SEA of Solutions

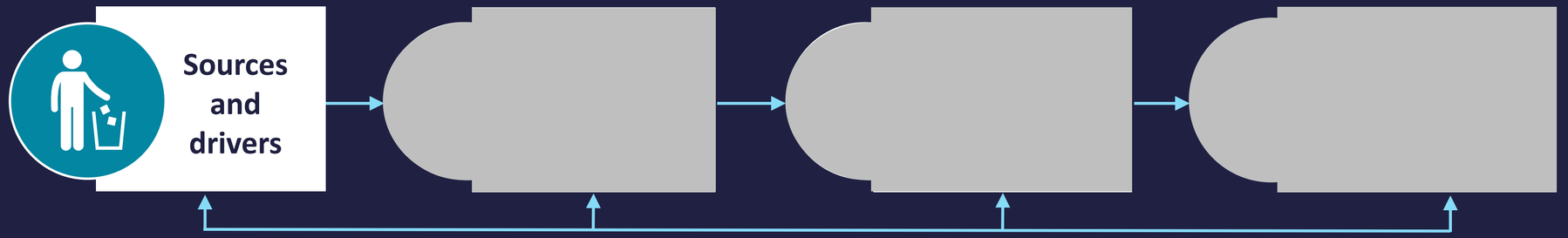
partnership week for marine plastic pollution prevention
11-14 november 2019

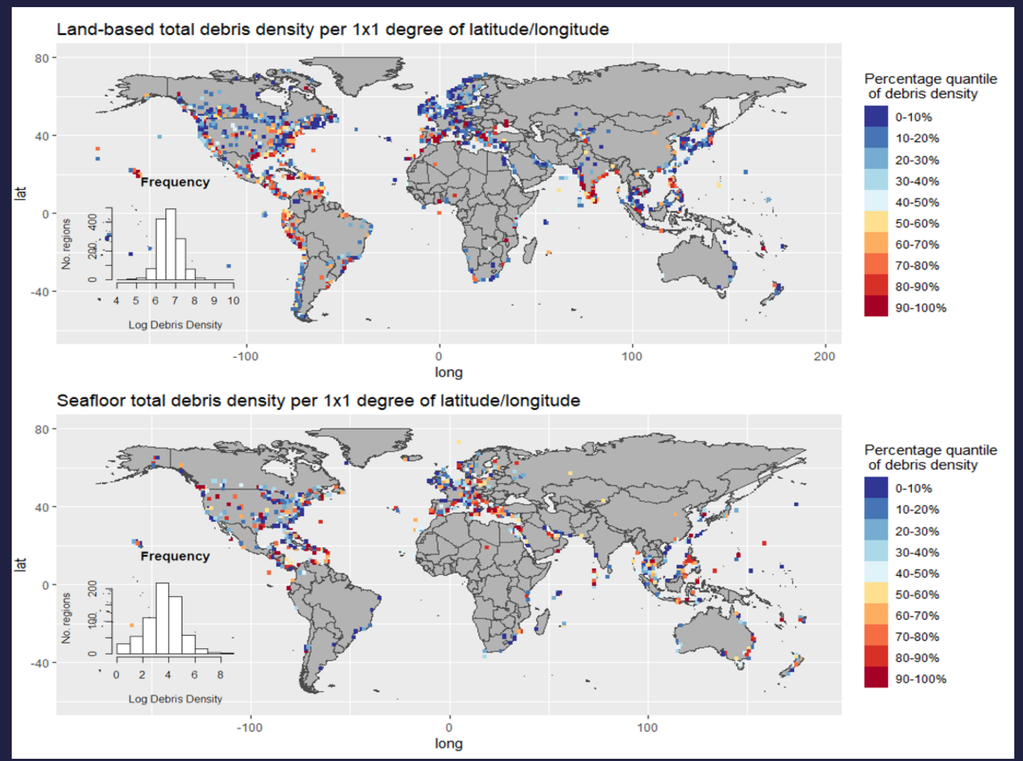
TOWARDS BETTER DATA

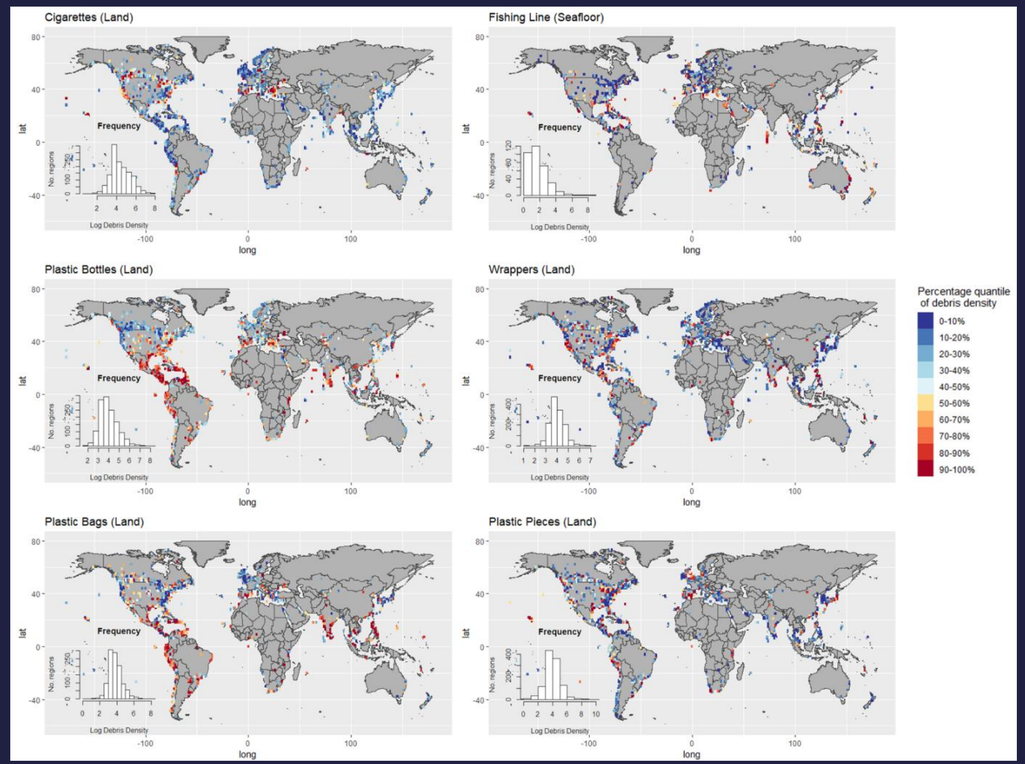
Qamar Schuyler

November 2019

CSIRO Marine Debris Research Program







THERE'S DATA, AND THEN THERE'S *BETTER* DATA…

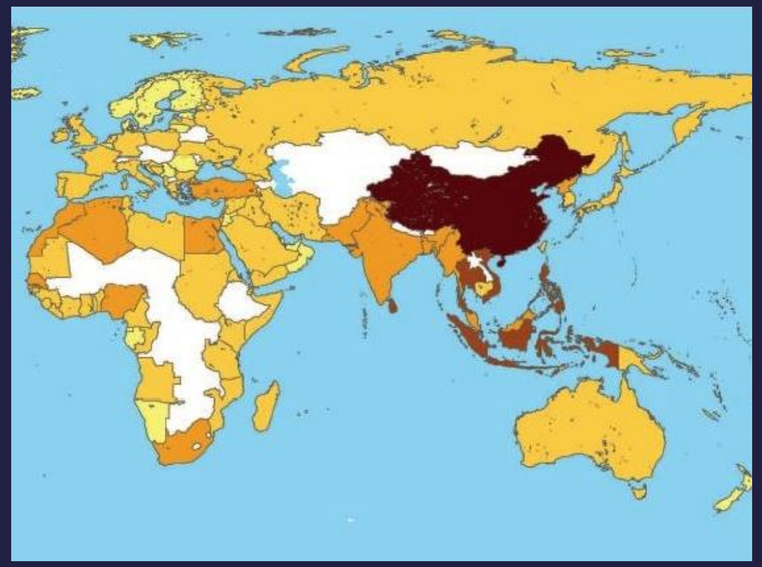
https://www.thebetterindia.com/106406/chennai-coastal-cleanup-volunteer-initiative-chennai-trekking-club/

https://www.savebay.org/problem-plastics/

HOW DO WE GET FROM HERE... (DATA)

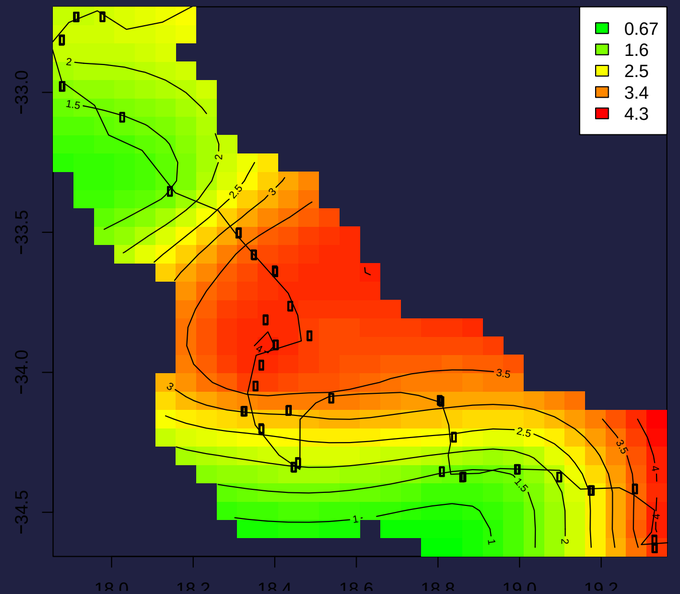
...TO THERE?
(BETTER DATA)

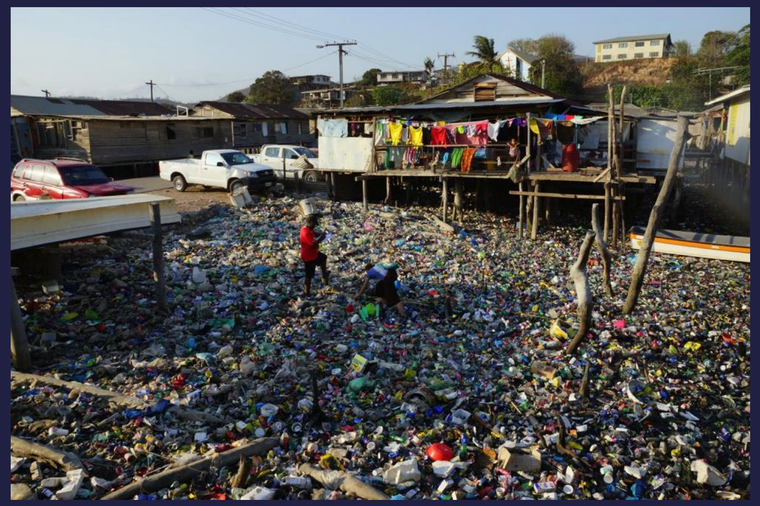
Global plastics leakage project



Objectives

1. Validate estimates of pollution from land
2. Identify hotspots for loss
3. Investigate drivers
4. Global baseline





HOW DO WE GET FROM HERE... (DATA)

...TO THERE?
(BETTER DATA)

KNOW YOUR QUESTION

What are my goals?

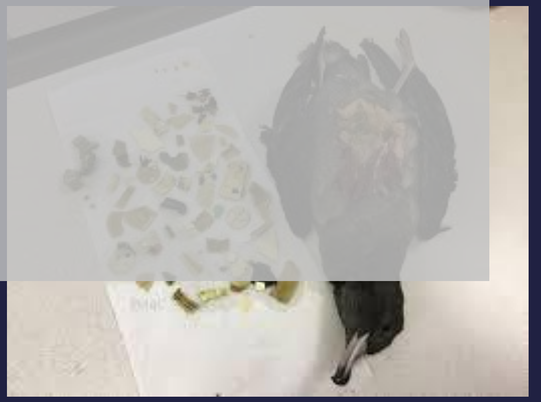
WHY?

baseline

Where

Choosing sites

Methods



LIMITS

BIASES

GUIDELINES FOR THE MONITORING AND ASSESSMENT OF PLASTIC LITTER IN THE OCEAN

RECOMMENDATIONS:

COMPARTMENTS, LITTER SIZE AND POLICY CONCERNS ADDRESSED

	Compartments & plastic size				Examples of policy concerns									
							Impacts on							
Feasibility	Compartment	Sub-compartment	Plastic size	Chapter	Distribution & Abundance	Source identification	Tourism	Seafood safety	Human health and injuries	Navigational hazards	Fisheries & aquaculture	Animal welfare	Biodiversity	Policy relevance index
1	SL	BE	MA	4	R	R	R		R				R	5
2	SL	BE	ME	4	R		R						R	3
3	SF		MA	6	R	R				R	R		R	5
3	SF		MA	6	R	R	R			R	R	R	R	7
4	B	FISH	ME MI	7	R			R			R	R	R	5
4	B	INV	ME MI	7	R			R			R	R	R	5
5	B	SEAB[C]	ME MI	7	R	R						R	R	4
5	B	MEG[C]	MA ME MI	7	R							R	R	3
6	SS		ME MI	5	R						R		R	3
7	SS		MA	5	R					R	R	R	R	5

http://www.gesamp.org/publications

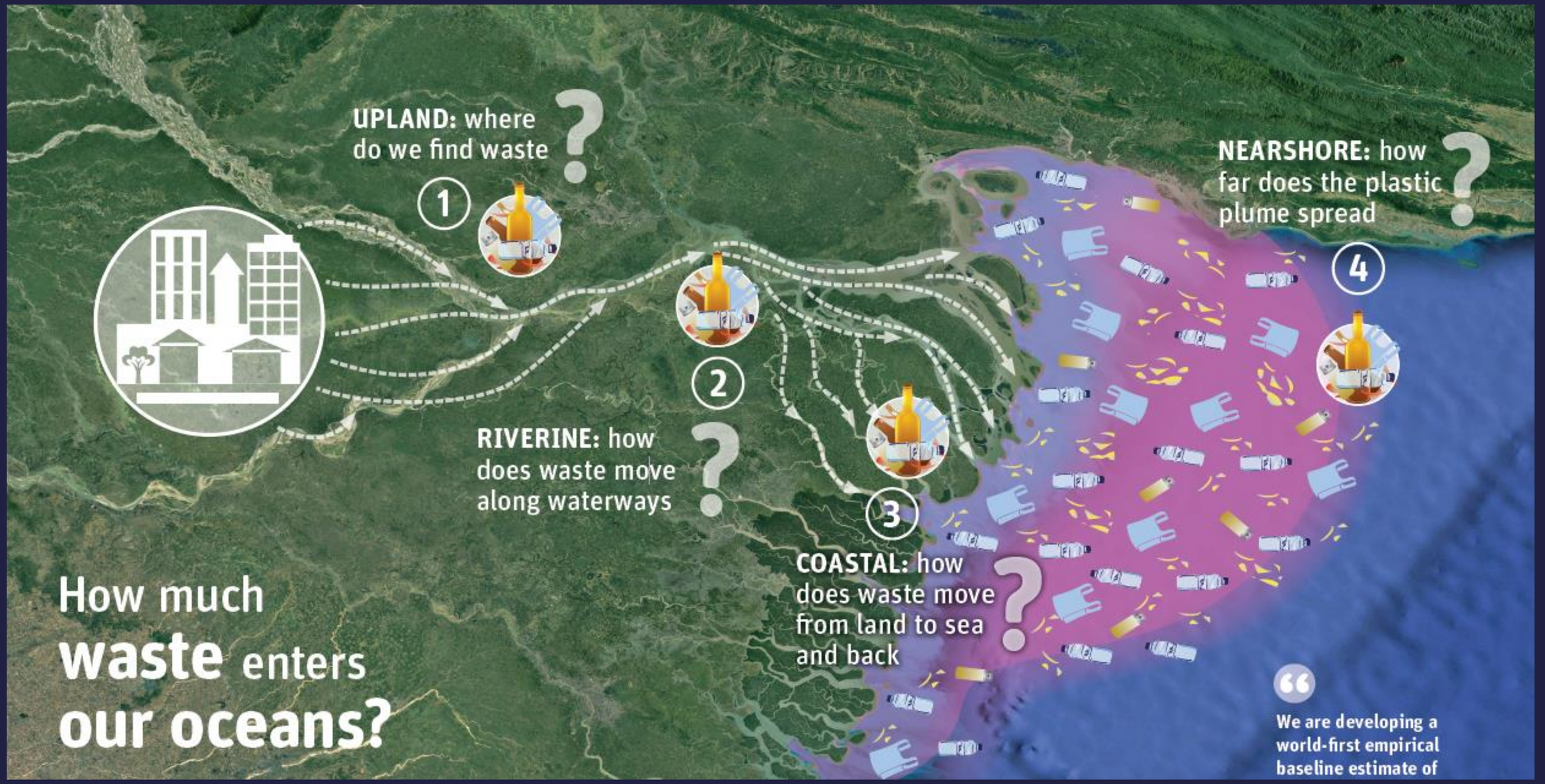
HOW DO WE GET FROM HERE... (DATA)

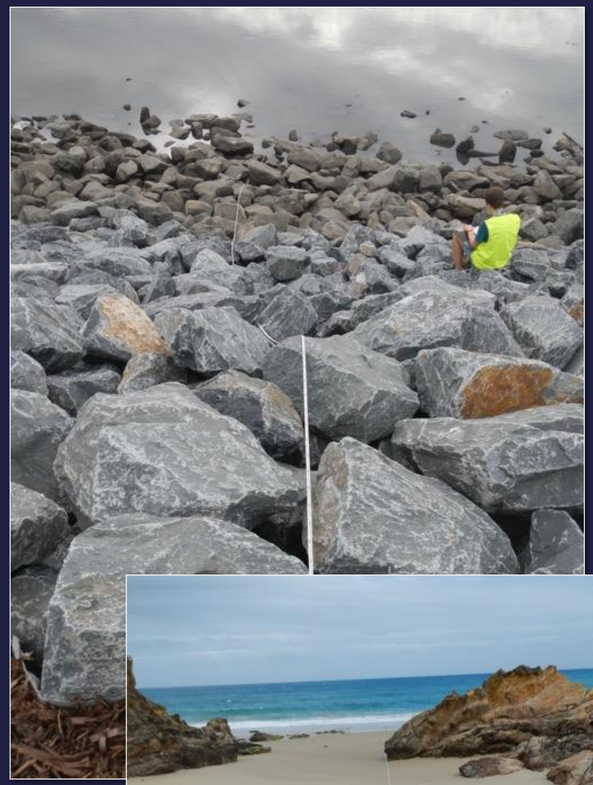
...TO THERE?
(BETTER DATA)

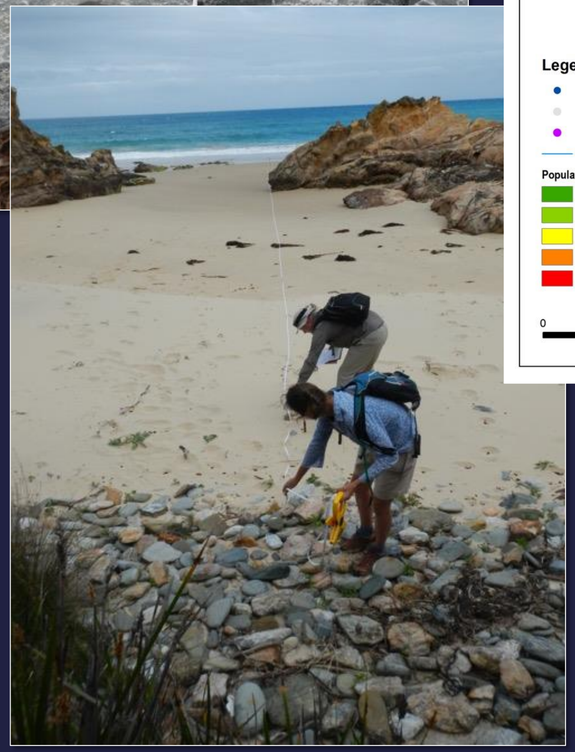
KNOW YOUR QUESTION

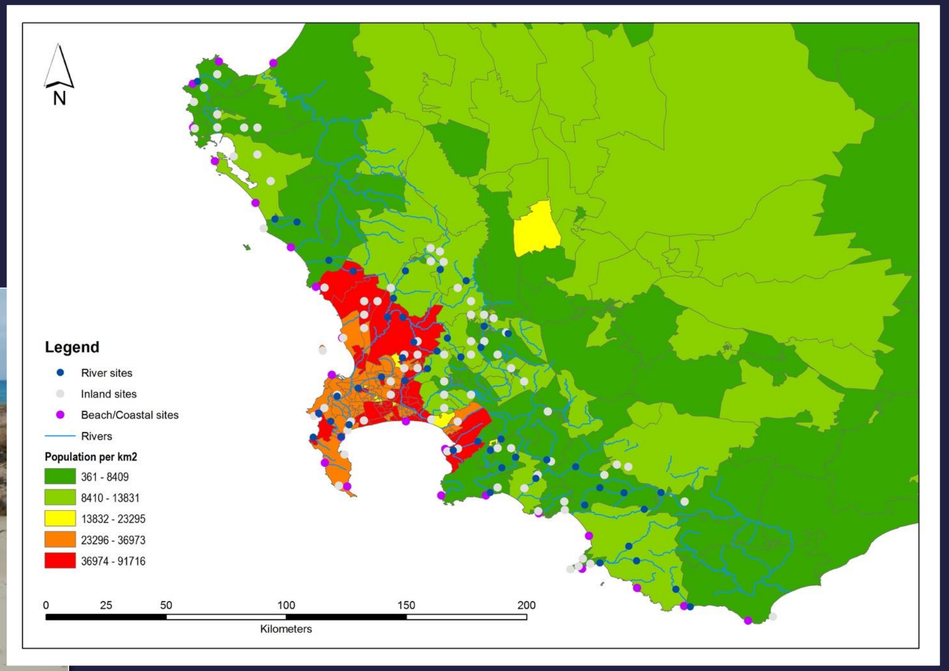
SAMPLING DESIGN

Global Plastics Leakage Project









Key Factors
- Population density
- Transport infrastructure
- Poverty and Education
- Land use

HOW DO WE GET FROM HERE... (DATA)

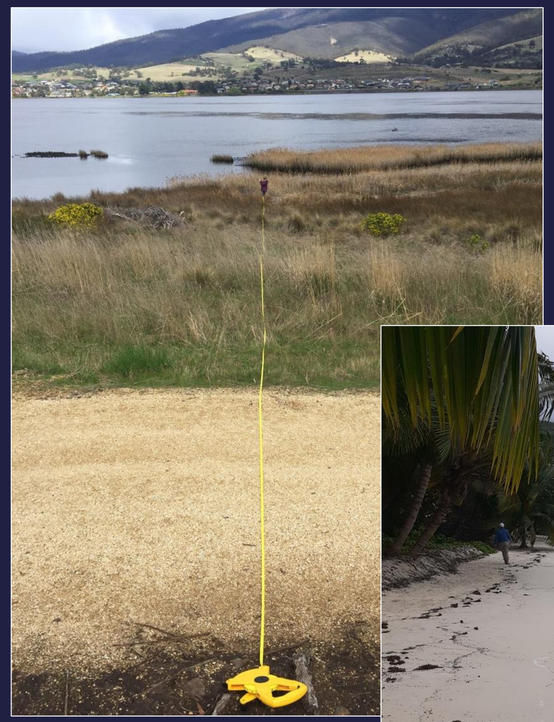
...TO THERE? (BETTER DATA)

1

KNOW YOUR QUESTION

SAMPLING DESIGN

GATHER APPROPRIATE (META)DATA



HOW DO WE GET FROM HERE... (DATA)

...TO THERE? (BETTER DATA)

KNOW YOUR QUESTION

SAMPLING DESIGN

GATHER APPROPRIATE (META)DATA

UNDERSTAND CONTEXT/ DRIVERS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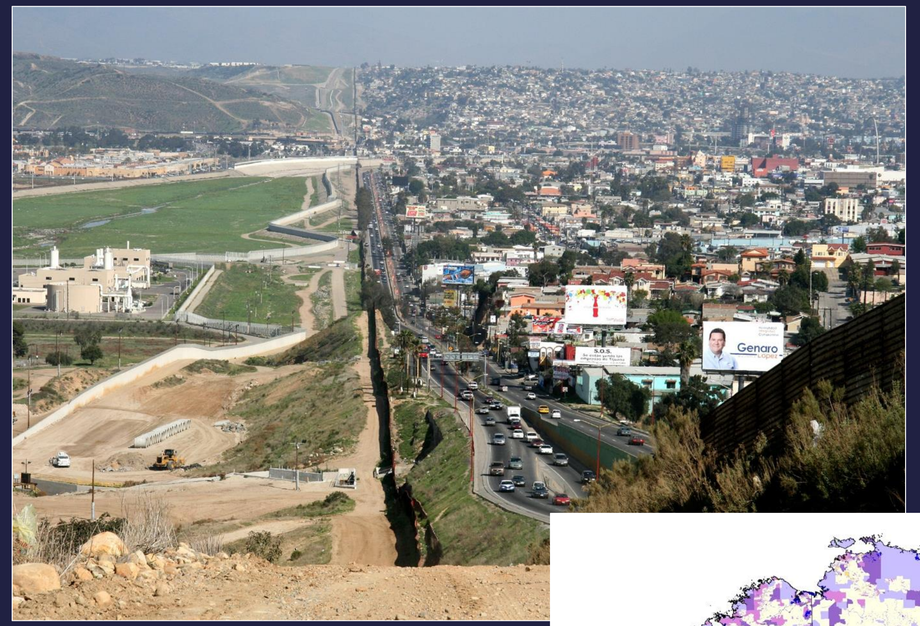
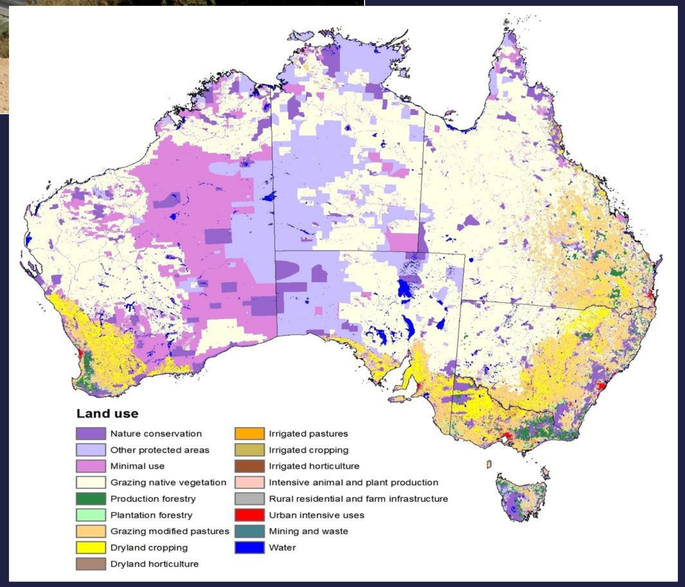
What drives debris loads?

<a href="https://www.freepik.com/free-photos-vec
photo created by fanjianhua - www.freepik.com

Background photo created by mrsiraphol - www.freepik.com





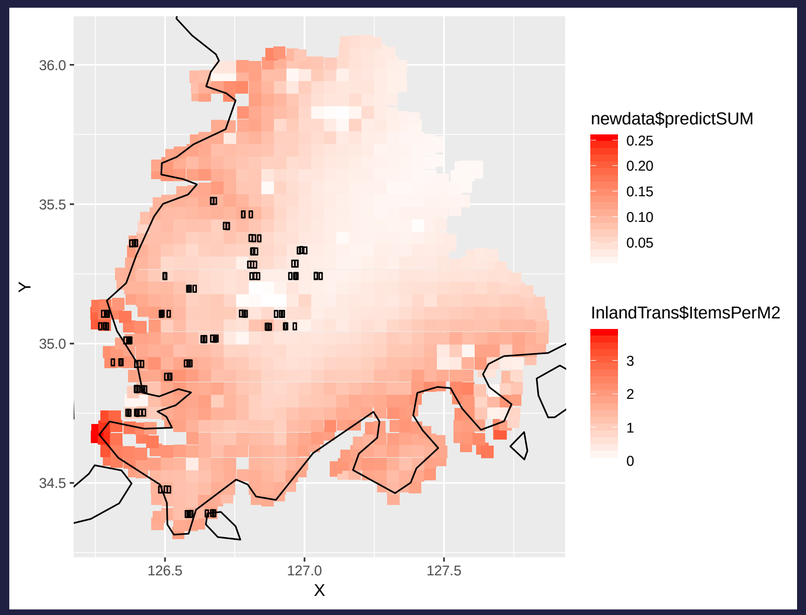
KNOW YOUR QUESTION

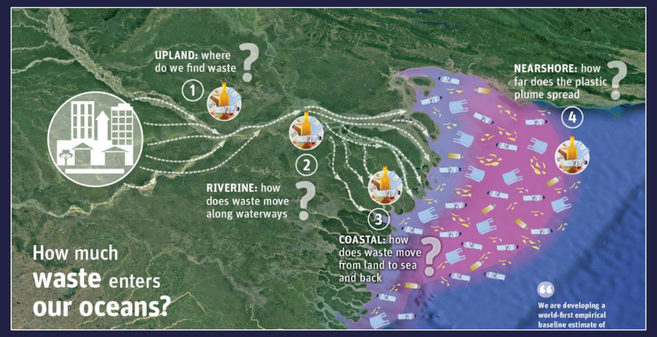
SAMPLING DESIGN

GATHER APPROPRIATE (META)DATA

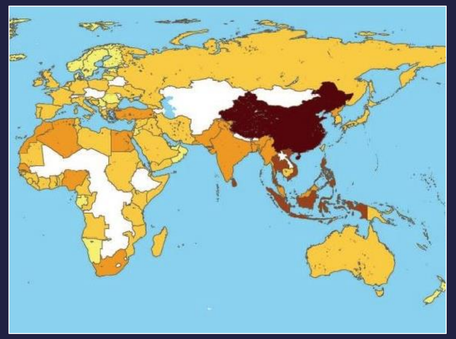
UNDERSTAND CONTEXT/ DRIVERS

Opportunities for success:





Global Plastic Leakage Project



Country partners

- **Bangladesh**
- **China**
- **Korea**
- **Taiwan**
- **Vietnam**
- Brazil
- **Peru**
- Mexico
- Philippines
- **South Africa**
- **Sri Lanka**
- Bahamas
- United States
- Chile
- Ghana
- **Kenya**
- **Seychelles**
- Mauritius
- Nigeria
- Australia
- India
- **Indonesia**
- Pakistan

Thailand?

STEPS TO BETTER DATA

- Know your question – goals of study
- Understand your biases and limiations
- Start with a baseline
- Ensure sampling design is robust
- Gather appropriate (meta)data
- Understand context and drivers

DATA

- Driven by a desire to collect data

- Limited metadata
- Sites chosen because of high debris loads, or for sentimental reasons
- May or may not be able to answer your question
- Does not take into account external factors

BETTER DATA

- Driven by a desire to answer a question(s)
- Effort, area surveyed, etc. all recorded
- Sites selected via stratified random sample design
- Is designed to answer your primary question, and may also answer others
- External factors (e.g. population density) inform analysis to make better decisions