

# PREPARING FOR SEA LEVEL RISE AT SHORELINES

MELTING ICECAPS, WARMER OCEANS, BIGGER STORMS, WITH 50% OF  
THE POPULATION LIVING ON THE COASTS.





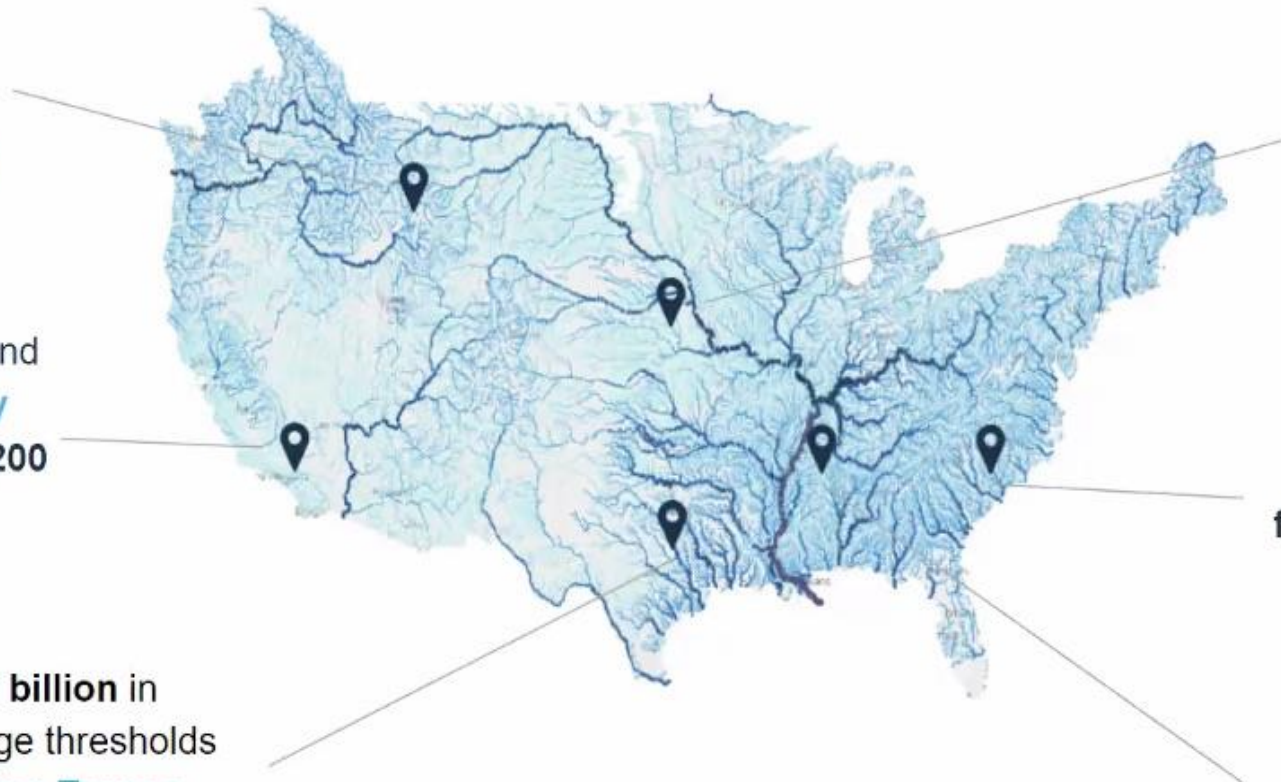


# We believe that flooding is the defining issue of our time, affecting everyday Americans across all states

Since 2015, flooding has caused **\$1 billion in annual damages** on average to the **Northern Rockies and Plains**

**Post-fire flash flood** in 2018 and 2019 in **Santa Barbara County** killed **23 people** and caused **\$200 million** in property damage

Hurricane Harvey caused **\$125 billion** in damage, but HUD's high damage thresholds **excluded 2/3** of very **low-income Texans** from relief



Floods in 2019 ruined **20 million acres of farmland** in the **Midwest**, causing an estimated **\$1 billion** in crop and livestock **losses** in **Nebraska** alone

Congress spent over **\$3B** to **rebuild two Marine Corps facilities** in **North Carolina** after Hurricane Florence in 2018

**51% of waterborne disease outbreaks** **across the country** were preceded by flooding





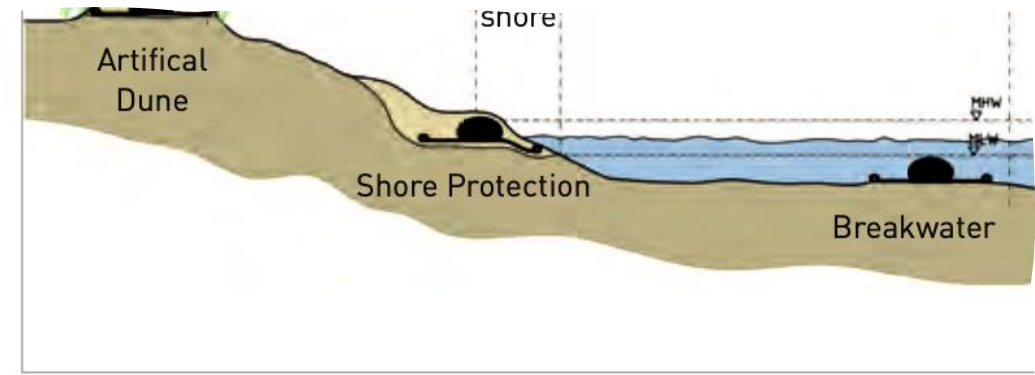








SoilTain Tube system for coastal protection exhibits exceptional performance with regard to all important aspects of a coastal protection system.



Shore stabilization possibilities with SoilTain Tubes including scour apron parallel to the coastline



SoilTain Tube as groyne with rock cover and protective non-woven



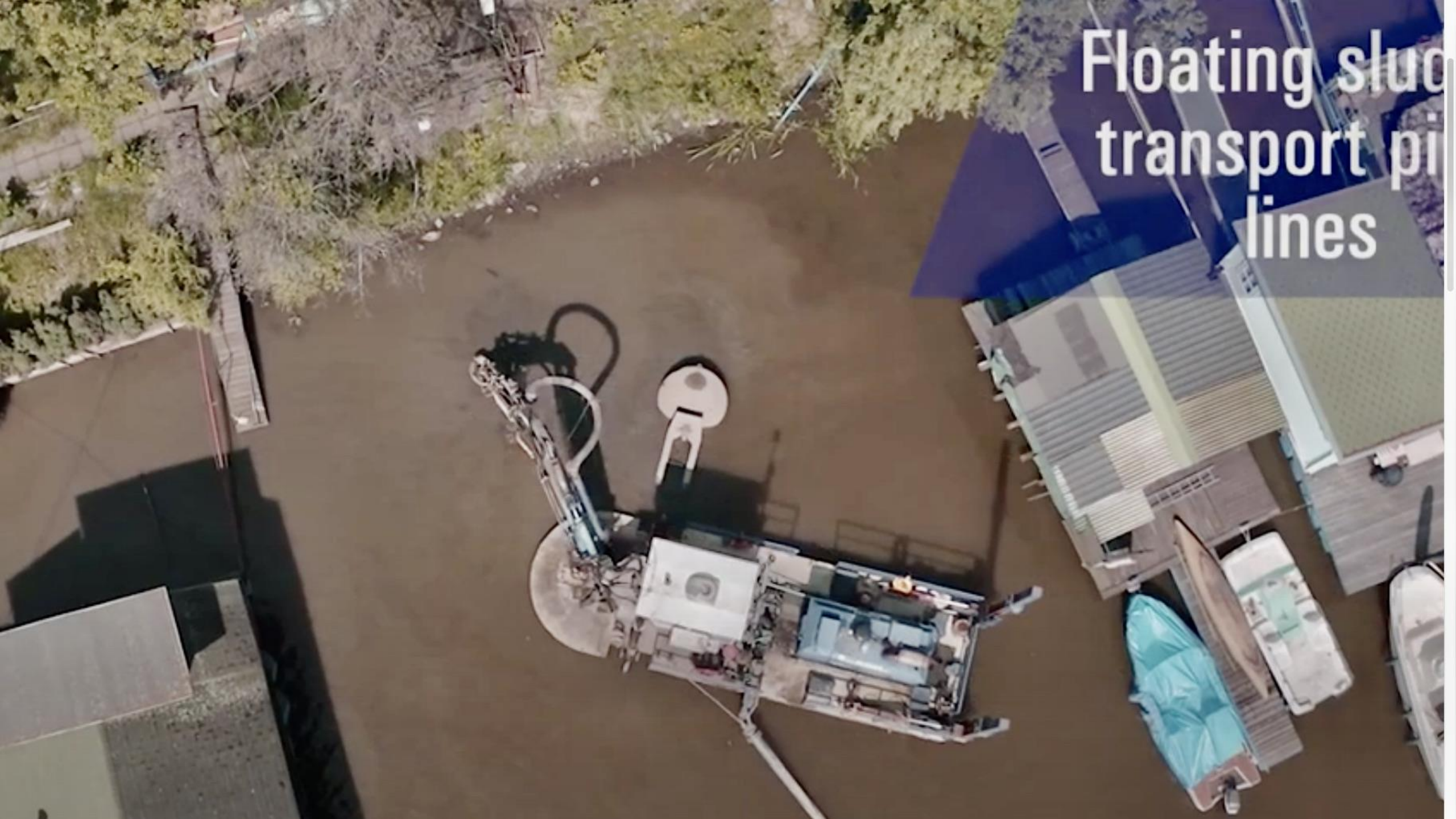
SoilTain Tube as artificial reef breakwater







Floating sludge  
transport pi  
lines













## Plan Bay Area 2050: Adapt to Sea Level Rise Strategy

### *Estimated Cost of Climate Adaptation Projects Across Region*

#### Bay Area Resiliency Projects

(in millions of \$YOE)

| Category           | Units         | Subtotal        |
|--------------------|---------------|-----------------|
| Marsh Restoration  | 100,000 acres | \$6,539         |
| Ecotone Levees     | 58 miles      | \$2,413         |
| Traditional Levees | 68 miles      | \$2,534         |
| Seawalls           | 13 miles      | \$1,006         |
| Elevated Roadways  | 11 miles      | \$4,795         |
| Tidal Gates        | 23 units      | \$152           |
| Relocation Funds   | 1,390 homes   | \$1,815         |
| <b>TOTAL</b>       |               | <b>\$19,255</b> |





# 96.0% Study Area at Direct Risk Benefited

| Feature Type                         | Approx. Miles |
|--------------------------------------|---------------|
| Storm Surge Barriers                 | 7.4           |
| Shoreline Based Measures             | 24.2          |
| Induced Flooding-Mitigation Features | 22.5          |
| Risk Reduction Features (not shown)  | 36.2          |

| Alternative                     |          |
|---------------------------------|----------|
| First Cost (\$B):               | \$ 112.3 |
| Total Present Value Cost (\$B): | \$ 150.2 |





TenCate Geotube® GC1200 Series Durability Engineered Composites









| Position                       | Name            | Technical                   |                   |                 |             |                   |                     |                     | Marketing         |                                   |  | Administrative     |                 |           |                      |                    |          | Permitting          |                           |                      |                 |                        |  |  |  |
|--------------------------------|-----------------|-----------------------------|-------------------|-----------------|-------------|-------------------|---------------------|---------------------|-------------------|-----------------------------------|--|--------------------|-----------------|-----------|----------------------|--------------------|----------|---------------------|---------------------------|----------------------|-----------------|------------------------|--|--|--|
|                                |                 | Equipm't Operating Req'mnts | Eng'rng           |                 | Fab         |                   | Marine              |                     |                   | Fac's                             | Business Dev                           |                    |                 | Marine    |                      |                    | Business |                     |                           |                      |                 |                        |  |  |  |
|                                |                 |                             | Conceptual Design | Detailed Design | Contracting | Quality Assurance | Operations Managmnt | Dredging Technology | Sediment Dynamics | Beneficial Upgrading of Sediments | Marine Spreads, Transport & Facilities | Image and Strategy | Media / Message | Proposals | Operating Procedures | Dedging Operations | Training | Reporting / Control | Procurement & Contracting | Finance / Accounting | Human Resources | Audit, IP, Legal, etc. |  |  |  |
| Coordinator                    | Mel Friedman    |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Operations Manager             | John Crowson    |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Technical Support              | Doug Thompson   |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Facilities & Logistics         | Joe McDermott   |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Design & Integration           | Bryan Longhurst |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Proposals Manager              | Peter Crossland |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Business Manager               | Joel Friedman   |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Permitting                     | James Coats     |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Business Development           | Graham Heaton   |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |
| Health, Safety and Environment | Not Yet Staffed |                             |                   |                 |             |                   |                     |                     |                   |                                   |  |                    |                 |           |                      |                    |          |                     |                           |                      |                 |                        |  |  |  |

|                       |                        |                                 |  |
|-----------------------|------------------------|---------------------------------|--|
|                       | <b>Overall Subject</b> | <b>Wing Fluidizer Hands- On</b> |  |
| Subject Matter Expert |                        |                                 |  |
| Conversant            |                        |                                 |  |
| Casual                |                        |                                 |  |

***"Innovation in Dredging"***

DREDGING PROJECT MANAGEMENT & ADMINISTRATION





## Aeolian Yacht Club

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Port Of Point San Pablo

Claybirds Studio

Stenmark Dr

Pt San Pablo Marina Road

Sailing Goat

Point San Pablo Harbor

POINT SAN PABLO HARBOR

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The Wave C  
Unique acoust

Marina District  
Lighthouse

Golden Gate Yacht Club

St. Francis Yacht Club

Bob's Lookout

San Francisco Bay Trail

Golden Gate Promenade

Yacht Harbor

San Francisco  
Marina Yacht Harbor

Marina Airfield  
Historical Marker

Little Marina  
Green  
Picnic Area

Marina Blvd

Marina Blvd

Marina Blvd

Marina Blvd

Avila St

Peak Realty Group

3830 Divisadero Homes

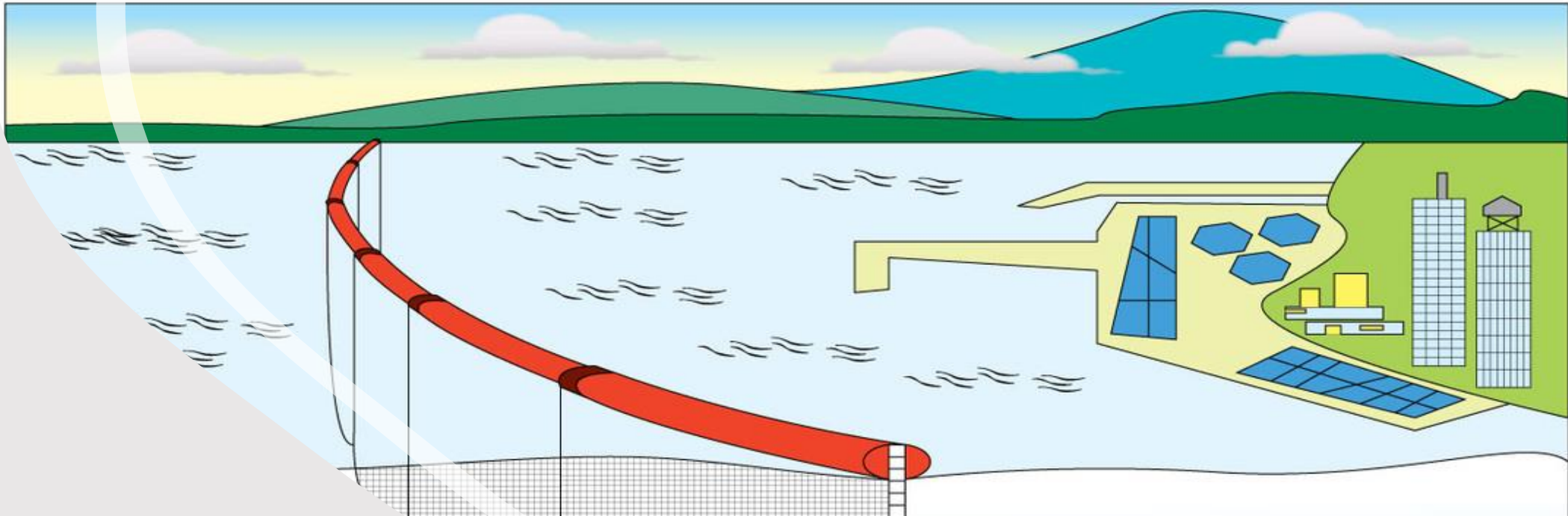
3820 Scott Apartments



**TYPE 3 HEAVY-DUTY TURBIDITY CURTAIN WITH PLAIN SKIRT**



**TYPE 3 HEAVY-DUTY TURBIDITY CURTAIN WITH FILTER FABRIC SKIRT**







Enviro-USA Floating Turbidity Barrier Guide





# Watermaster

## North America