Additional PFAS Sources, California, 2019-2021

Karasaki, S., Pace, C., Cushing, L., Morello-Frosch, R. (2023). Additional PFAS sources – Landfills, Chrome-plating facilities, water treatment facilities, and refineries and bulk terminals. Drinking Water Tool metadata, prepared by the Water Equity Science Shop, UC Berkeley.
Contact: cpace@berkeley.edu

File names

PFAS_source_chrome_plating_facilities_plss.shp
PFAS_source_landfills_plss.shp
PFAS_source_publicly_owned_treatment_works_plss.shp
PFAS_source_refineries_and_terminals.shp

Spatial Reference

Geographic Coordinate System	NAD 1983	Projected Coordinate System	NAD 1983 (Teale) Albers (Meters)
WKID	4269	Projection	3310
Authority	EPSG	Authority	EPSG
Angular Unit	Degree (0.0174532925199433)	Linear Unit	Meters (1.0)
Prime Meridian	Greenwich (0.0)	False Easting	0.00
Datum	D North American 1983	False Northing	-4000000.0
Spheroid	GRS 1980	Central Meridian	-120.0
Semimajor Axis	6378137.0	Standard Parallel 1	34.0
Semiminor Axis	6356752.314140356	Standard Parallel 2	40.5
Inverse Flattening	298.257222101	Latitude of Origin	0.0

Description

These shapefiles contain polygons corresponding to Public Land Survey System (PLSS) sections, which are approximately 1x1 mile grid squares. PLSS sections in each layer contain a count of the following potential PFAS sources: 271 chrome-plating facilities, 205 landfills, 270 publicly owned treatment works, and 155 refineries and bulk terminals. These potential PFAS sources are a subset of the facilities that received investigative orders[1] from the State Water Resources Control Board (SWRCB) between 2019 and 2021 (here are links to a timeline of California agencies' actions on PFAS[2], and more detailed information on the investigative orders themselves). The attribute table of this shapefile includes a column for the total number of potential PFAS sources within each PLSS section, based on spatial data extracted and refined from the SWRCB's online data portal.

It should be noted that this shapefile parallels the GeoTracker PFAS map[3] in many ways. The primary difference between this map and the GeoTracker map is that ours represents facilities where investigative orders were sent, while the GeoTracker map represents facilities that responded to investigative orders with water quality samples. The user guide for GeoTracker's PFAS map is available here.

Methods

Below are the basic steps we followed to prepare the SWRCB data for our project:

- Download spatial data for each of the four facility categories from the SWRCB online data portal.
    - At this step, we performed a basic quality check to confirm that the coordinates associated with these facilities were reasonably accurate. To do so, we first took a random 15% sample (n = 135) of the total number of facilities (n = 910). After agreeing upon an initial approach to checking the spatial integrity of these facilities, two of our team

members then separately and manually checked a third of this subset (5% of the total, or n = 45). Once finished, they compared their findings, made minor adjustments to their approaches to match one another, then split the remaining 10% to check individually. While we found some small spatial inaccuracies, we determined that this spatial data provided by the SWRCB is accurate enough for our intents and purposes, and decided to use their data as-is. (Note: depending on the purpose and application of one's project, it may be preferable to download the most recent data directly via API.)

- Intersected each potential PFAS source with the Public Land Survey System[4] (PLSS) grid
- Counted the number of PFAS sources per PLSS grid using ArcGIS Pro's Summarize Within tool.

Attribute Table

Field Heading	Field Description
FID	ESRI generated field
Shape	Polygon – ESRI generated field
COUNTY	County code
DDLONG	Longitude in decimal degrees
DDLAT	Latitude in decimal degrees
MTRS	PLSS section identifier; Meridian (M), Township (T), Range (R), Section (S)
Srcs_cn	Total number of facilities which received an investigative order for PFAS from SWRCB within a given MTRS
Shape_Leng	Shape length
Shape_Area	Area of MTRS

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References

1. California PFAS Investigations. California State Water Resources Control Board (SWRCB). Available from (https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=4feba1766c224dc99eadea06ef3bd019) Accessed October, 2022.
2. CA PFAS Timeline. California State Water Resources Control Board (SWRCB) Available from (https://www.waterboards.ca.gov/pfas/ca_pfas_timeline.html). Accessed May 2023.
3. GeoTracker PFAS Map data. California State Water Resources Control Board (SWRCB). Available from (https://geotracker.waterboards.ca.gov/map/pfas_map). Accessed May 2022.
4. PLSS Sections. Available from (https://catalog.data.gov/dataset/blm-national-public-land-survey-system-polygons). Accessed October 12, 2018.