CWW Docks Map

By Sophia Huang & Elias Arnold @ SERC

Access our

map here!

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Elias Arnold is a rising senior at South River High School in the STEM program. He enjoys microcontroller programming, community service, sports, astrophysics, and comics.

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Introduction

About the Chesapeake Bay

- The **Chesapeake Bay** is the largest estuary in the US, stretching across MD and VA
- **Vital ecosystem** that supports a diverse range of plant and animal species
- Negatively affected by **pollution** & **environmental changes**
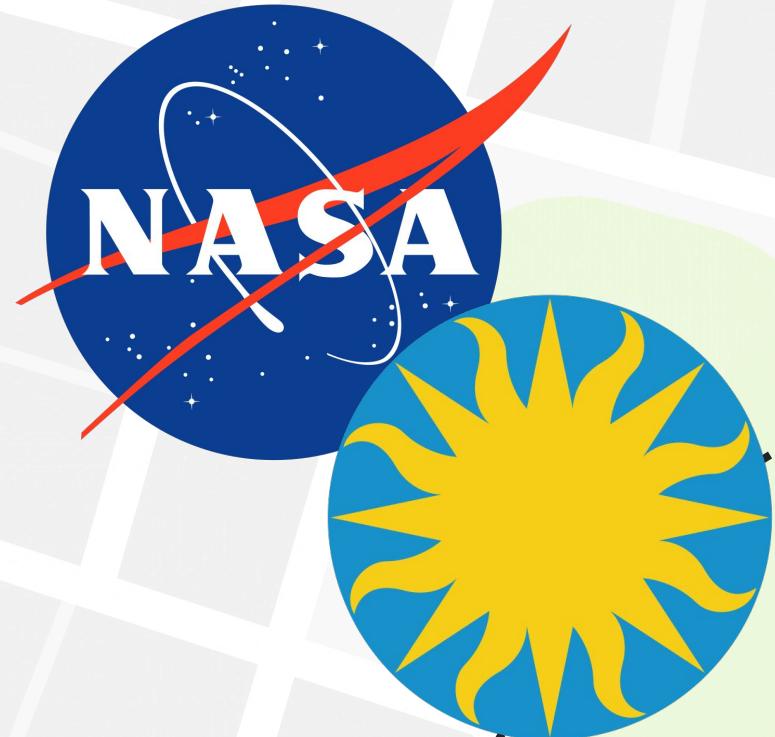
Water Sampling
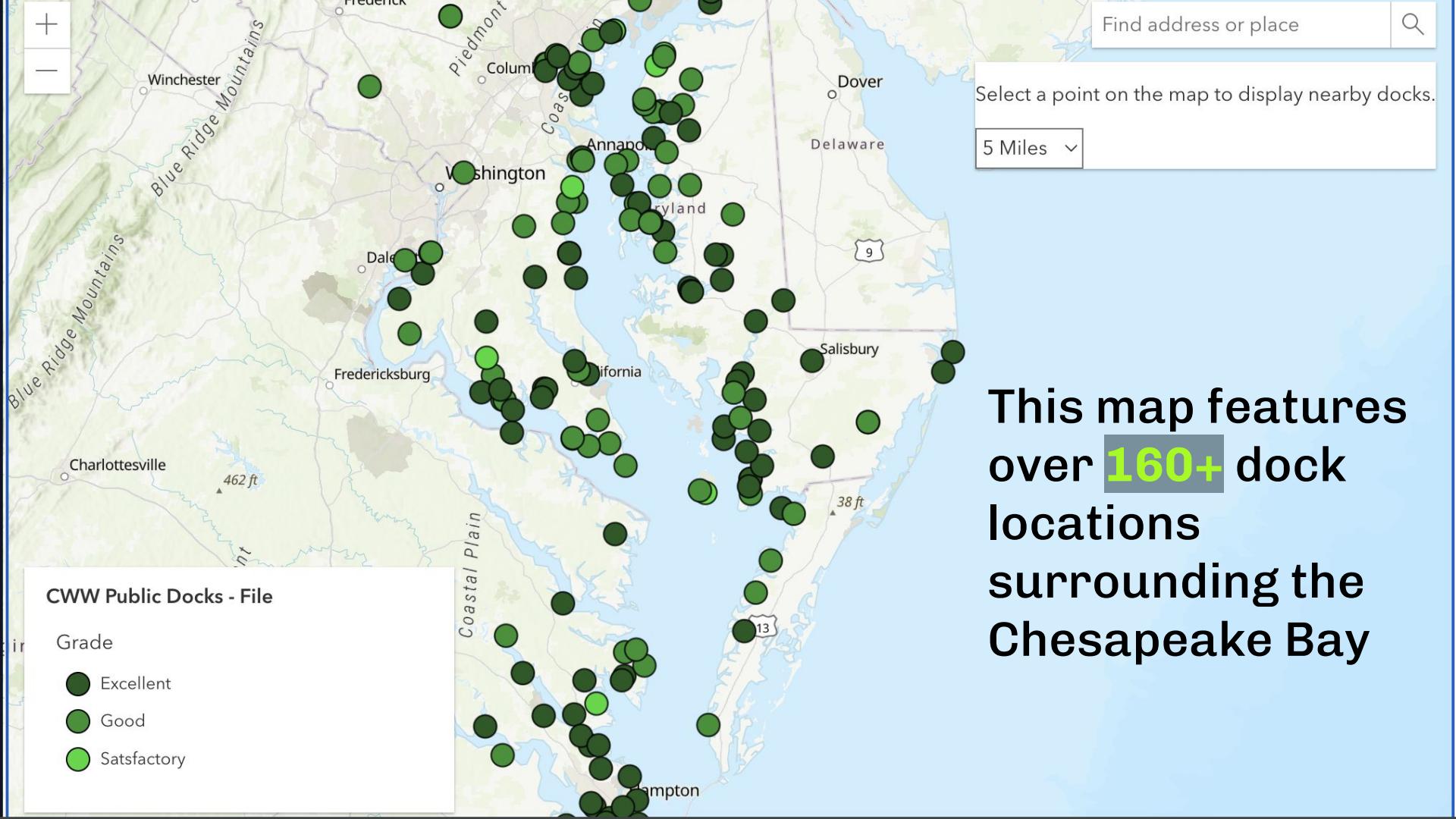
- Water sampling gives **insights** to health of the Chesapeake Bay ecosystem
- Data helps scientists **identify trends**, **assess threats**, and **implement** effective conservation and restoration measures

Volunteers Needed

- **CWW** seeks to help **NASA** optimize its **satellite algorithms** so that they can remotely track the water quality in coastal ecosystems like the Chesapeake Bay.
- Volunteers are the **backbone** of the CWW's research efforts by collecting the data

This map features over **160+** dock locations surrounding the Chesapeake Bay

CWW Public Docks - File

Grade

- Excellent
- Good
- Satsfactory
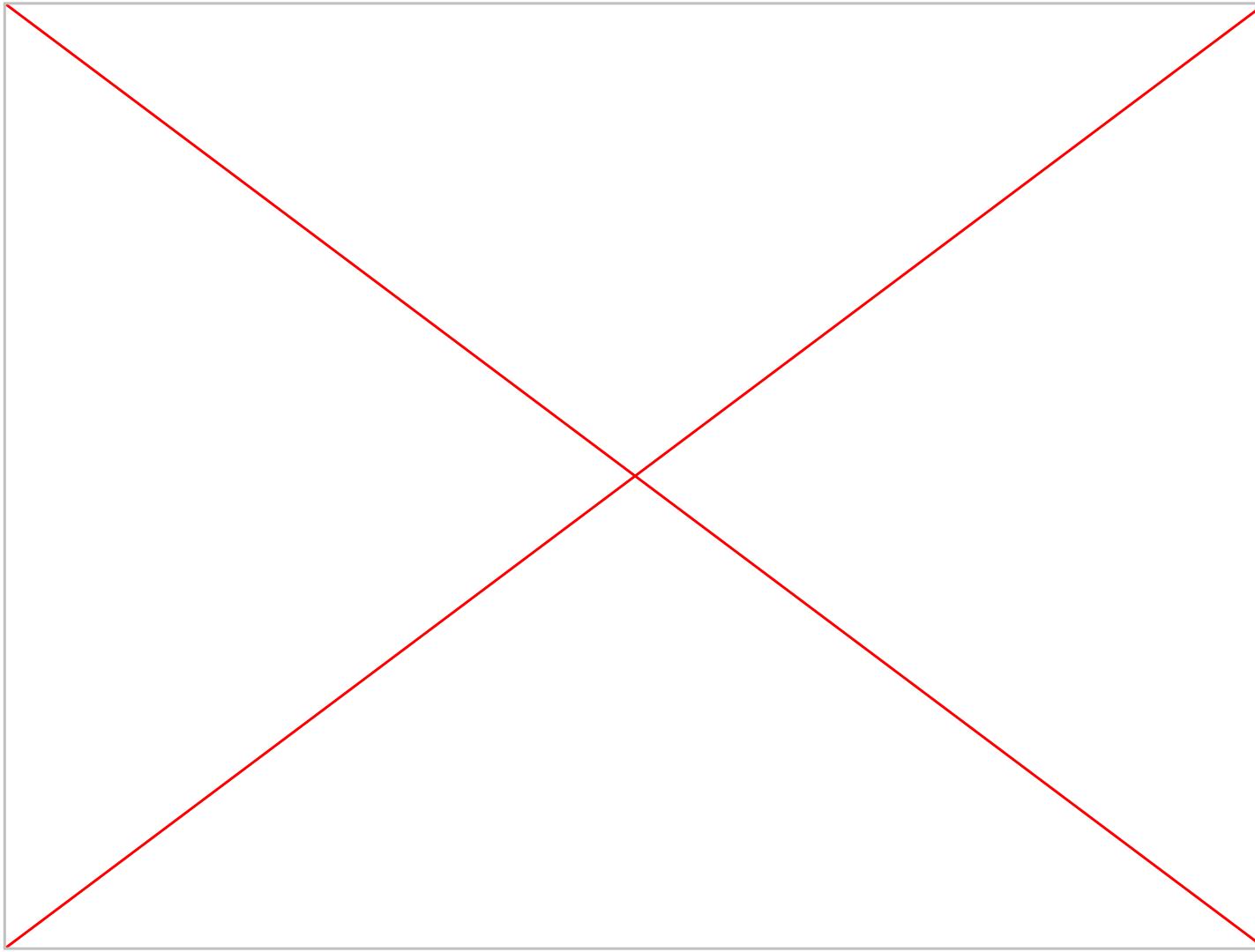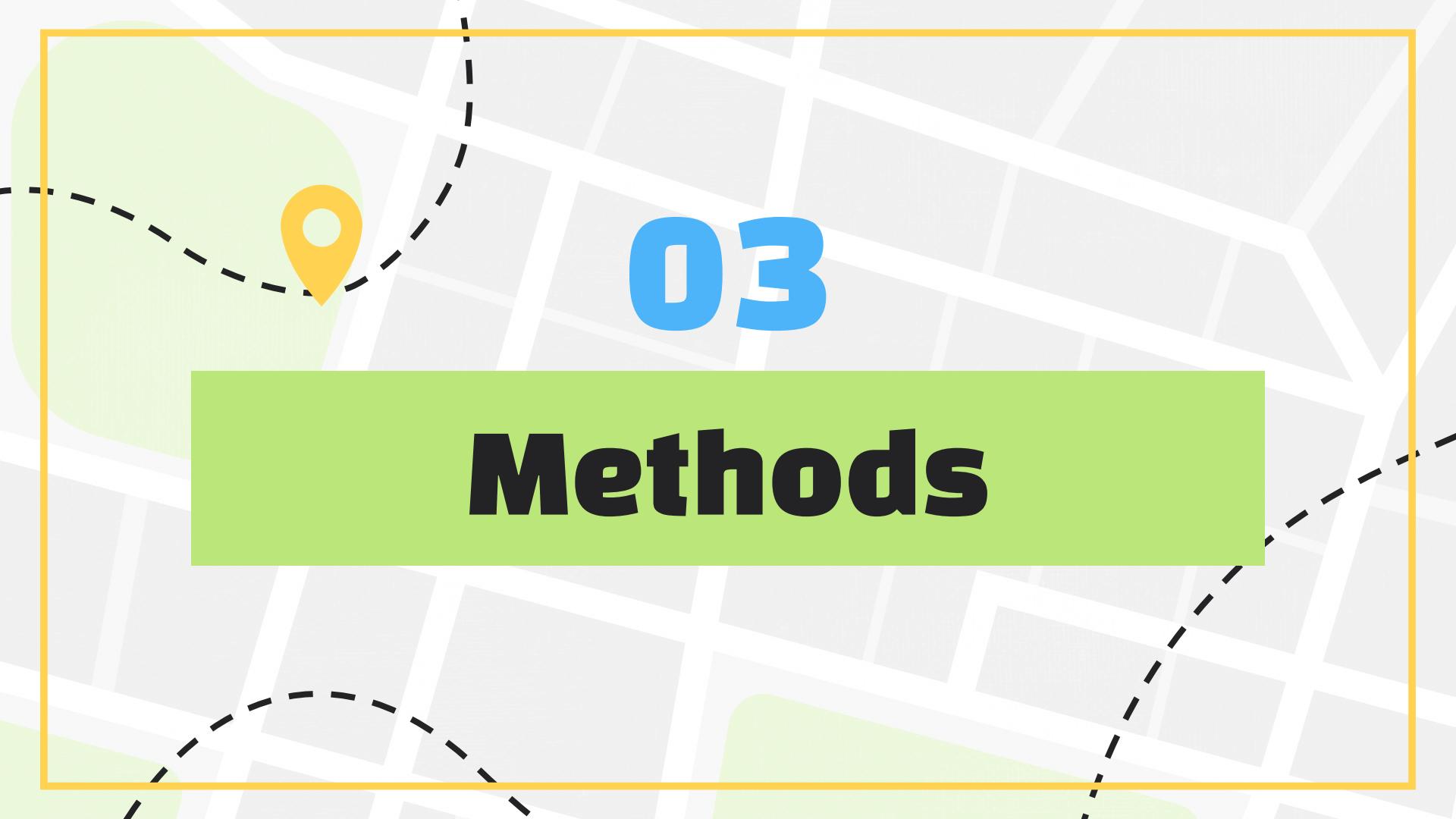
02

Tutorial + Features

03

Methods

Tools & Technologies

- **ArcGIS JavaScript** is a powerful **web mapping** technology
- Enables developers to create **interactive** and **customizable maps**, applications, and visualizations with Esri's geographic information system (GIS) capabilities.
- Map coded with HTML, JS, and CSS on Repl.it
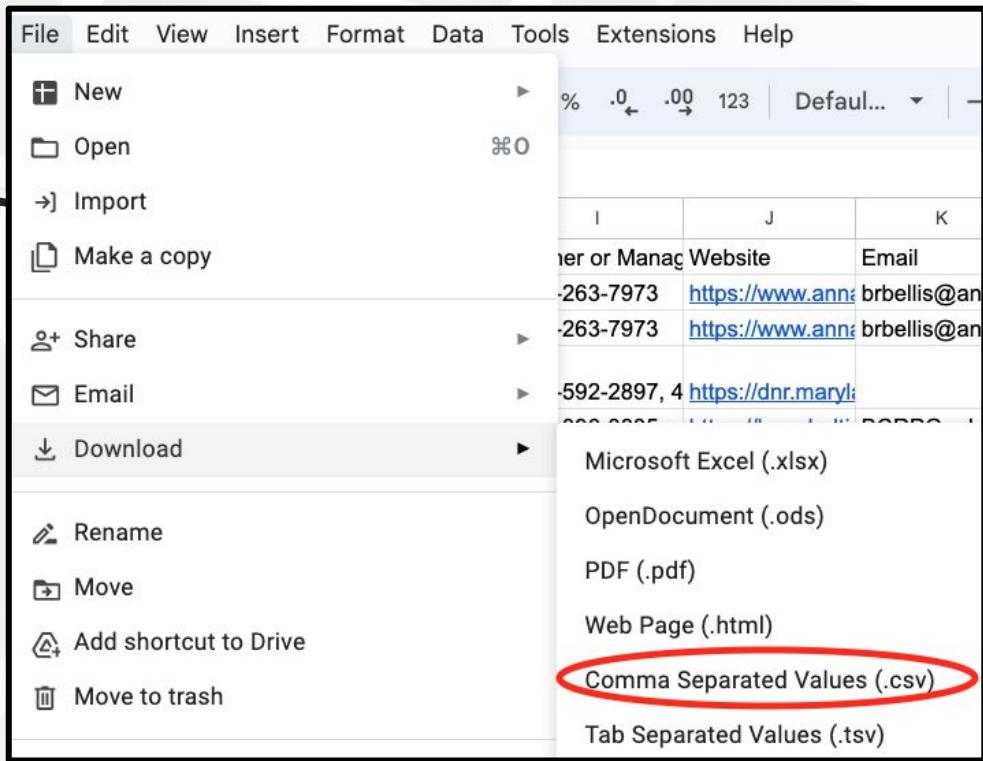
Map Data

- Information for each dock is listed in a **Google Spreadsheet**
- Spreadsheet contains the **popup information** including:
  - Site Name
  - Dock Grade
  - Contact information
  - Google Maps Directions
  - Coordinates
  - … and more!

	B	C	D	E	F	G
	Site Name	County	Water Body	Physical Addres	Owner or Manag	Facility Owner
	City Dock - Anna	Anne Arundel	Annapolis Harbo	1 Dock Street, A	City of Annapolis	MUNICIPAL
	Truxtun Park	Anne Arundel	Spa Creek	100 Truxtun Parl	City of Annapolis	MUNICIPAL
	Gunpowder Falls	Baltimore	Dundee Creek/G	Off Route 150 at	Maryland Dept. o	STATE
	Middle Branch P	Baltimore City	Middle Branch/P	3301 Waterview	Baltimore City D	MUNICIPAL
	Piney Run Park	Carroll	Piney Run Lake	30 Martz Road,	Carroll County D	COUNTY
	Charlestown Put	Cecil	North East River	Water and Marke	Town of Charlest	MUNICIPAL
	Franklin Street	Dorchester	Choptank River	At the end of Fra	The City of Cam	MUNICIPAL
	Glen Cove	Harford	Susquehanna Ri	2326 Glen Cove	Exelon Corporat	OTHER
	Flying Point Parl	Harford	Otter Point Cree	511 Kennard Av	Harford County I	COUNTY
	Queenstown Do	Queen Anne's	Little Queenstow	2nd Avenue, Qu	The Town of Qu	MUNICIPAL
	Thompson Creek	Queen Anne's	Thompson Creek	750 Thompson (	Queen Anne's C	COUNTY
	Jenkins Creek	Somerset	Jenkins Creek	2990 Calvary Rc	Somerset Co. Ro	COUNTY
	Wenona Harbor	Somerset	Lower Thorofare	8955 Deal Islanc	Somerset Co. Ro	COUNTY
	Deal Island	Somerset	Upper Thorofare	Ralph Abbott Rd	Somerset Co. Ro	COUNTY
	Saint Peters Cre	Somerset	Saint Peter's Cre	27151 Champ W	Somerset Co. Ro	COUNTY
	Janes Island Sta	Somerset	Daugherty Creek	26280 Alfred J. L	Maryland Dept. ⸱	STATE
	Coulbourn Creel	Somerset	Coulbourn Creel	27450 Coulbourr	Somerset Co. Ro	COUNTY
	Webster's Cove	Somerset	Wicomico River/	13301 Dorsey R	Somerset Co. Ro	COUNTY
	Chaptico Wharf	St. Mary's	Wicomico River	23975 Old Chap	St. Mary's Co. D	COUNTY
	Oak Creek Land	Talbot	Oak Creek/Miles	26000 St. Micha	Talbot County - [	COUNTY

Adding / Removing Docks

- **No code** required to upload
- Download the **CSV** file
- Upload to the **ArcGIS** server
- The map will now be up to date

Popup Information with Fields

	B	C	D	E
	Site Name	County	Water Body	Physical
	City Dock - Anna	Anne Arundel	Annapolis Harbo	1 Dock S
	Truxtun Park	Anne Arundel	Spa Creek	100 Trux
	Gunpowder Falls	Baltimore	Dundee Creek/C	Off Route
	Middle Branch P	Baltimore City	Middle Branch/P	3301 Wa
	Piney Run Park	Carroll	Piney Run Lake	30 Martz
	Charlestown Pub	Cecil	North East River	Water an
	Franklin Street	Dorchester	Choptank River	At the en
	Glen Cove	Harford	Susquehanna R	2326 Gle
	Flying Point Park	Harford	Otter Point Cree	511 Kenr
	Queenstown Do	Queen Anne's	Little Queenstow	2nd Aver
	Thompson Creel	Queen Anne's	Thompson Creel	750 Thor
	Jenkins Creek	Somerset	Jenkins Creek	2990 Cal
	Wenona Harbor	Somerset	Lower Thorofare	8955 De
	Deal Island	Somerset	Upper Thorofare	Ralph Ab
	Saint Peters Cre	Somerset	Saint Peter's Cre	27151 C
	Janes Island Sta	Somerset	Daugherty Creek	26280 Al
	Coulbourn Creel	Somerset	Coulbourn Creel	27450 C
	Webster's Cove	Somerset	Wicomico River/	13301 D
	Chaptico Wharf	St. Mary's	Wicomico River	23975 O
	Oak Creek Land	Talbot	Oak Creek/Miles	26000 St

```
const layer = new FeatureLayer({
    url: "https://services4.arcgis.com/tkyK8zdXvrUIsEhE/a
    renderer: GradeB,
    outFields: ["*"],
    popupTemplate: {
        title: "{Site_Name}",
        content: [{
            type: "fields",
            fieldInfos: [
                {
                    fieldName: "Site Name",
                    label: "Site Name"
                },
                {
                    fieldName: "Grade",
                    label: "Grade"
                },
                {
                    fieldName: "County",
                    label: "County"
                },
                {
                    fieldName: "Water Body",
                    label: "Water Body"
                },
                {
                    fieldName: "Physical Address",
                    label: "Physical Address",
```

Pocomoke River
Dockside slips

Site Name	Pocomoke River Dockside slips
Grade	Excellent
County	Worcester
Water Body	Pocomoke River
Physical Address	Riverside Drive, Pocomoke City, MD
Hours	Dawn to Dusk
Fee or Permit Required	Yes

Dock Grading

CWW Public Docks - File

Grade

- ● Excellent
- ● Good
- ● Satsfactory

A: 3-4 checked
B: 1-2 checked
C: 0 checked

Boat ramp: no
Ramp surface type: CONCRETE / WOOD
Large/Med parking lot
Fuel on-site: no
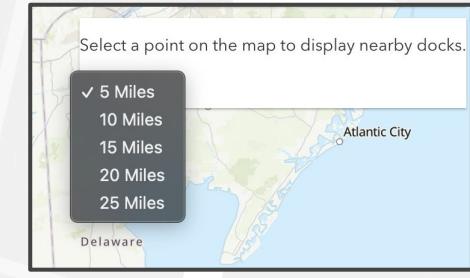
A → Excellent
B → Good
C → Satisfactory

Query by Distance / Radii

```
// when query type changes, set appropriate values
const queryOpts = document.getElementById("query-type");

queryOpts.addEventListener("change", () => {
    switch (queryOpts.value) {
        // values set for distance query
        case "distance":
            distance = 10;
            units = "miles";
            break;
        case "distance2":
            distance = 15;
            units = "miles";
            break;
        case "distance3":
            distance = 20;
            units = "miles";
            break;
        case "distance4":
            distance = 25;
            units = "miles";
            break;
        default:
            // Default set to basic query
            distance = 5;
            units = "miles";
    }
});
```

Select a point on the map to display nearby docks.

✓ 5 Miles
10 Miles
15 Miles
20 Miles
25 Miles

Atlantic City

Delaware

Total: 7

1	Rod N' Reel Marina West (Kellam's Park) boat ramps	✓
2	Rod N' Reel Marina West (Kellam's Park) soft access	
3	Discovery Village - boat ramp	
4	Deale Wharf	

1 of 7

```
function queryFeatures(screenPoint) {
    const point = view.toMap(screenPoint);
    layer
        .queryFeatures({
            geometry: point,
            distance: distance,
            units: units,
            spatialRelationship: "intersects",
            returnGeometry: false,
            returnQueryGeometry: true,
            outFields: ["*"]
        })
        .then((featureSet) => {
            pointGraphic.geometry = point;
            view.graphics.add(pointGraphic);
            view.openPopup({
                location: point,
                features: featureSet.features,
                featureMenuOpen: true
            });
            if (featureSet.queryGeometry) {
                bufferGraphic.geometry =
                featureSet.queryGeometry;
                view.graphics.add(bufferGraphic);
            }
        });
}
```

Acknowledgements

Thank you!

Questions?