



# Economic Benefits of the PORTS system in Maryland

BY OLAMIPOSI SUNMOLA

SUMMER 2019

MENTOR: KAITLYNN RITCHIE & SCOTT KNOCHE PH.D.

# Background



- ▶ In 2018, Cargo ships brought in over 10 million tons of international cargo
- ▶ The Port of Baltimore, which accommodates a lot of ships recorded a total of \$15.7 billion in exports and \$38.1 billion in imports in 2017 (AAPA report, 2018)
- ▶ The Chesapeake Bay is shallow
- ▶ Maryland Port Administration is providing a navigational system which costs over \$400,000 a year

# What is P.O.R.T.S?

---

Physical Oceanographic Real-Time  
Systems

---

3

It was started in Tampa, FL in 1990

---

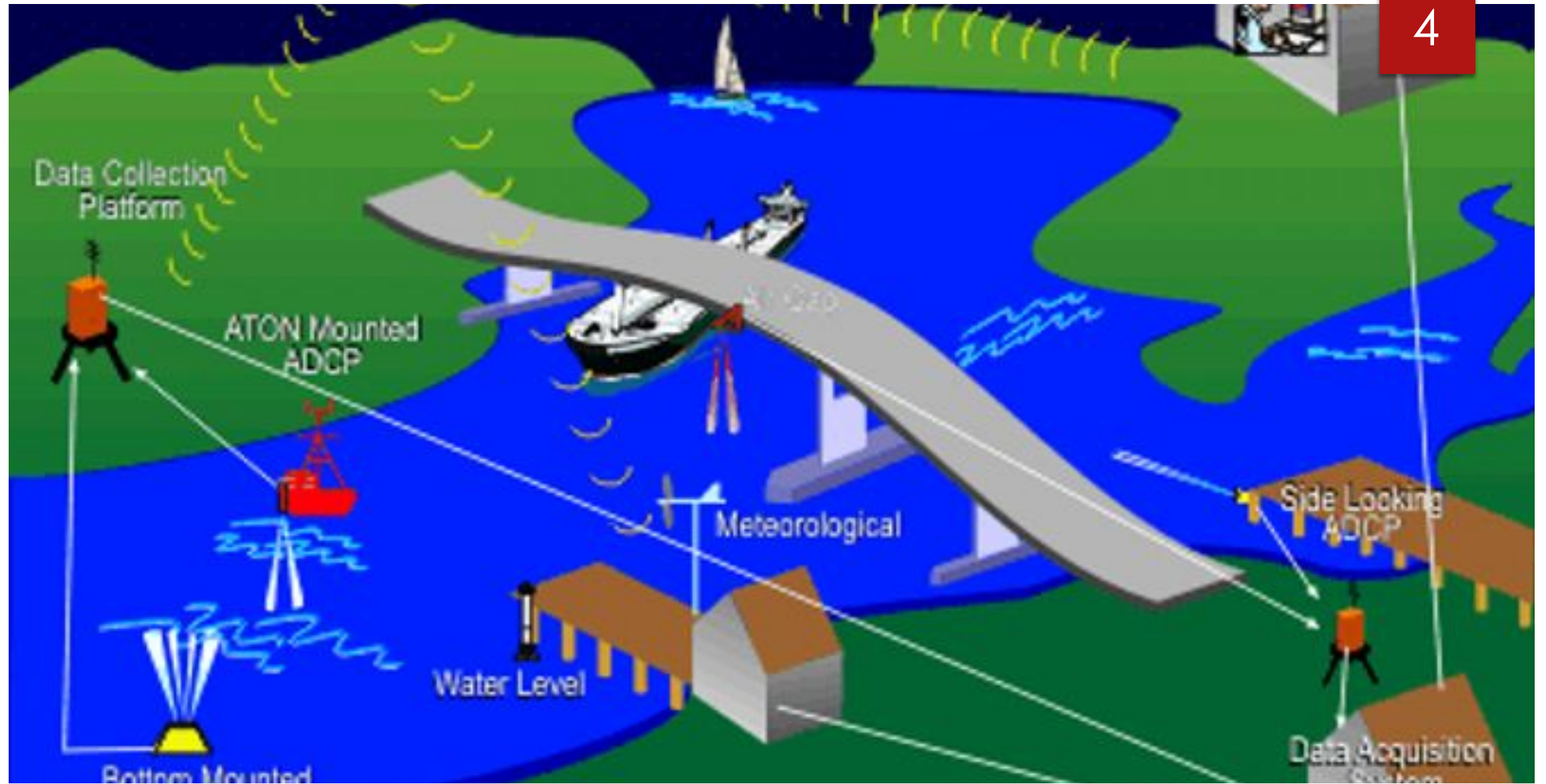
PORTS® installations provide near-real  
time information and, in some cases,  
forecasts about water levels and  
currents at specific points in a coastal  
water body

---

The state of Maryland pays over  
\$400,000 annually, to support the  
system

---





# Objective

In order to provide insight into the potential economic impacts of PORTS we are going to:

- ▶ Conduct semi-structured interviews to inform an economic analysis
- ▶ Documenting historical and current use of Maryland navigational waterways through literature review



# My Tasks



LITERATURE REVIEW



SEMI-STRUCTURED  
INTERVIEW



DATA ANALYSIS

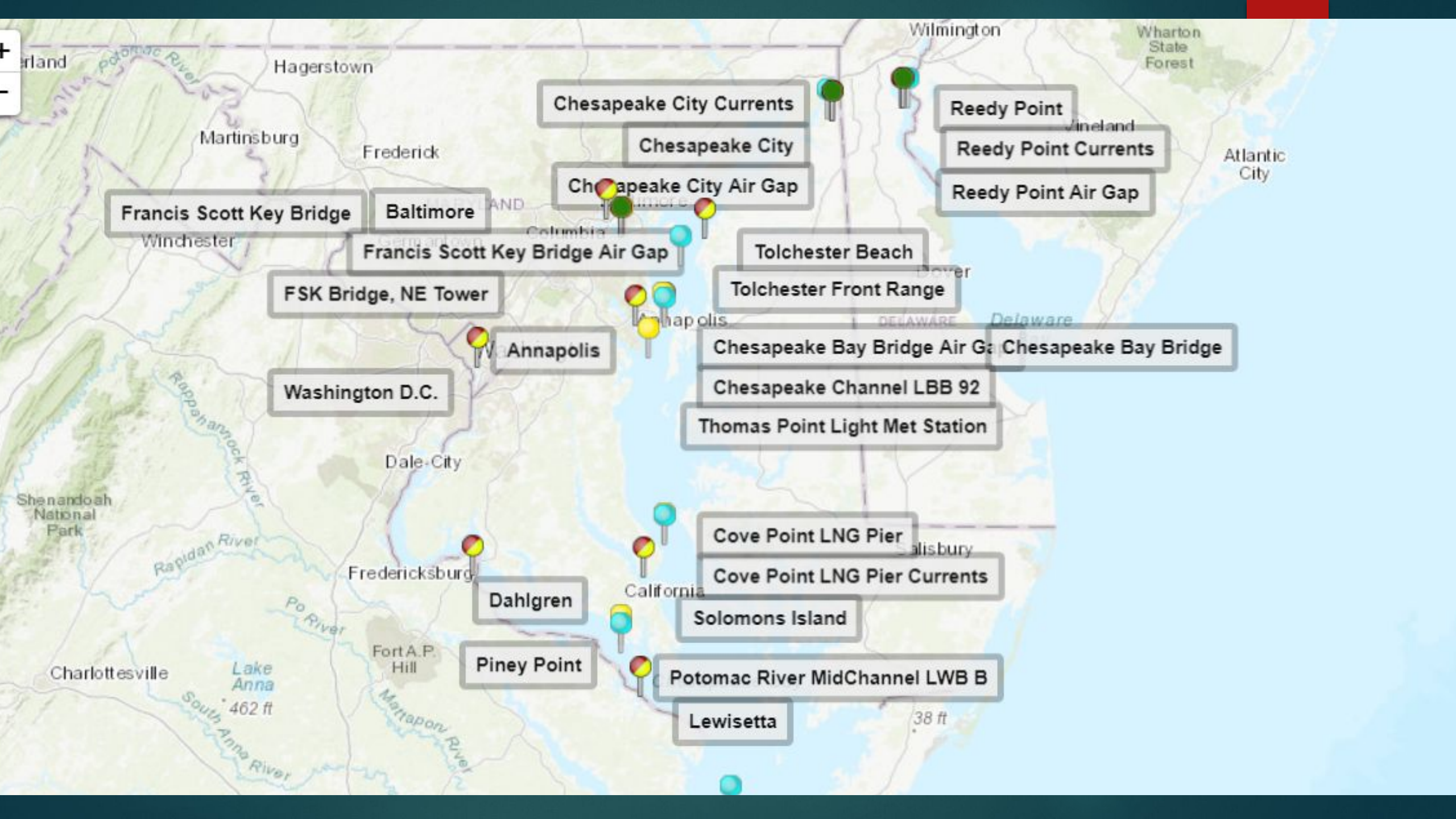
# LITERATURE REVIEW

- ▶ Volume of trade has increased, ships have also gotten bigger, longer and deeper (Wolfe & MacFarland, 2013)
- ▶ Sensors have undergone rigorous testing and field tests (Bushnell, 2005 and Edwing, 2018)
  - ▶ These sensors needed to work in different weather conditions and undergo instrument calibration
- ▶ The systems provide new data every 6 minutes (Appell et al, 1994)

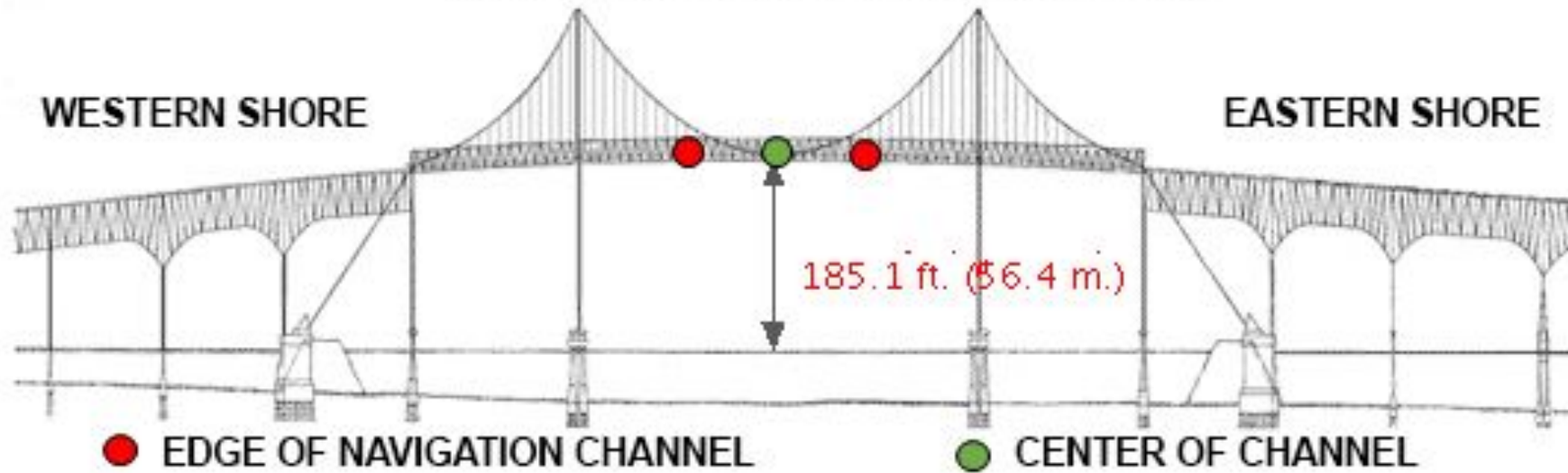
# PORTS Analysis in other states (Kite-Powell 2005a, 2005b, 2007, 2010)

Safety	Efficiency	Environmental Protection	Recreational Activities	Weather Forecasts
<ul style="list-style-type: none"><li>• Avoided groundings, commercial vessels</li><li>• Avoided distress cases, recreational vessels</li></ul>	<ul style="list-style-type: none"><li>• Increased cargo carried per ship call</li><li>• Improved SAR performance</li></ul>	<ul style="list-style-type: none"><li>• Improved hazardous material spill response</li><li>• Improved environmental restoration/conservation activities</li></ul>	<ul style="list-style-type: none"><li>• Enhanced value from boating decisions (power, sail, windsurfing, kayaking, etc.)</li><li>• Enhanced value from fishing decisions</li><li>• Enhanced value from beach visit decisions</li></ul>	<ul style="list-style-type: none"><li>• Improved general weather forecasts</li><li>• Improved coastal marine weather forecasts</li><li>• Improved storm surge forecasts</li></ul>





AIR GAP AT CHESAPEAKE BAY BRIDGE,  
SOUTH SPAN CENTER OF MAIN CHANNEL



[https://www.youtube.com/watch?v=Sq7xqDOA\\_PE](https://www.youtube.com/watch?v=Sq7xqDOA_PE)

# Semi-structured Interview

- ▶ Drafted questions to interview
- ▶ Technique used in social sciences
- ▶ Maryland law which states a foreign vessel must have a Maryland state licensed pilot navigating Chesapeake Bay



Interviewee: \_\_\_\_\_

Date: \_\_\_\_\_

## *Interview Guide for Use of PORTS in the Chesapeake Bay*

[This guide is to facilitate a semi-structured interview with pilots and shipmasters to better understand the use and economic implications of PORTS in the Chesapeake Bay.]

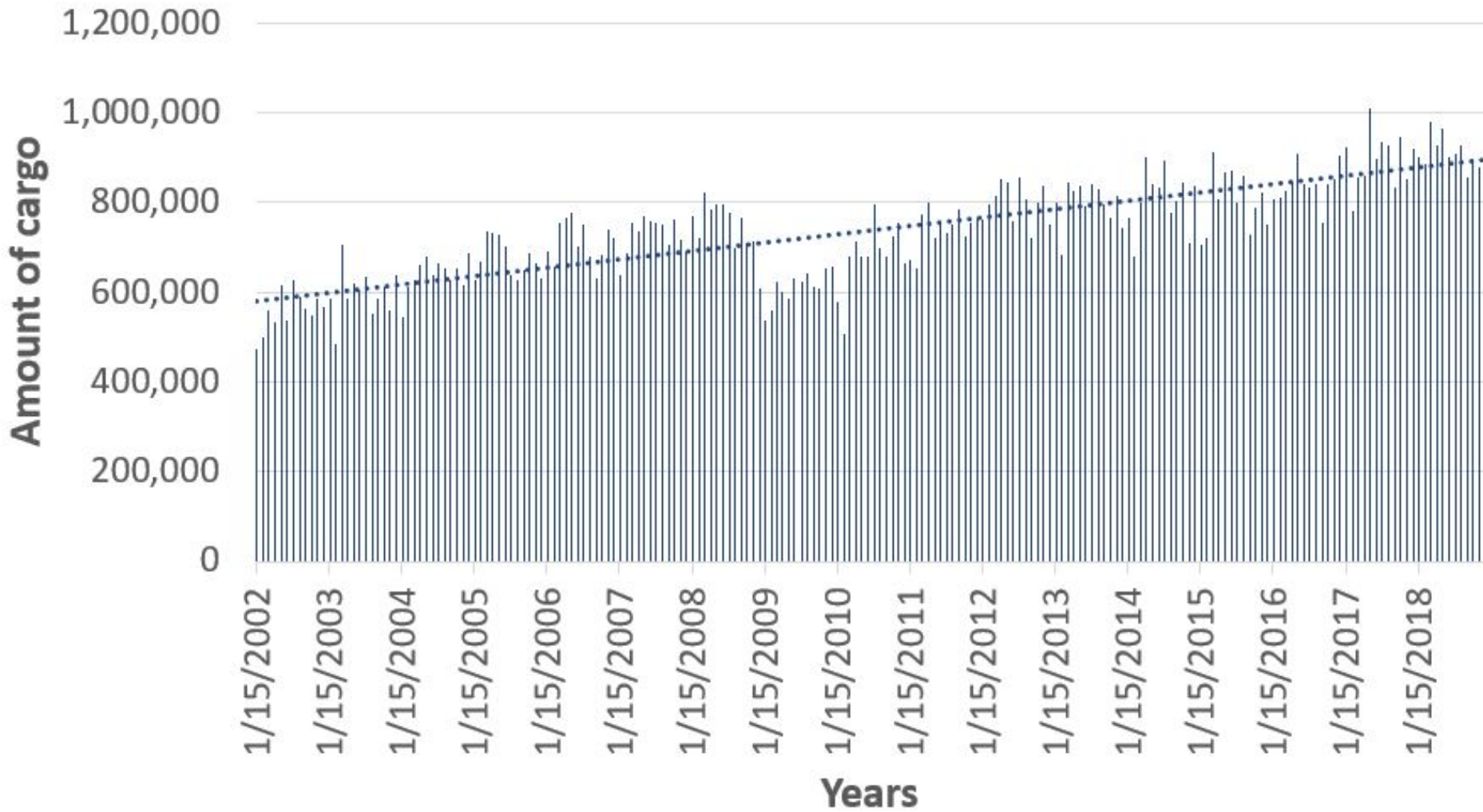
1. How long have you been a shipmaster/pilot?
  - a. How long have you been navigating the Chesapeake Bay?
2. What are your navigational challenges?
  - a. How do you mitigate them?

# Data Analysis

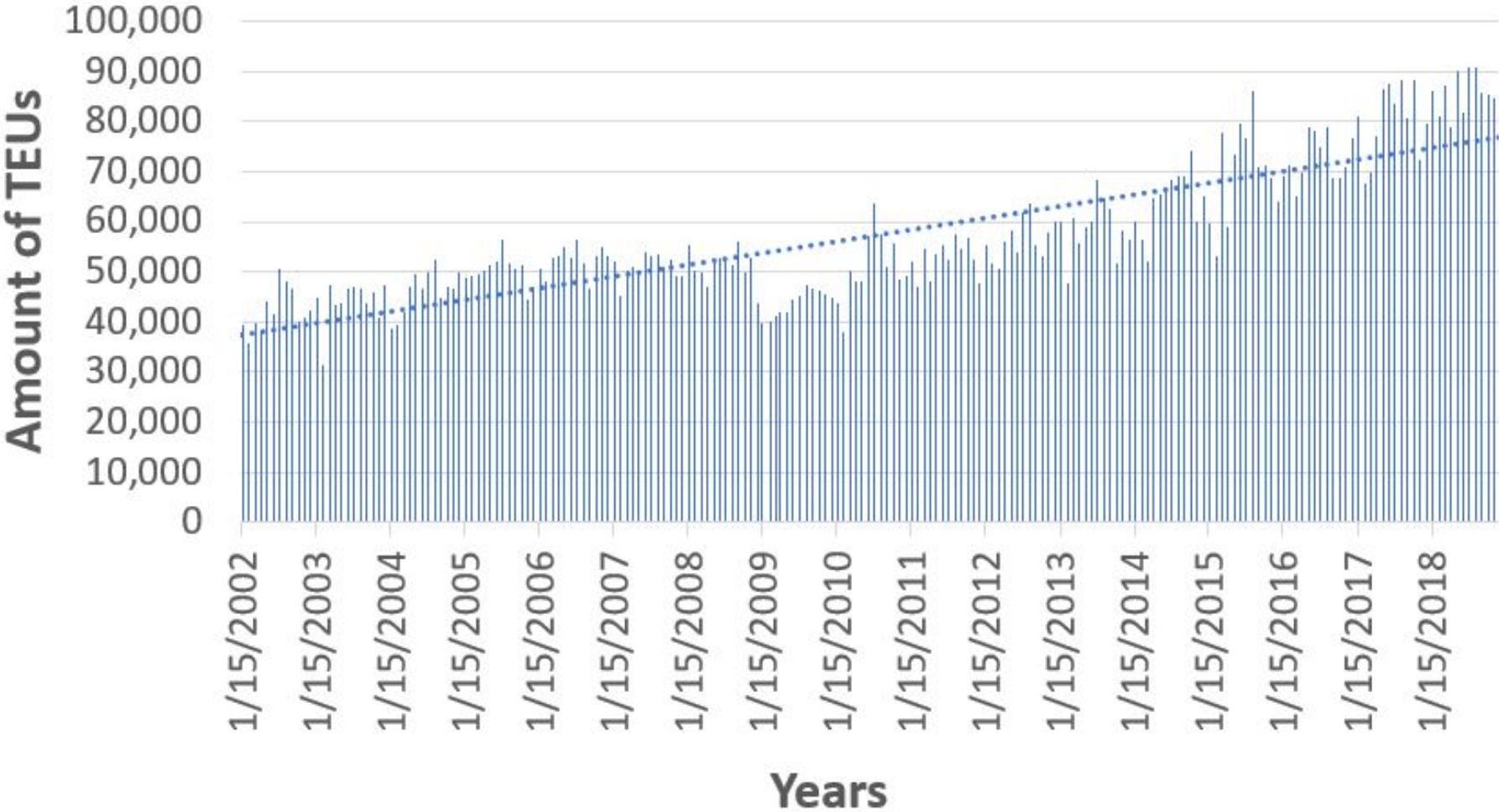
- ▶ Retrieved data from Maryland Ports Administration
- ▶ Preliminary analysis of how vessel size has changed over the years



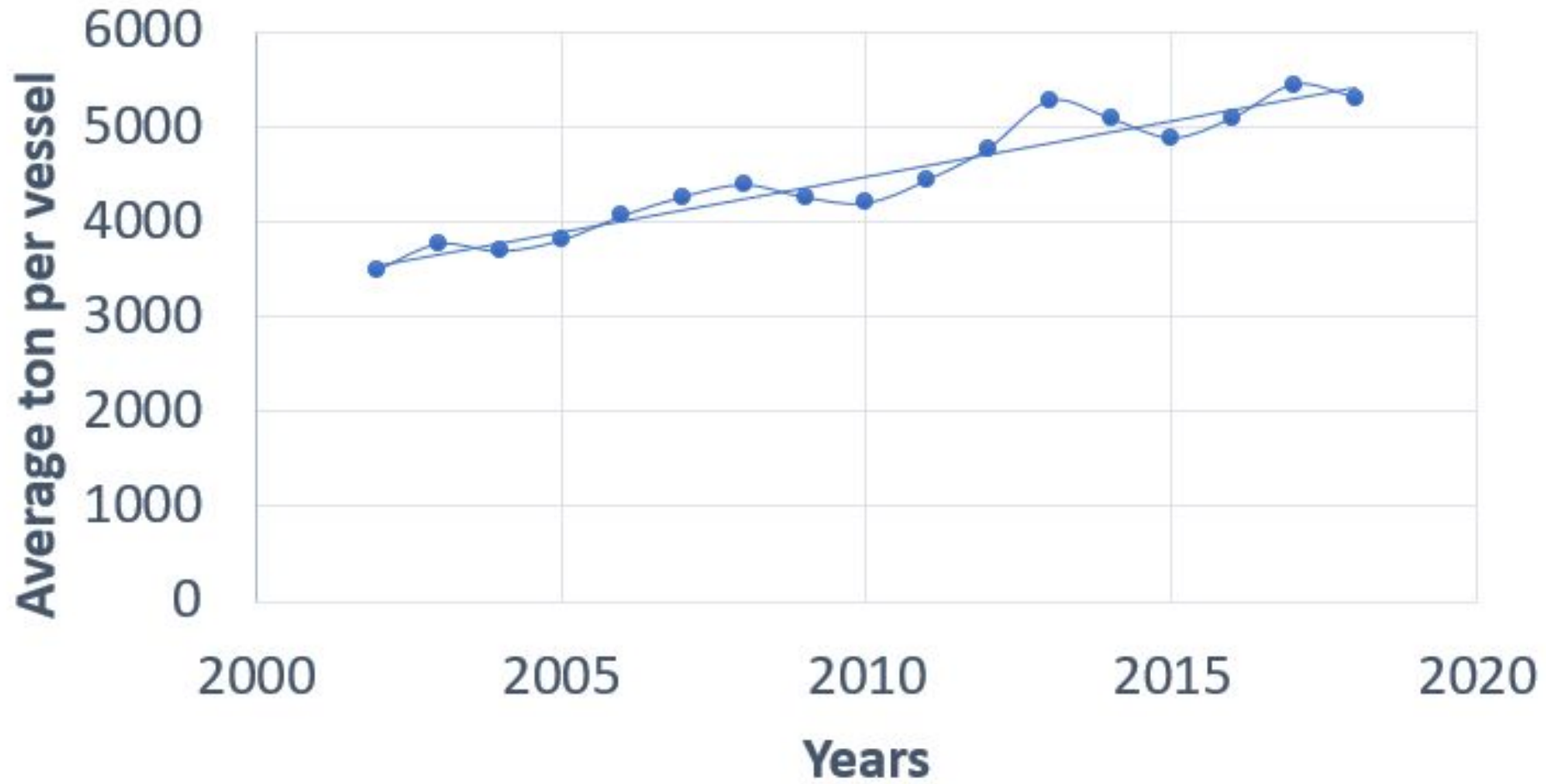
## Total General Cargo in Tons from Jan. 2002-Dec. 2018



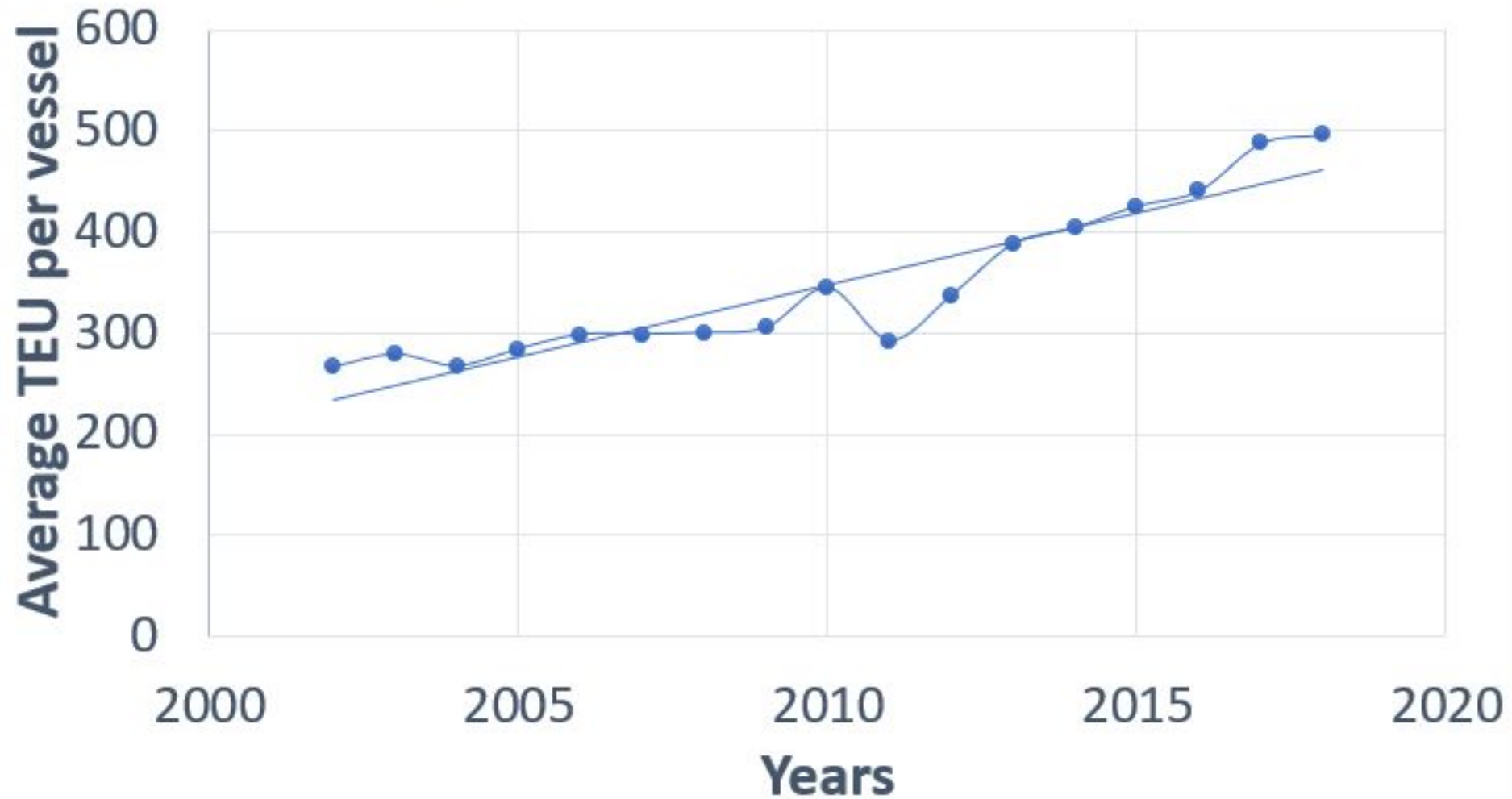
# Total TEU's from Jan 2002-Dec. 2018



## Average cargo in tons by the no. of vessels



## Average TEUs by the no. of vessels





# Next Step...

## ▶ Developing a survey



Google Forms

I've invited you to fill out a form:

### Survey for Association of MD Pilots

Thank you for taking the time to fill out this survey as part of a study conducted by Morgan State University. We are interested in hearing from Maryland pilots to better understand the use and economic implications of PORTS in the Chesapeake Bay. We hope to learn about the use of navigational systems in the Chesapeake Bay and the benefits they may provide. The study is being conducted by Dr. Scott Knoche of Morgan State University. You were selected as a possible participant in this study because you are a shipmaster or pilot with experience navigating the Chesapeake Bay.

If you have any questions, please do not hesitate to contact us. If you have any additional questions later about the study, please contact Kaitlynn Ritchie at 443-855-5934 or Dr. Scott Knoche at 443-885-5931 who will be happy to answer them.

Your help in this research is valuable to us and we appreciate your perspective and experiences.

[FILL OUT FORM](#)

# THANKS FOR LISTENING!

QUESTIONS?

