

ToMEx: Toxicity of Microplastics Explorer

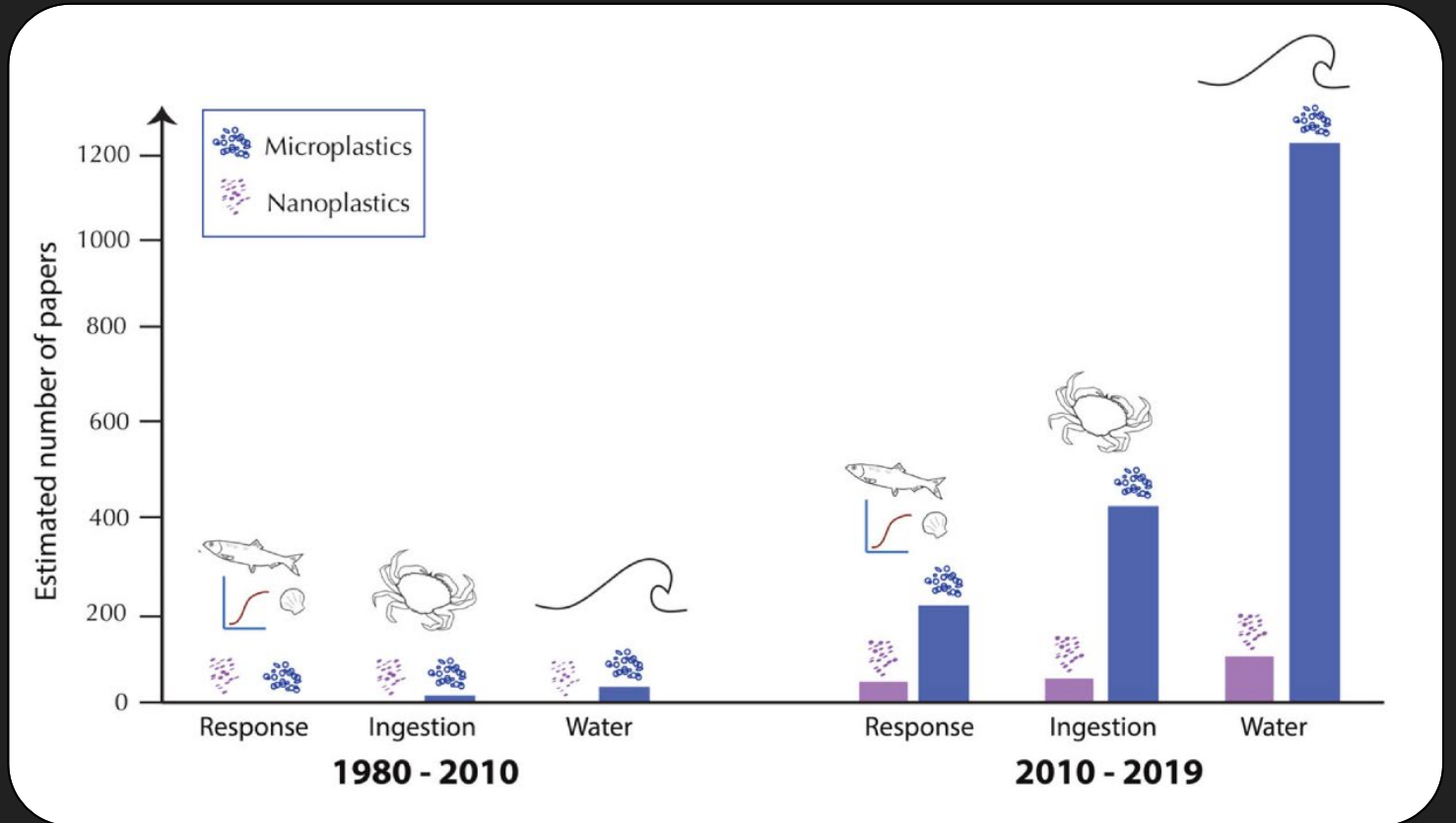


California Microplastics Health Effects Workshop Report Out

8 September 2021

The Challenge

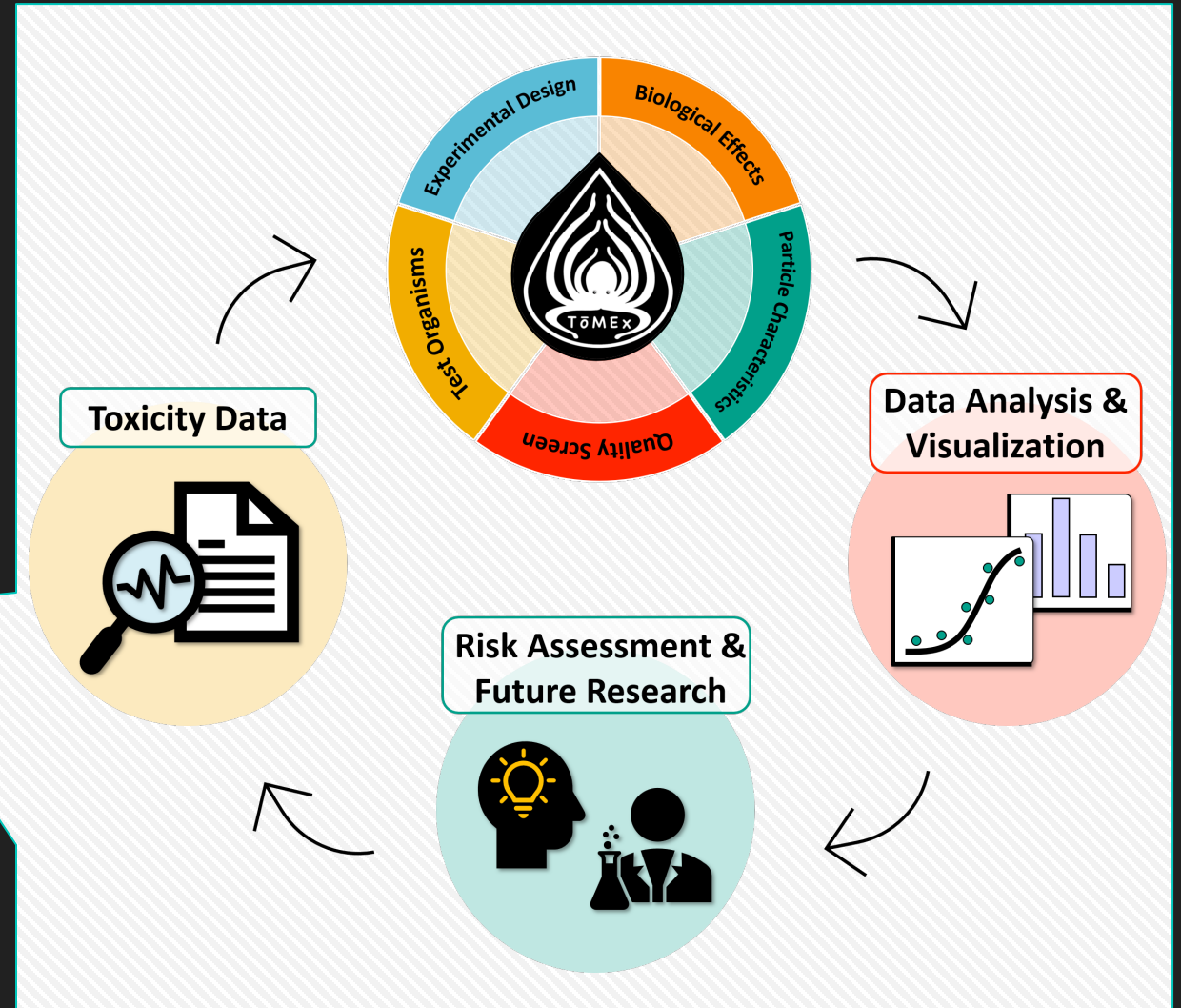
- Microplastics research has exploded in the last decade
- Coalesce existing data
- Tool to interact with and explore existing data



Granek, Brander, & Holland *Limnology & Oceanography Letters* 2020

The Solution: ToMEx

- Database for Microplastics Toxicity + R Shiny App
- Tool to summarize, explore, and analyze toxicity data
- Aquatic Organisms & Human Health



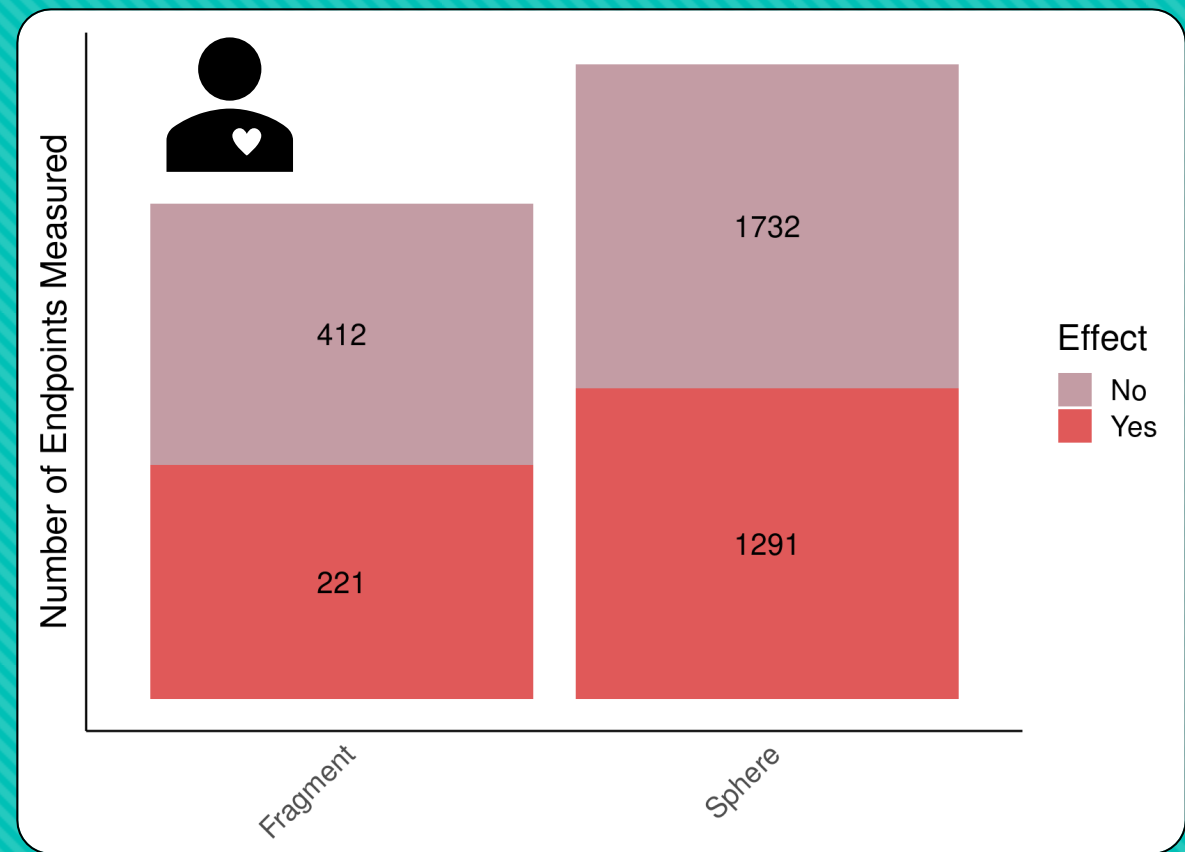
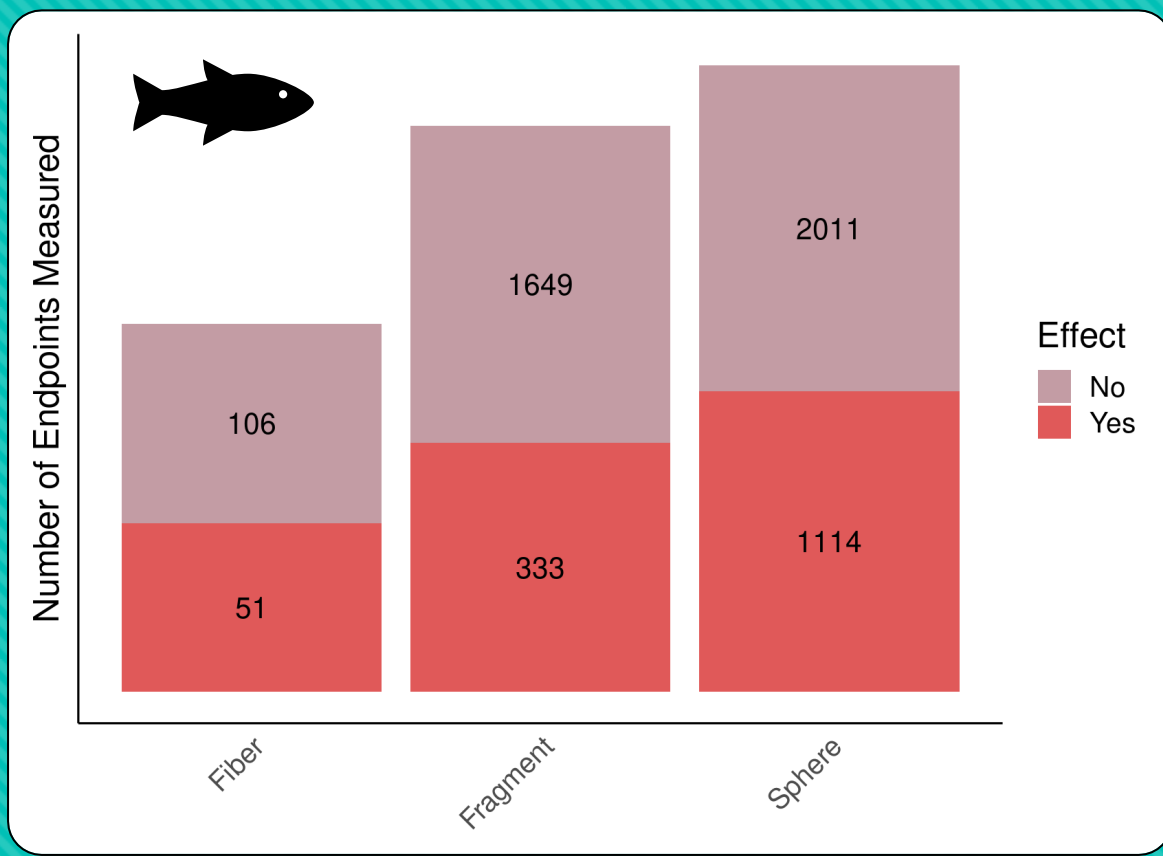
Empowering Research

- ToMEx was designed and used to achieve specific workshop goals
- Will be made publicly available
 - Scrutinize the microplastics toxicity data
 - Facilitate your own research agendas
- Maintenance through community support will ensure future utility



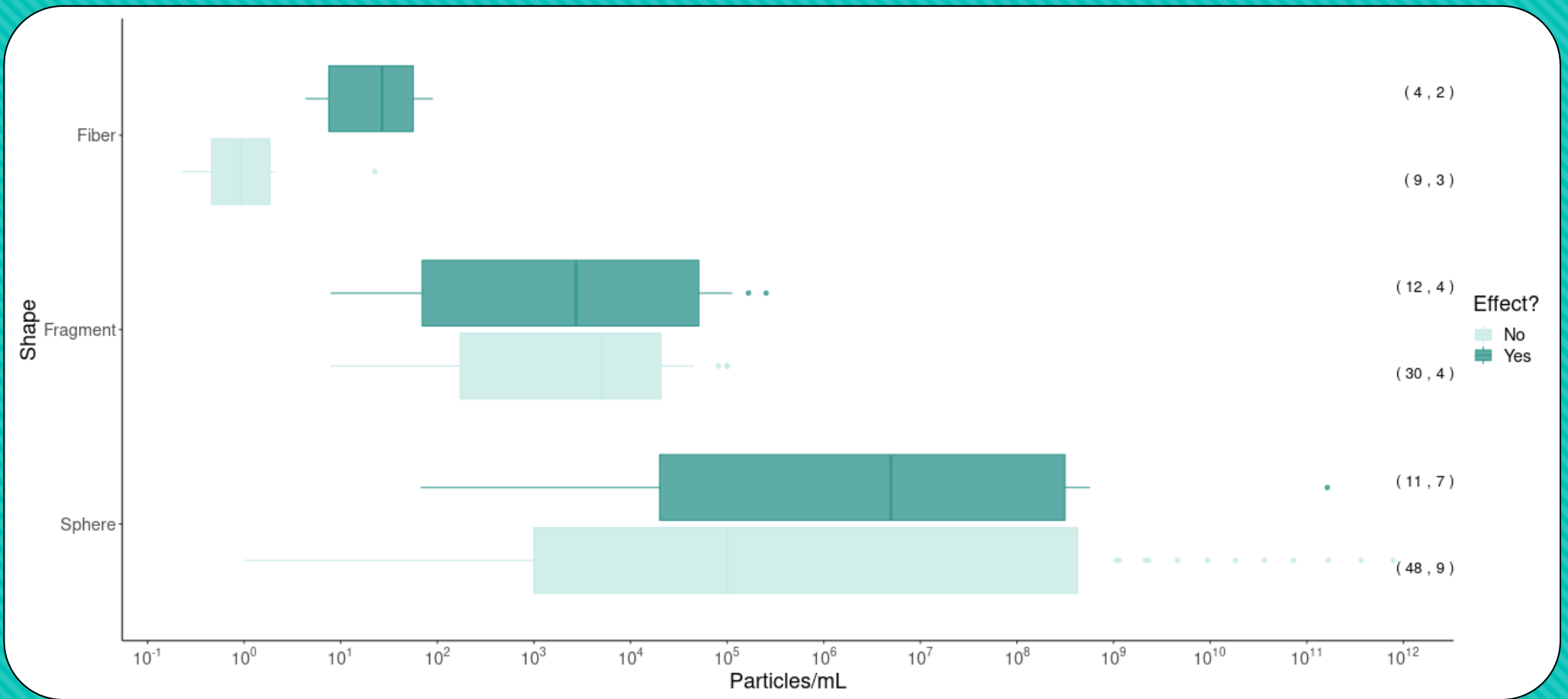
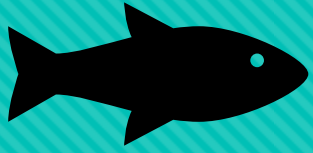
How to Use ToMEx





Summarize

- Quickly identify data gaps
- Few studies address the effects of fibers

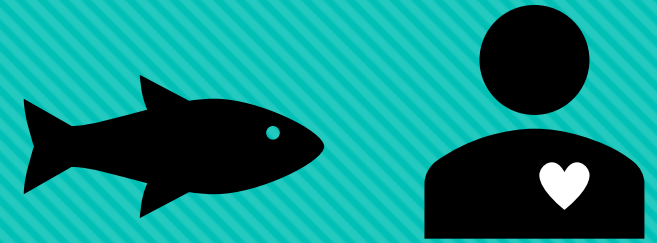


Visualize

- Create graphics from user-selected data
- Compare effects by shape across studies
- Compare effect/no effect

Technical “Red Criteria”

- ☑ Test media & concentration
- ☑ Exposure route
- ☑ Test species
- ☑ Sample size
- ☑ Control group
- ☑ Exposure duration
- ☑ Particle Size
- ☑ Particle Shape
- ☑ Polymer Type
- ☑ Particle Source

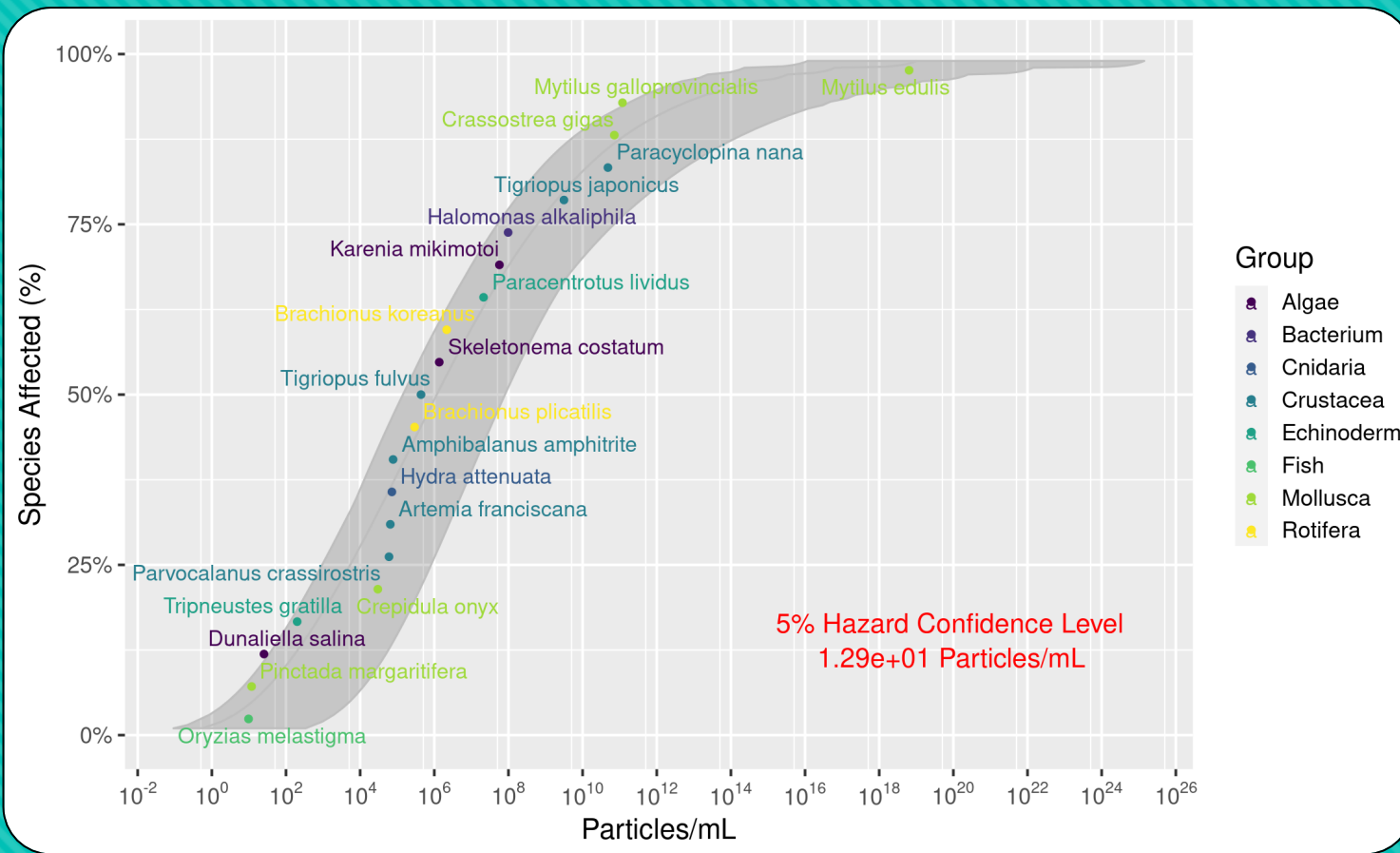
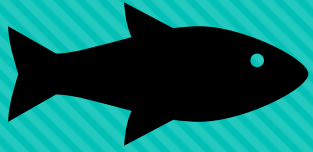


Data filtered to meet these minimum requirements



Screen

- Aquatic Organisms: Technical & Risk Assessment
 - “Particle Only” studies
- Human Health: Particle, Experimental Design & Risk Assessment
 - *In vivo* ingestion studies



Analyze

- Generate SSDs and hazard concentrations from user-selected data
- Facilitate risk assessment exercises
- No analysis for human health due to limited data



Logo created by J.C. Leapman.

Welcome

Overview

Search

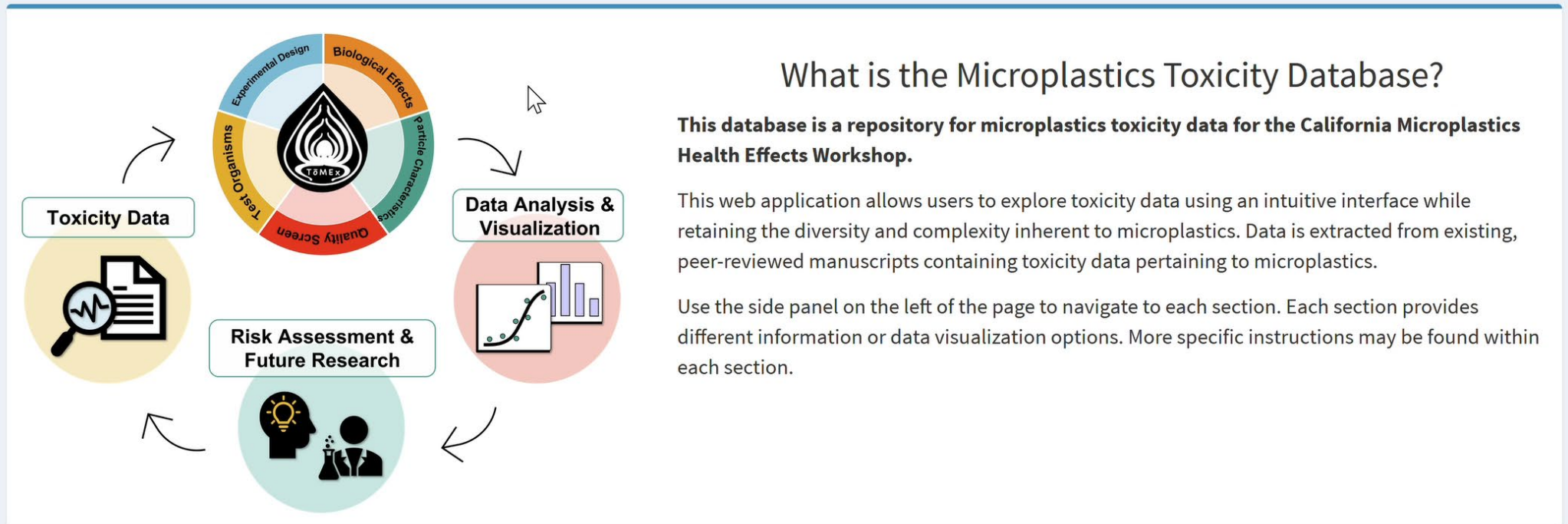
Exploration

SSD


Study Screening

Resources

Welcome to the Toxicity of Microplastics Explorer, Aquatic Organisms Database!



The Future of ToMEx

- ToMEx will become publicly available by the end of the year!
 - microplastics.sccwrp.org
- Next year, we plan to begin adding new studies to maintain the database
- Follow us on Twitter for more updates!  @ToMExApp

Acknowledgements & Contributors



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Questions?