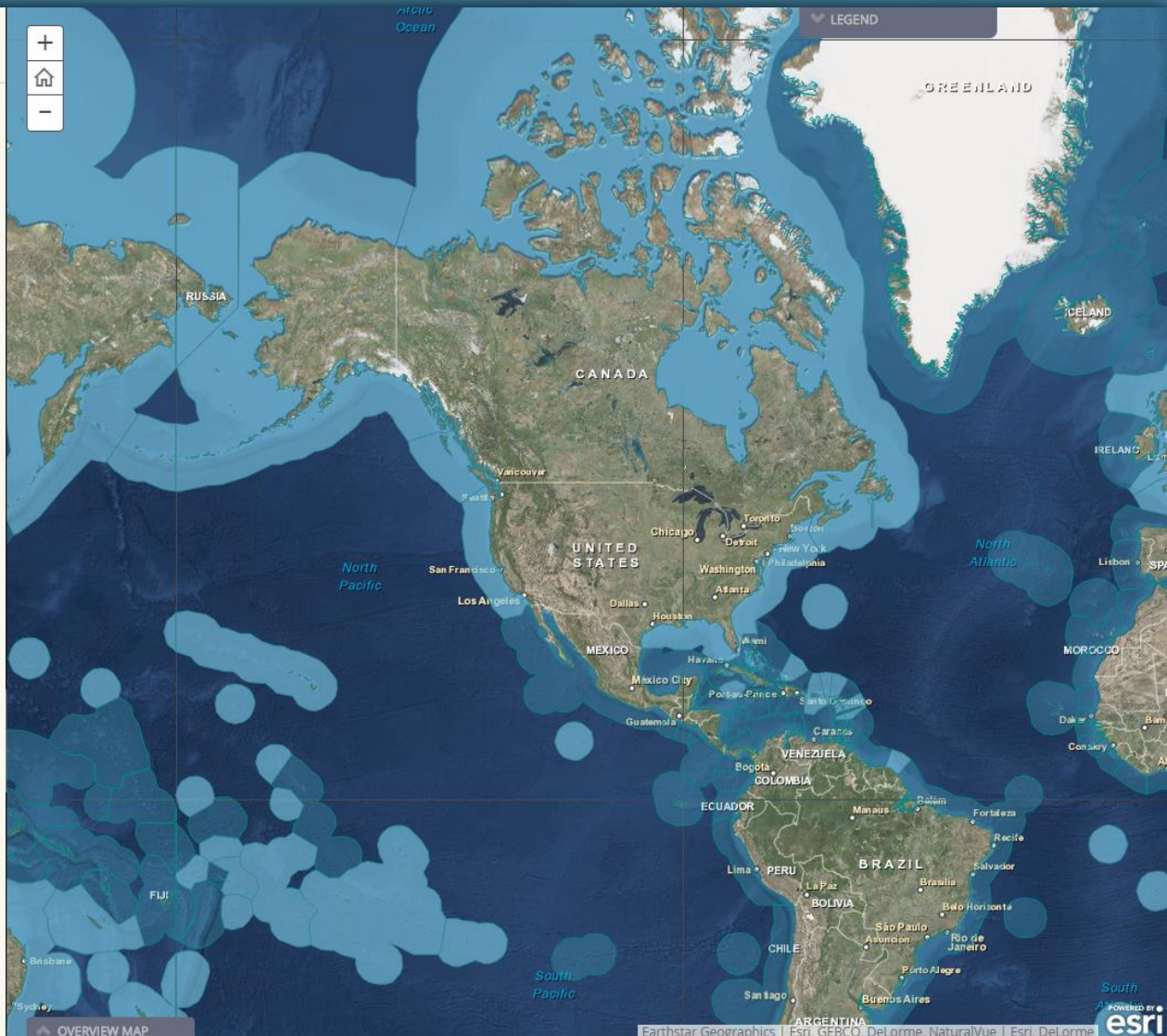
Sovereign Region	EEZ Size (km²)
United States	~11,000,000
France	~8,000,000
Australia	~7,000,000
Antarctica	~6,000,000
Russia	~5,000,000
United Kingdom	~4,000,000
New Zealand	~3,500,000
Indonesia	~3,000,000
Canada	~2,500,000
Japan	~2,000,000

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Marine Aquaculture in the United States

The U.S. is uniquely positioned to expand aquaculture production, especially in the marine environment. According to the United Nations Food & Agriculture Organization, the U.S. has more area with the potential to grow environmentally-responsible aquaculture in the marine environment than any other nation (FAO 2013). Among other reasons, the U.S. has the largest Exclusive Economic Zone (EEZ), or the area from the coastline extending out to 200 miles, in the world.





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OVERVIEW MAP

Earthstar Geographics | Esri, GEBCO, DeLorme, NaturalVue | Esri, DeLorme 


Example of a Story Map about an Issue / Topic

An Aquarium of the Pacific (AOP) st...    

Ocean Exploration

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E/V Nautilus



The Exploration Vessel (E/V) Nautilus, is a 64-meter research vessel operated by the Ocean Exploration Trust

The Ocean Exploration Trust was founded in 2008 by Titanic-discoverer and National Geographic Explorer-in-Residence Dr. Robert Ballard to engage in pure ocean exploration.

Map of the 2014 Nautilus Expeditions



NAUTILUS 2014 FIELD SCHEDULE

Their international programs center on scientific exploration of the seafloor. In addition to conducting scientific research, their expeditions are made available to explorers on shore via live

NAUTILUS LIVE

Explore the ocean LIVE with Dr. Robert Ballard and the Corps of Exploration



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Shrinking Cups in the Deep



OCEAN EXPLORATION TRUST



Google Earth



NAUTILUS 2014 FIELD SCHEDULE

Interpreting with Story Maps



Interpreting with Story Maps



Story Maps Interpreter Survey

We're exploring how to make the best use of the Story Maps Dr. Jenny's been working on. This survey will help us get an idea of how they can be used on the floor by our interpreter staff. Including how the existing story maps are received by guests, how staff feel about interpreting with them, technical problems that may need to be addressed, ideas for improvement, new story maps ideas, etc.

Please take a few minutes to fill out this survey after each time you interpret using our iPads to connect to our Story Maps out on the floor (after each interp session, not after each guest interaction).

Thank you so much for your help!!!

~Dr. J

* Required

Part 1: Background Info

1) What's your name? (optional)

Name of the AOP Staff Member or Volunteer interpreting with Story Maps

2) Do you have prior experience interpreting with AOP Story Maps? *

- No, this was my first time (skip Part 2 & go straight to Part 3)
- Yes, I've used the iPads to interp with story maps before

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Basic information

- Which story map did you use?
- Where did you use it?
- How was the internet connection?
- How was the lighting?

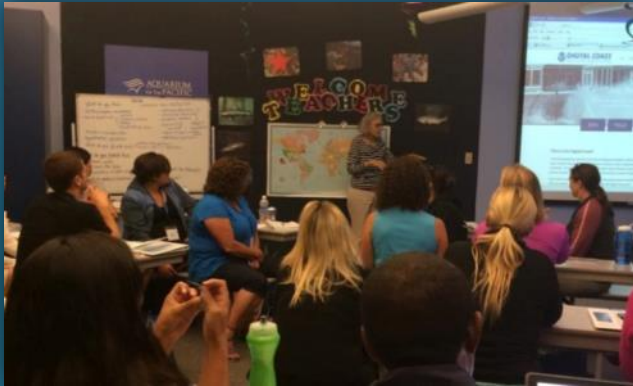
Assessing Staff's Personal Experience

- How did you feel about interpreting with these?
- Would you use them in the future?
- How would you prefer to interpret with these (iPads, kiosks, etc.)
- Edits, additions, you'd recommend making to existing apps?
- Ideas for future story maps?

Assessing Guest Experience

- How many guests did you interact with?
- Were they individuals, families, etc.
- Overall level of guest engagement
 - High (very engaged & interested)
 - Medium (moderately engaged & somewhat interested)
 - Low (not engaged & not interested)
- Overall level of guest perception (Positive, Neutral, or Negative)
- Did guests find the interactives helpful?
- Were they interested in exploring the apps online?

Introducing GIS to Teachers



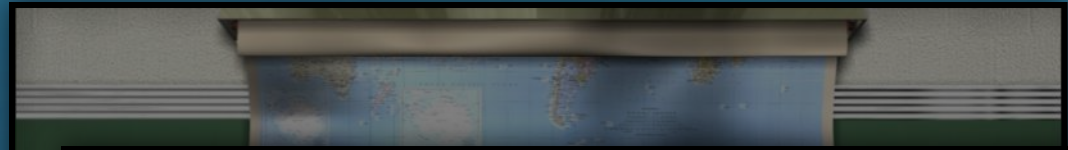
Alie LeBeau Clarke
August 21, 2013 · Long Beach, CA

We talked about data and storymapping and GIS with Jennifer Lentz, so I thought you might enjoy this map of favorite field trip destinations. p.s. the AOP is missing. How is that possible? Anybody want to submit their glowing recommendation?

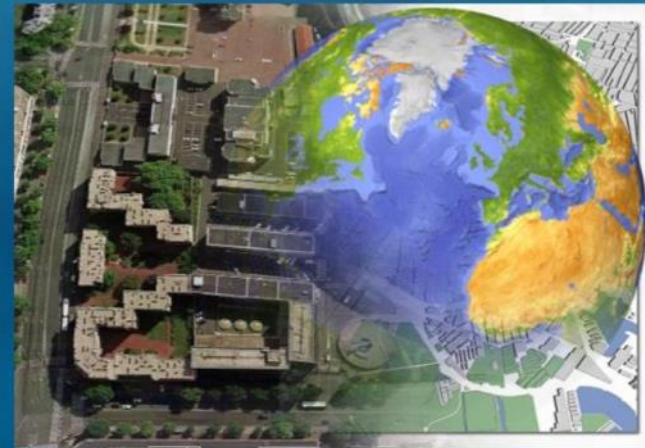


Get Going: Mapping Teachers' Favorite Field Trip Spots
Teachers! Need ideas on where to take your students for beyond-school learning? See our interactive map of the best field trip spots across the U.S. Have a favorite field trip location? Submit your favorite venue and help us build a rich and dynamic...

EDWEEK.ORG



An Introduction to GIS and Spatial Data



Jennifer Anne Lentz, Ph.D.
Education Specialist at the Aquarium of the Pacific
NASA Teacher Workshop Presentation
October 11th, 2013

GIS & Story Map Tutorials

GIS Wildlife Data Tutorial

How to find, Map, & Spatially Analyze Wildlife Data in a GIS System

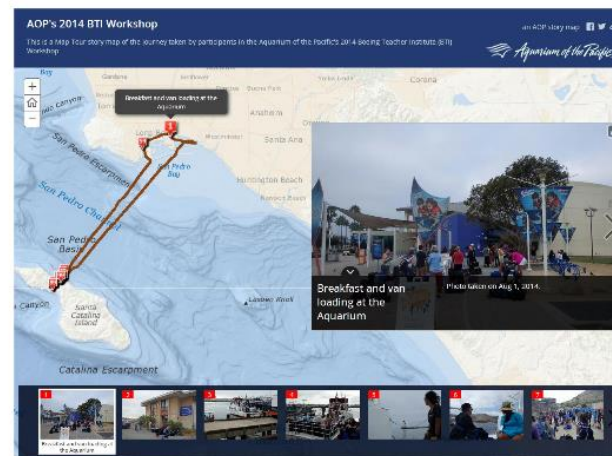


This Tutorial was Created by
Jennifer Anne Lentz, Ph.D.
Education Specialist at the Aquarium of the Pacific

*This tutorial, and other teaching-related materials by Dr. Lentz are available online at:
<http://JenniferALentz.info/Teaching.html>*

Creating “Map Tour” Story Maps

How to create a Map Tour Story Map quickly and easily using your smartphone or tablet, and your ArcGIS Online Organization Account



This Tutorial was Created by
Jennifer Anne Lentz, Ph.D.
Education Specialist at the Aquarium of the Pacific

*This tutorial, and other teaching-related materials by Dr. Lentz are available online at:
<http://JenniferALentz.info/Teaching.html>*

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AQUARIUM OF THE PACIFIC
A non-profit institution




GIS Resources for Educators



GIS Wildlife Data Tutorial: AGOL with ORIS & ICYN Real-time data
Step by Step Tutorial



Creating "Map Tour" Story Maps using the Snap2Map app
Step by Step Tutorial



Creating an Interactive Web Map using ArcGIS Online (AGOL)
Step by Step Tutorial

Chapter in Upcoming Book



Chapter 12

More than Maps: Connecting Aquarium Guests to Global Stories

by

Jennifer Lentz, Emily Yam, Alie LeBeau, & David Bader

Expected Release
Late Spring-Early Summer 2015

Questions?



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Esri's Story Maps Website:

<http://storymaps.arcgis.com>

An Ocean of Story Maps Website:

<http://esriurl.com/ocnstories>

Esri Oceans Resources Website:

<http://esriurl.com/ocnres>

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