

MARINE VESSELS: A MAJOR SOURCE OF MICROPLASTIC POLLUTION

The Invisible Threat to
Our Tangible Home.

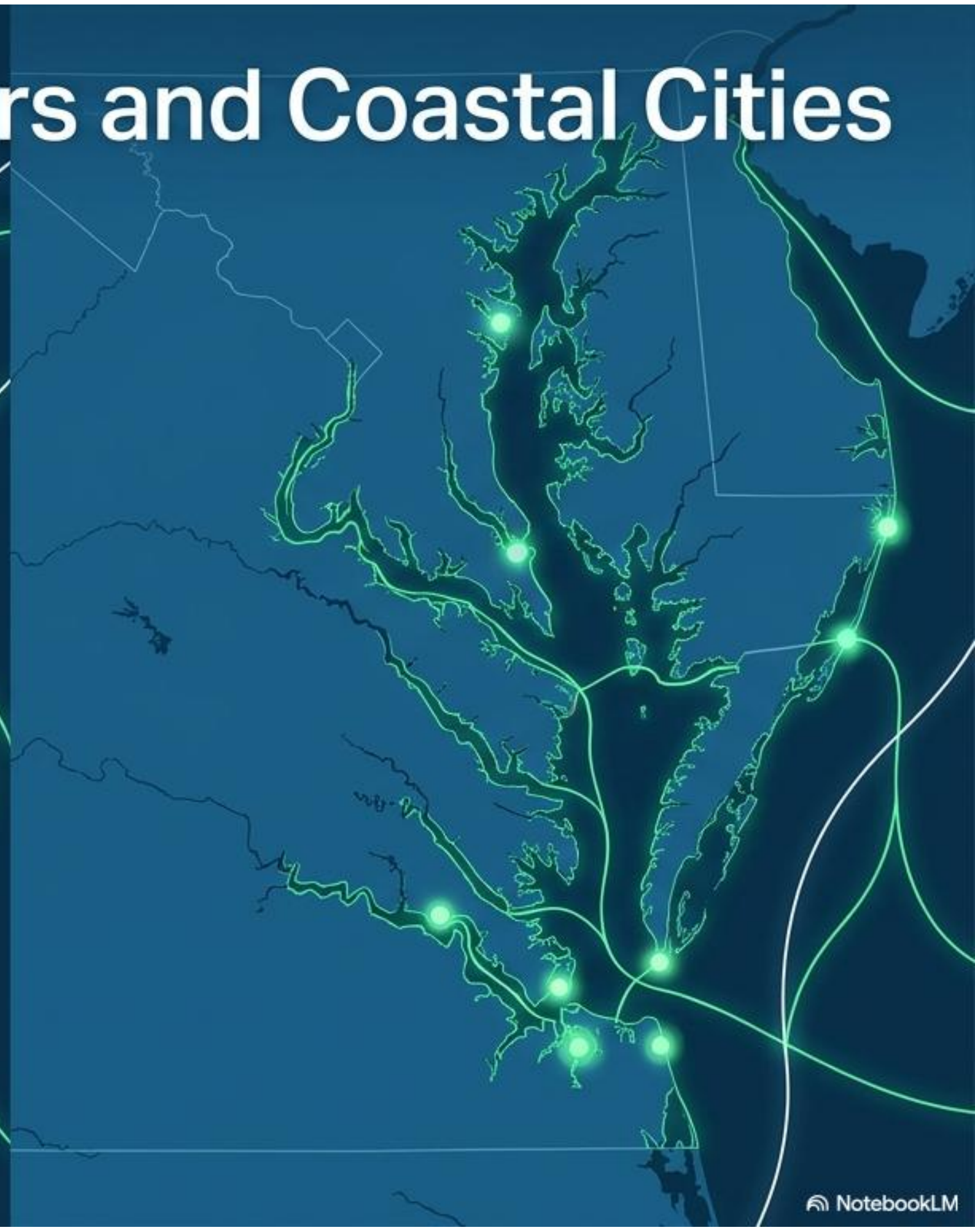
Protecting Virginia's Waters and Coastal Cities

PROTECT VIRGINIA

Who We Are: Protect Virginia is a grassroots team of citizens dedicated to the health of the Chesapeake Bay watershed and coastal ports.

Our Focus: Defending our port communities from the massive, pervasive impacts and pollution of the commercial shipping and cruise industries.

Our Mission: Championing managed growth, prudent regulation, and sustainable environmental practices to ensure ecosystem survival, public health, and a high quality of life.



A stylized, colorful illustration of two cruise ships sailing on a sea represented by a grid pattern. The ship in the foreground is a large, multi-decked vessel with a prominent yellow and red funnel, featuring various amenities like pools and slides. The ship behind it is similar but with a more rounded, dome-like structure on its upper decks. The background shows a dark blue night sky with a few stars and a distant city skyline with tall buildings. The overall style is graphic and vibrant.

Norfolk Harbor: 62 Cruise
Ships and 2400 Commercial
Vessels visiting annually

A Floating City: Where the Plastics Originate



The Deck

Synthetic ropes, nets, and maintenance cleaning products degrade and wash overboard.

The Hull

Antifouling ship paint and marine coatings constantly weather and scrape off directly into the sea.

The Laundry Room

Synthetic textiles shed massive amounts of microfibers (124–308 mg/kg per wash) directly into grey water.

The Cabins & Showers

Personal care and cosmetic products (PCCPs) wash plastic microbeads directly down the drain.

Gray Water

The Gray Water Loophole



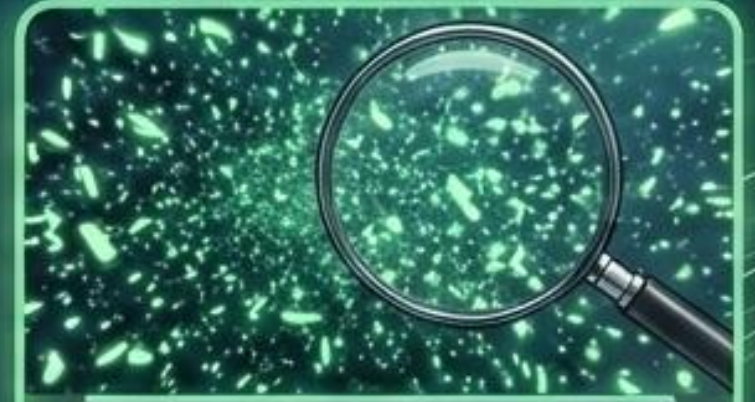
Laundry,
Sinks &
Showers



160 to 254
Liters /
person / day



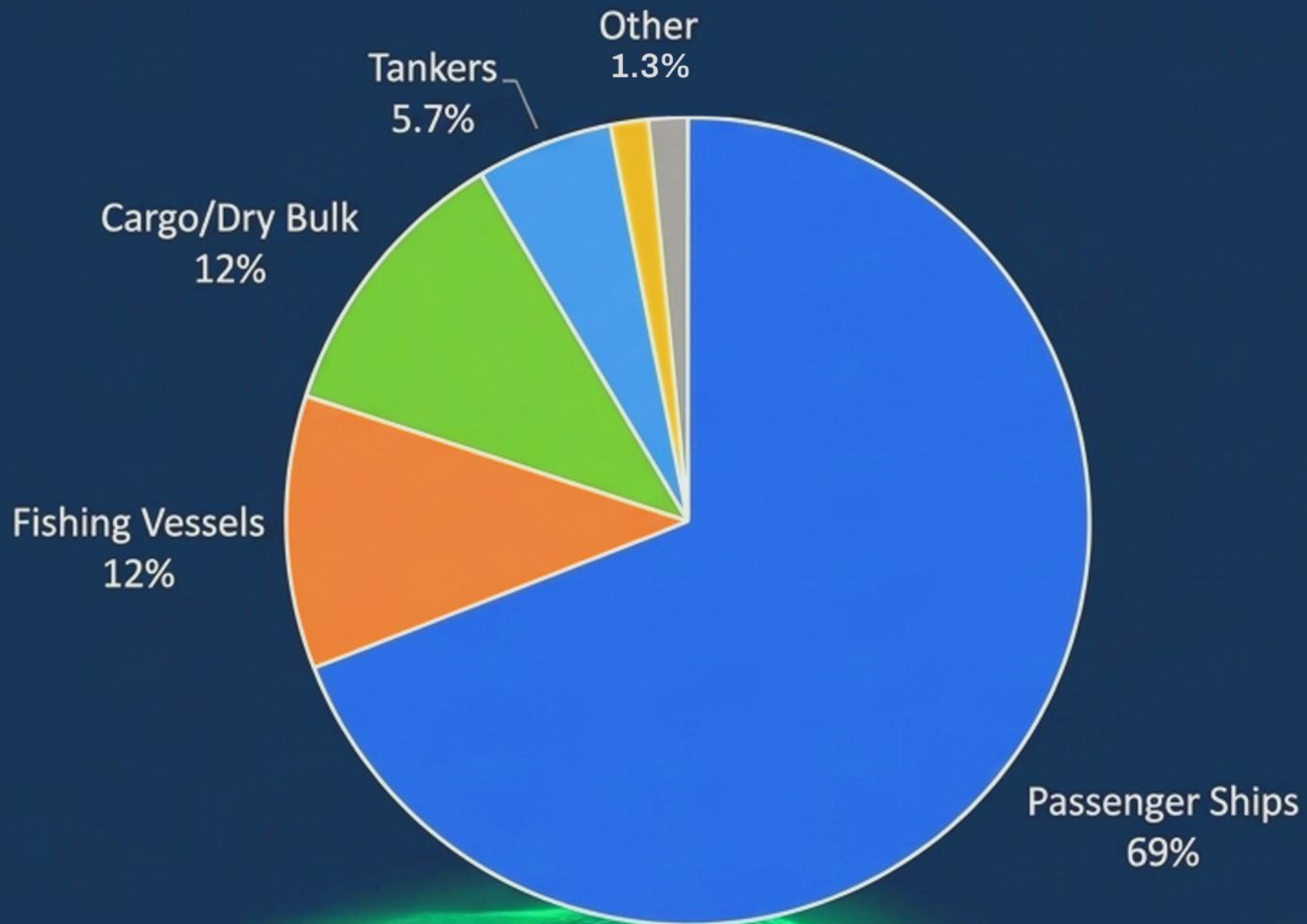
Largely
unregulated;
can be dumped
directly into
most marine
environments



Extreme — up
to **602,000**
particles/m³
in laundry
streams

Ships legally discharge millions of tons of gray water, injecting large amounts of microplastics directly into marine habitats.

Who is Producing the Invisible Wake?



Passenger Vessels are the Primary Source

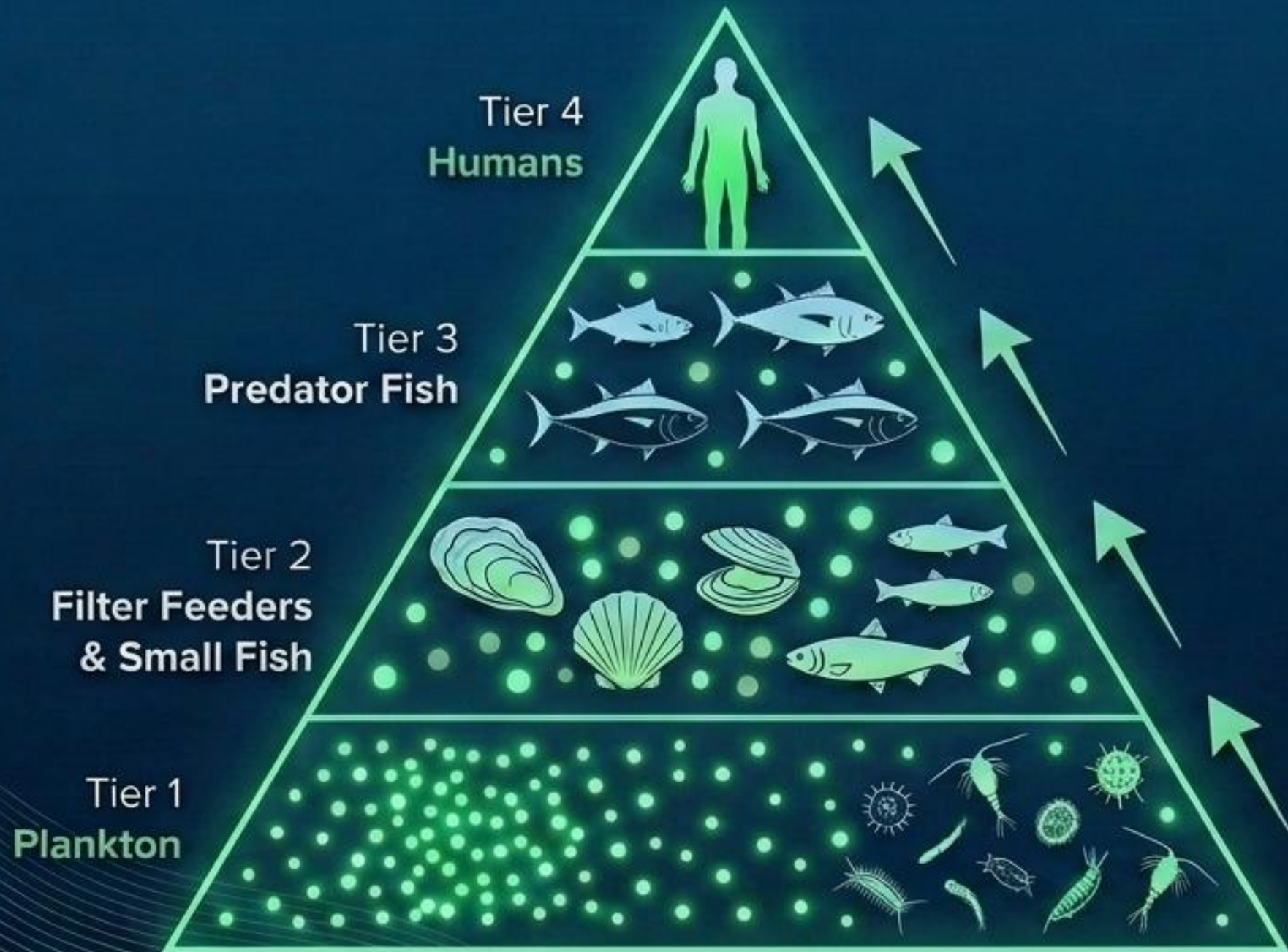
Passenger Ships account for 69% of the gray water discharge, significantly higher than any other vessel type.

The Local Victim: Filter Feeders



Bivalves like oysters and clams filter gallons of water daily to feed. Because **microplastics** are the size of their natural food (phytoplankton), they readily ingest and retain these toxic particles, impacting marine biodiversity and the local food chain.

The Biomagnification Pyramid



A Toxic Chain Reaction

Biomagnification is the process where microplastics and the **toxic chemicals** they carry amplify in concentration as they move up the food chain.

Virginia's Seafood Under Threat



The Watermen

Over 1,500 active commercial watermen rely entirely on the purity of the Chesapeake Bay to make a living and preserve a multi-generational way of life.



The Seafood Economy

Virginia is a leading supplier of oysters, blue crabs, and menhaden—species that are highly susceptible to microplastic contamination.



The Economic Engine

The seafood supply chain generates millions in economic output. Microplastic contamination may impact local livelihoods.

Practical Solutions at the Source

1

Onboard Laundry Filtration

Installing simple, cost-effective microfiber filters on commercial and cruise ship laundry machines can capture up to 78% of toxic microfibers before they ever reach the ocean.

2

Product Substitution

Cruise lines and commercial fleets must mandate the switch to plastic-free personal care, cleaning, and maintenance products, eliminating primary microbeads entirely.

3

Close the Regulatory Loophole

Implement holistic wastewater management policies that force the shipping industry to treat grey water with the exact same strict regulatory oversight currently applied to black water (sewage).



© Protect Virginia 2026
info@Protect-Virginia.org