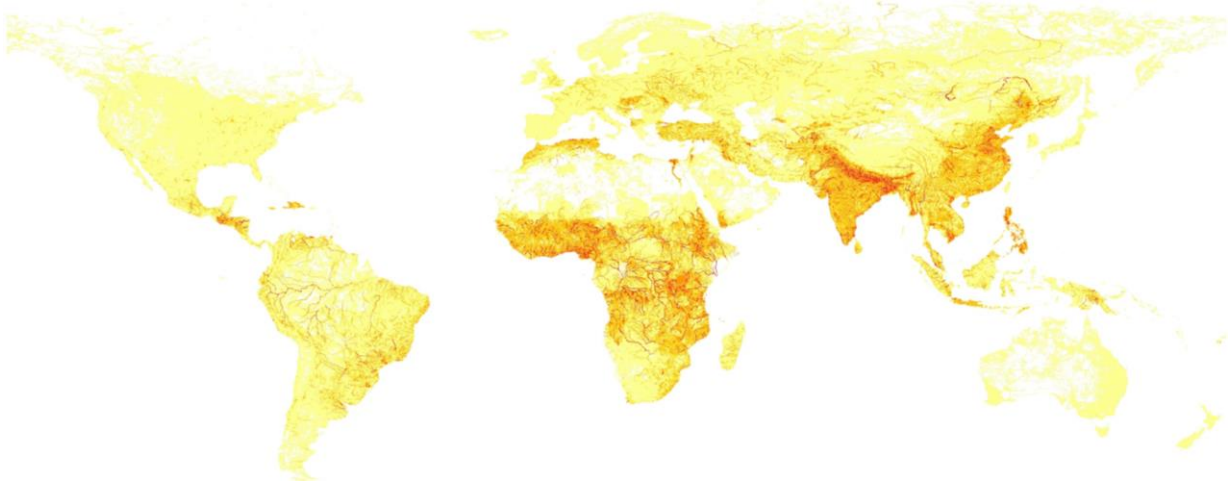


Exposure of Mismatched Plastic Waste (MPW) in Rivers

Datasets

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Background

Here we describe a series of datasets used in the analysis of MPW in global river systems. The datasets include five products that include delineations of the sedimentary environments (Env), analysis on the migration of river systems (River_Change), the anthropogenic state of the river systems (River_HI), the distributions of MPW by watersheds (MPW Watersheds) and the distributions of MPW by river delineations.

The aim of the datasets and map is to provide the research community and planners the necessary resources to mitigate plastic exposure in different types of river systems.

Data Format and Descriptions

Three folders and two vector file are included with this readme file. Each raster dataset is provided in ~10-degree cloud-optimized GeoTIFF files in a WG84 projection.

Env

The Env folder shows the predicted sedimentary environment for the year 2020. The dataset contains one raster band with values ranging between 0 and 3.

Table 1 – Env Values

Value	Description
0	No Data / Background
1	Meandering river environment
2	Braided river environment
3	Lacustrine/wetland environment

River Change

The River_Change folder shows the predicted migration of river over the past 36-years of available satellite imagery. The dataset contains one raster band with values ranging between 0 and 30.

Table 2 – River_Change Values

Value	Description
0	No Data / Background
20	Actively migrating river over 36-years of satellite observations.
30	Permanent river waterbody over 36-years of satellite observations.

River HI

The River_HI folder shows the predicted human impact along river reaches. The dataset contains one raster band with values ranging between 0 and 300.

Table 3 – River_HI Values

Value	Description
0	No Data / Background
100	Free-flowing river
300	Impacted river

MPW Watersheds

The MPW_Watersheds dataset is provided as a GeoPackage file and shows watershed delineations used to calculate the input and exposure of river environments to MPW based on different scenarios.

Table 4 – MPW_Watersheds Attributes

Attribute	Description
HYBAS_ID	Unique ID for the HydroSHEDS catchment.
Area	Area of watershed in m ² .
MPW2015	Total MPW input in 2015 in kg/yr.
MPW2060A	Total MPW input in 2060 in kg/yr based on a business-as-usual projection.
MPW2060B	Total MPW input in 2060 in kg/yr based on a scenario B improved plastic recycling projection.
MPW2060C	MPW input in 2060 in kg/yr based on a scenario C improved plastic recycling and reduced plastic use projection.
FFP2015	Maximum potential downstream exposure of plastics in 2015 in kg/yr.
FFP2060A	Maximum potential downstream exposure of plastics in 2060 in kg/yr based on a business-as-usual projection.
FFP2060B	Maximum potential downstream exposure of plastics in 2060 in kg/yr based on a scenario B improved plastic recycling projection.
FFP2060C	Maximum potential downstream exposure of plastics in 2060 in kg/yr based on a scenario C improved plastic recycling and reduced plastic use projection.

MPW Rivers

The MPW_Rivers dataset is provided as a GeoPackage file and shows river delineations used to calculate the downstream accumulation of MPW based on different scenarios.

Table 5 – MPW_Rivers Attributes

Attribute	Description
HYBAS_ID	Unique ID for the HydroSHEDS catchment.
NOID	Current river reach ID from the free-flowing river dataset.
NOID	Downstream river reach ID from the free-flowing river dataset.
CSI	Connectivity of the river segment ranging from 0 to 100% derived from the free-flowing river dataset.
DIS_AV_CMS	Average river discharge in m ³ /y from the free-flowing river dataset.
LENGTH_KM	River reach segment length in km from the free-flowing river dataset.
LENGTH_TOTAL	Total length of river lengths within each HYBAS_ID in km.
MPW2015	MPW input in 2015 in kg/yr for the entire HYBAS_ID area.
MPW2060A	MPW input in 2060 in kg/yr based on a business-as-usual projection for the entire HYBAS_ID area.
MPW2060B	MPW input in 2060 in kg/yr based on a scenario B improved plastic recycling projection for the entire HYBAS_ID area.
MPW2060C	MPW input in 2060 in kg/yr based on a scenario C improved plastic recycling and reduced plastic use projection for the entire HYBAS_ID area.
FFP2015	Maximum potential downstream exposure of plastics in 2015 in kg/yr.
FFP2060A	Maximum potential downstream exposure of plastics in 2060 in kg/yr based on a business-as-usual projection.
FFP2060B	Maximum potential downstream exposure of plastics in 2060 in kg/yr based on a scenario B improved plastic recycling projection.
FFP2060C	Maximum potential downstream exposure of plastics in 2060 in kg/yr based on a scenario C improved plastic recycling and reduced plastic use projection.

Interactive Map

The online interactive map accompanying the datasets is available at <https://bjornburnnyberg.users.earthengine.app/view/riverpi>

License and Citation

The datasets are publicly available under a CC0 license.

We kindly ask that if you use the data in your research, reports, or documentation to include a citation to the original dataset.