

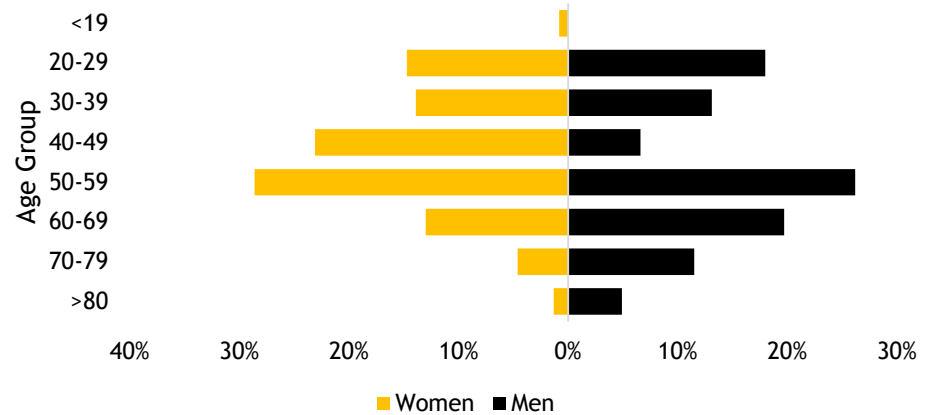


Results from a community-engaged protocol for evaluating environmental toxicants in a U.S. border community: health impacts of perchlorate and pesticide exposure in Yuma County, AZ

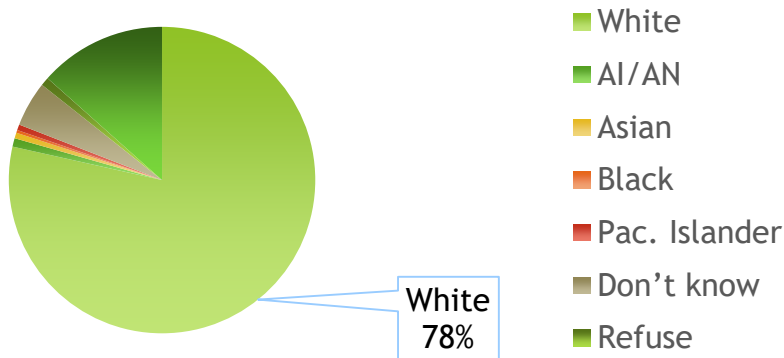
Demographics | General

Participants = 323 Yuma residents
Age: mean= 48.4, minimum= 19, maximum= 90
Gender: female= 79%, male= 21%

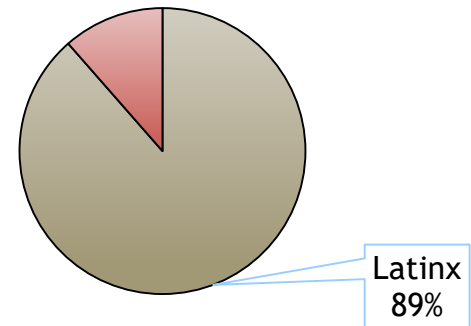
Yuma Population Pyramid



Race

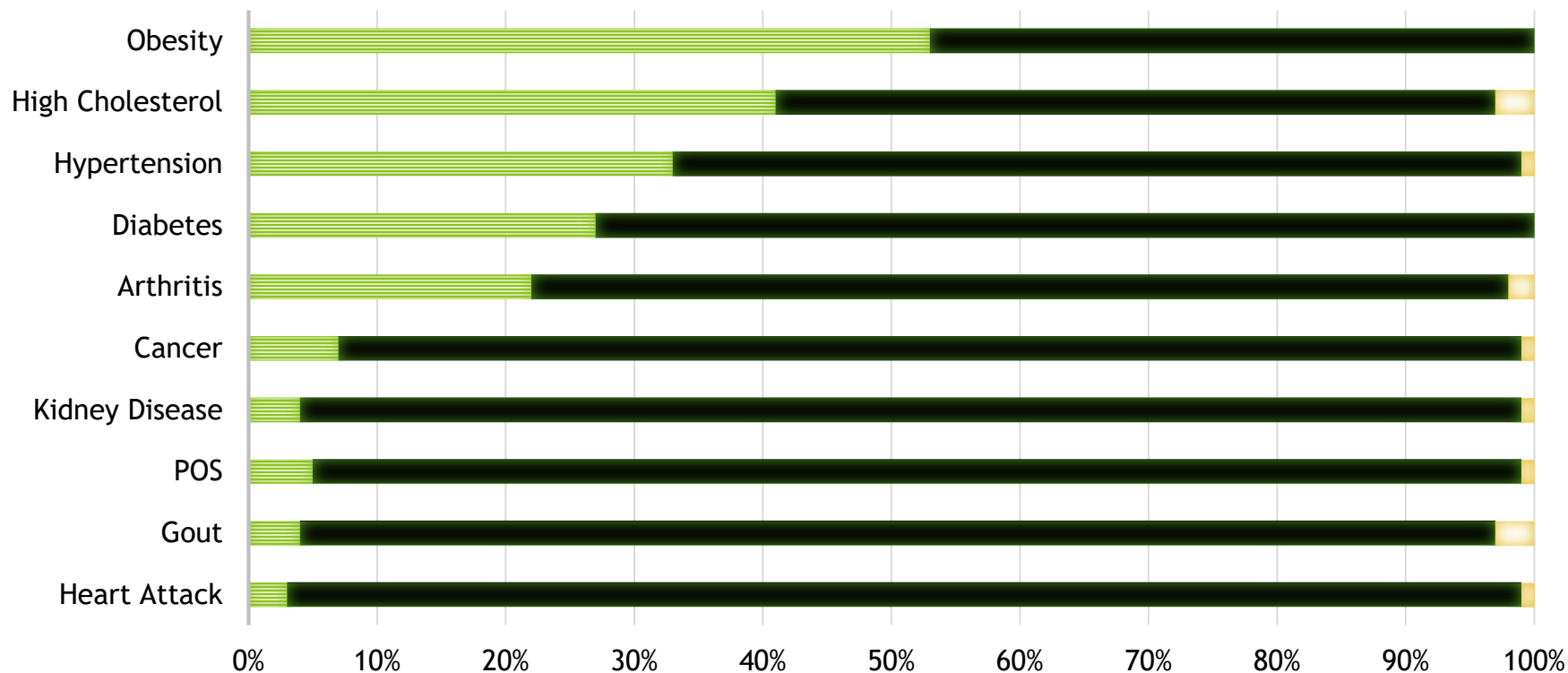


Ethnicity



Health | Chronic conditions (self-report)

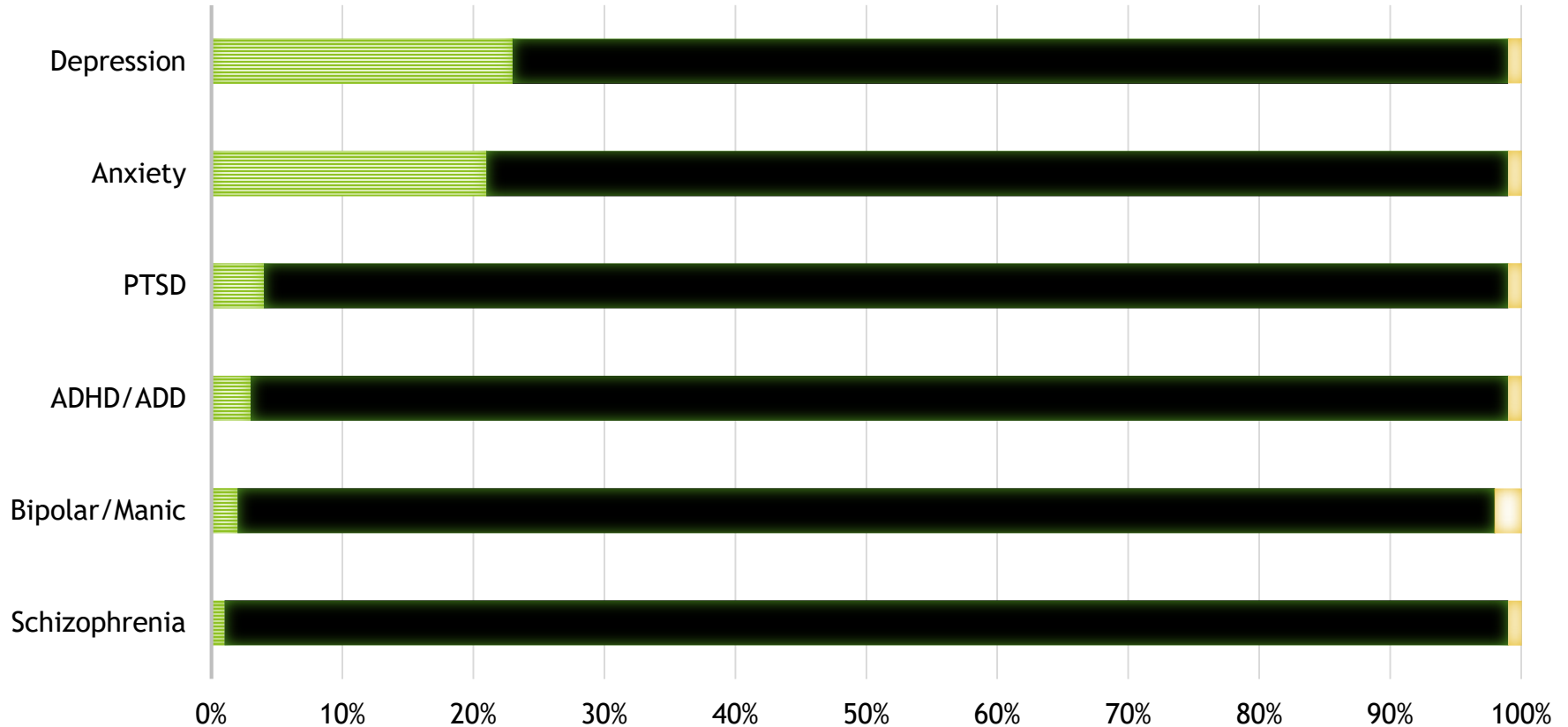
■ Yes ■ No ■ Don't know



Note. Obesity is based on a BMI > 30, For Diabetes, “yes” = diabetes and prediabetes, conditions < 3% include ambiguous genitalia, undescended testicle, emphysema, stroke, coronary heart disease, chronic heart failure, angina

Health | Mental Health (self-report)

Yes No Don't know



ENDOCRINOLOGY

Why are we concerned with the endocrine system?

- growing awareness of the possible adverse effects in humans and wildlife from exposure to chemicals that can interfere with the endocrine system.
- Effects can include:
 - developmental malformations
 - interference with reproduction
 - increased cancer risk
 - disturbances in immune and nervous system functions

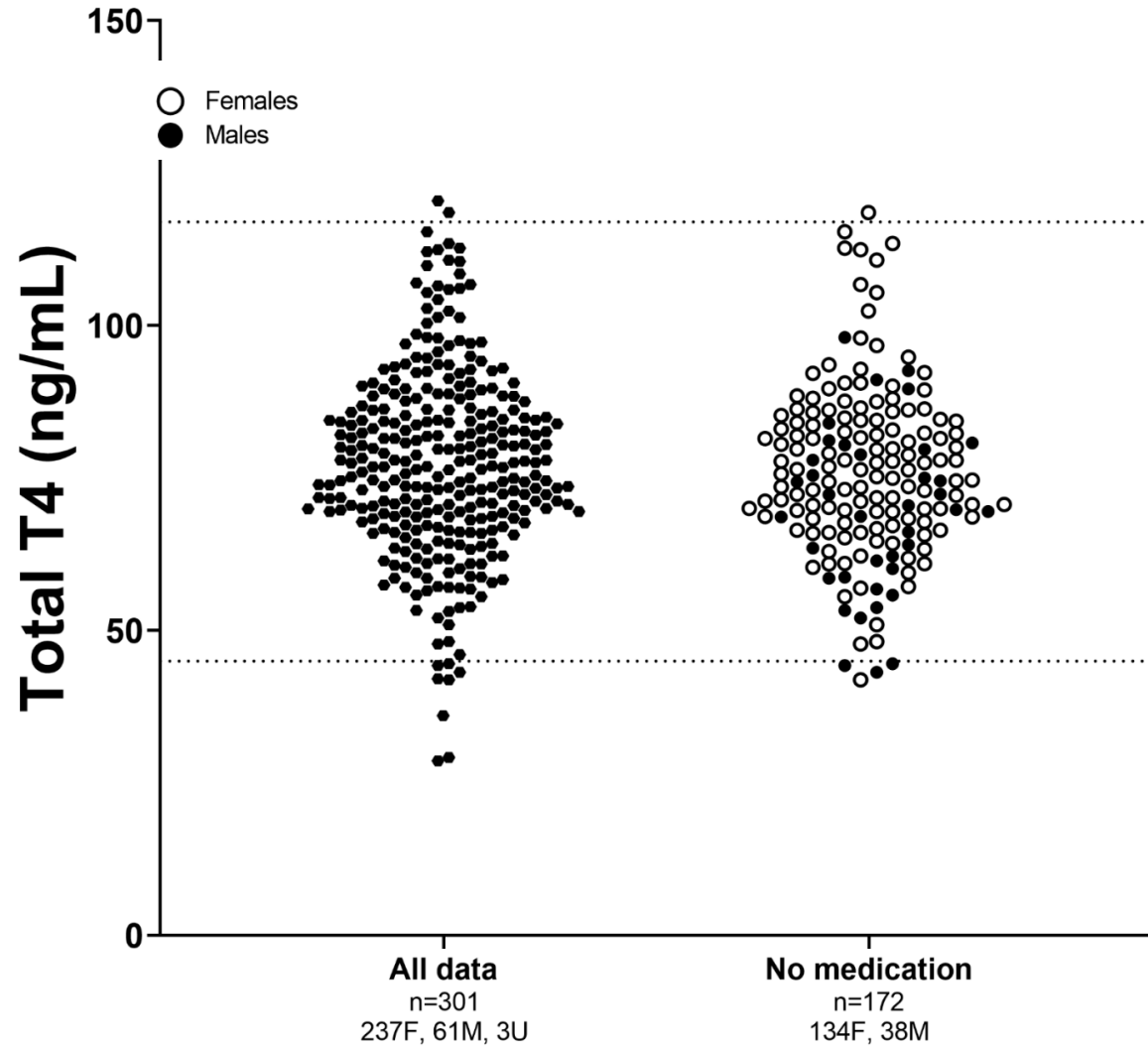
ENDOCRINOLOGY

We have focused on endocrine axes known to be disrupted by exposure to a broad spectrum of contaminants, including perchlorate and toxic metals.

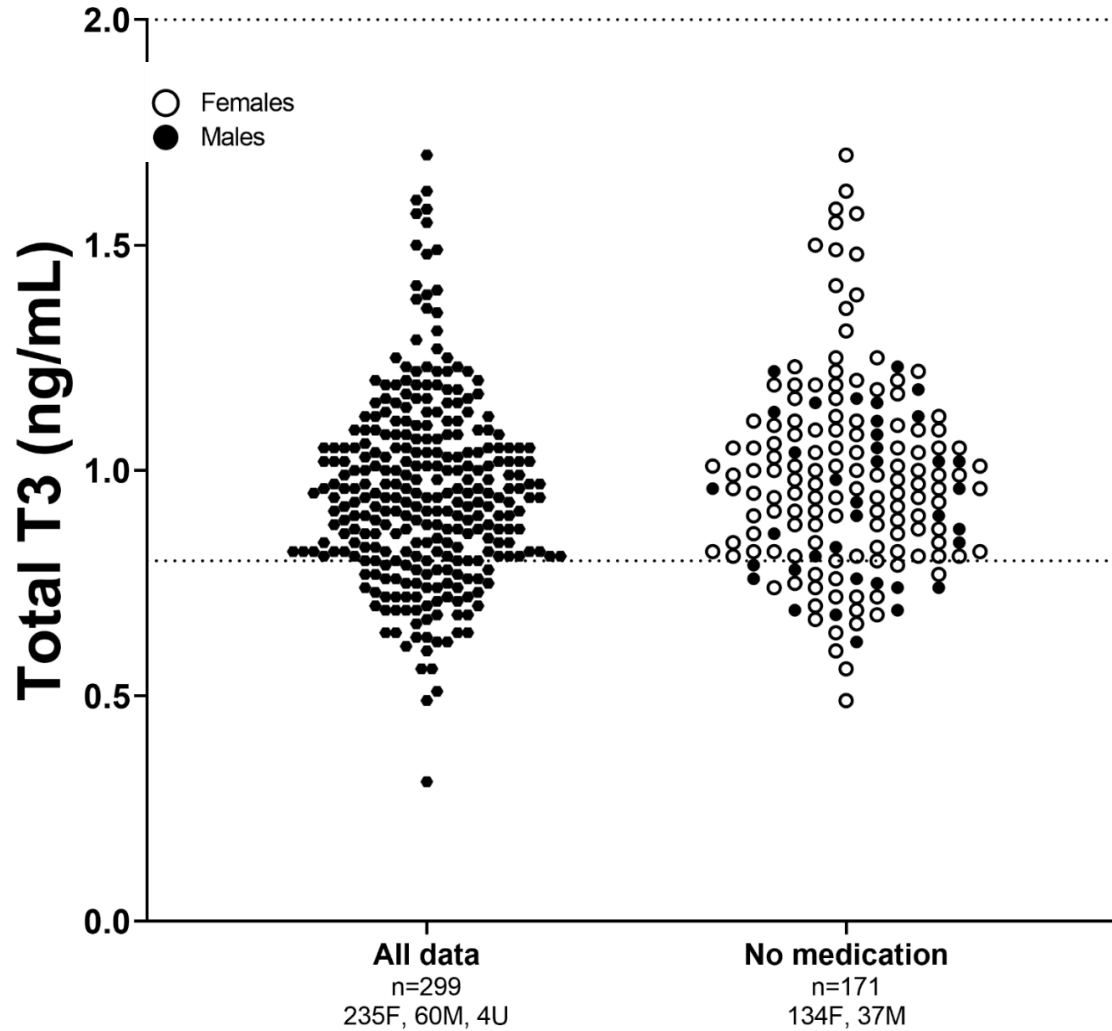
Endocrine axes of interest:

- Adrenal axis (e.g., cortisol, a stress hormone)
- Thyroidal axis (e.g., Thyroid Stimulating hormone (TSH) and bound and free triiodothyronine (T_3) and thyroxine (T_4), hormones involved in regulation of development and metabolism).

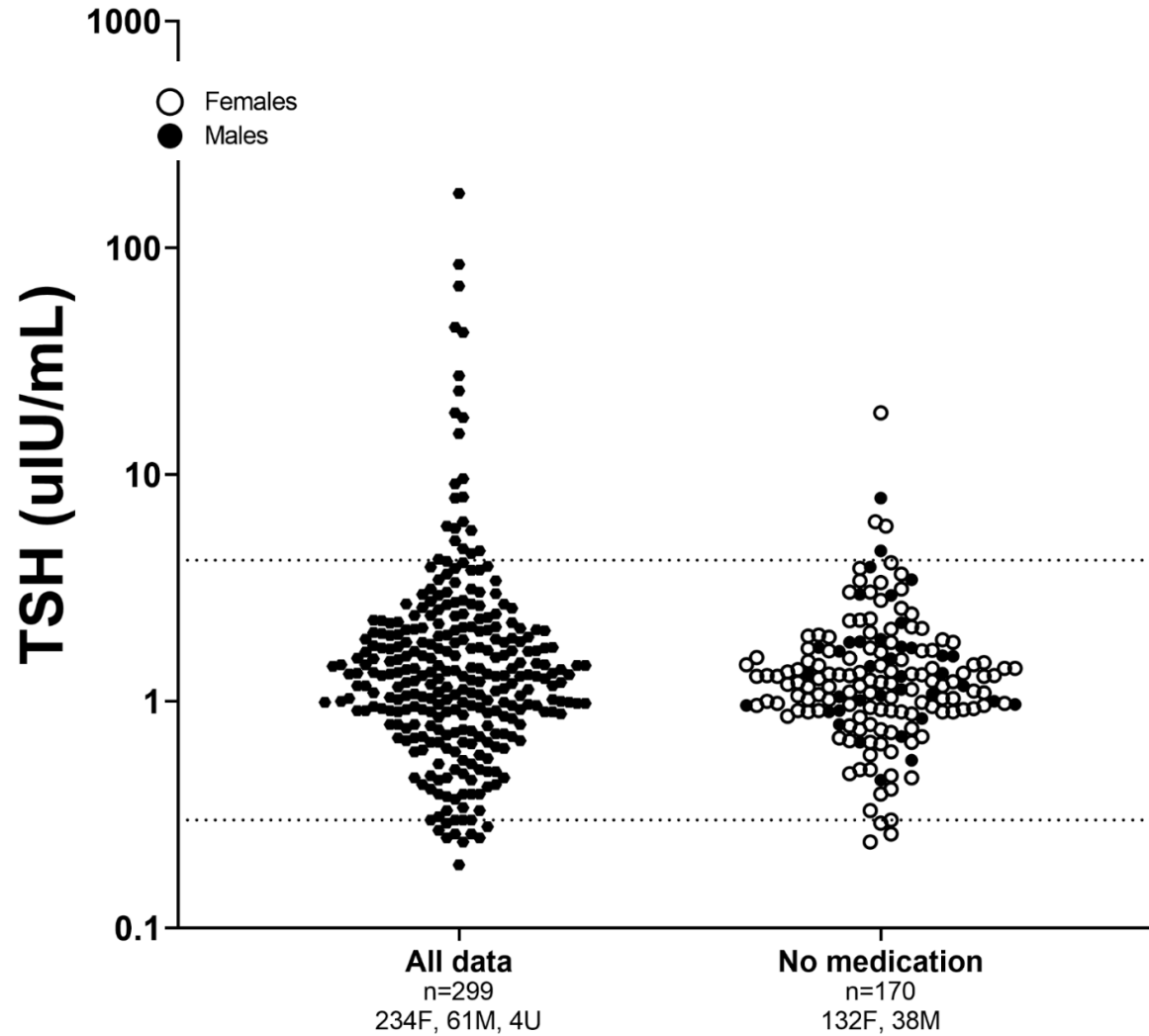
Total T4



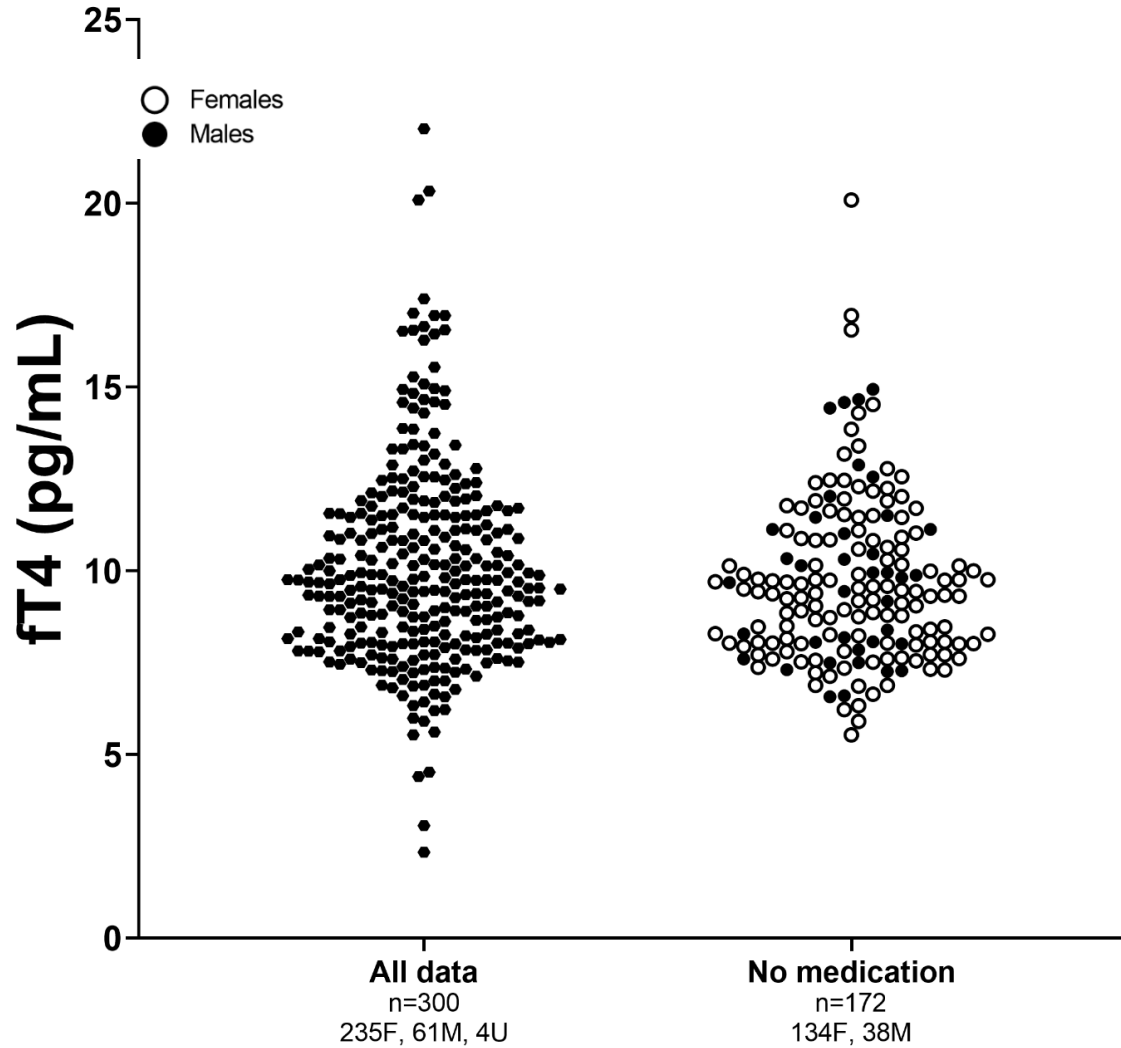
Total T3



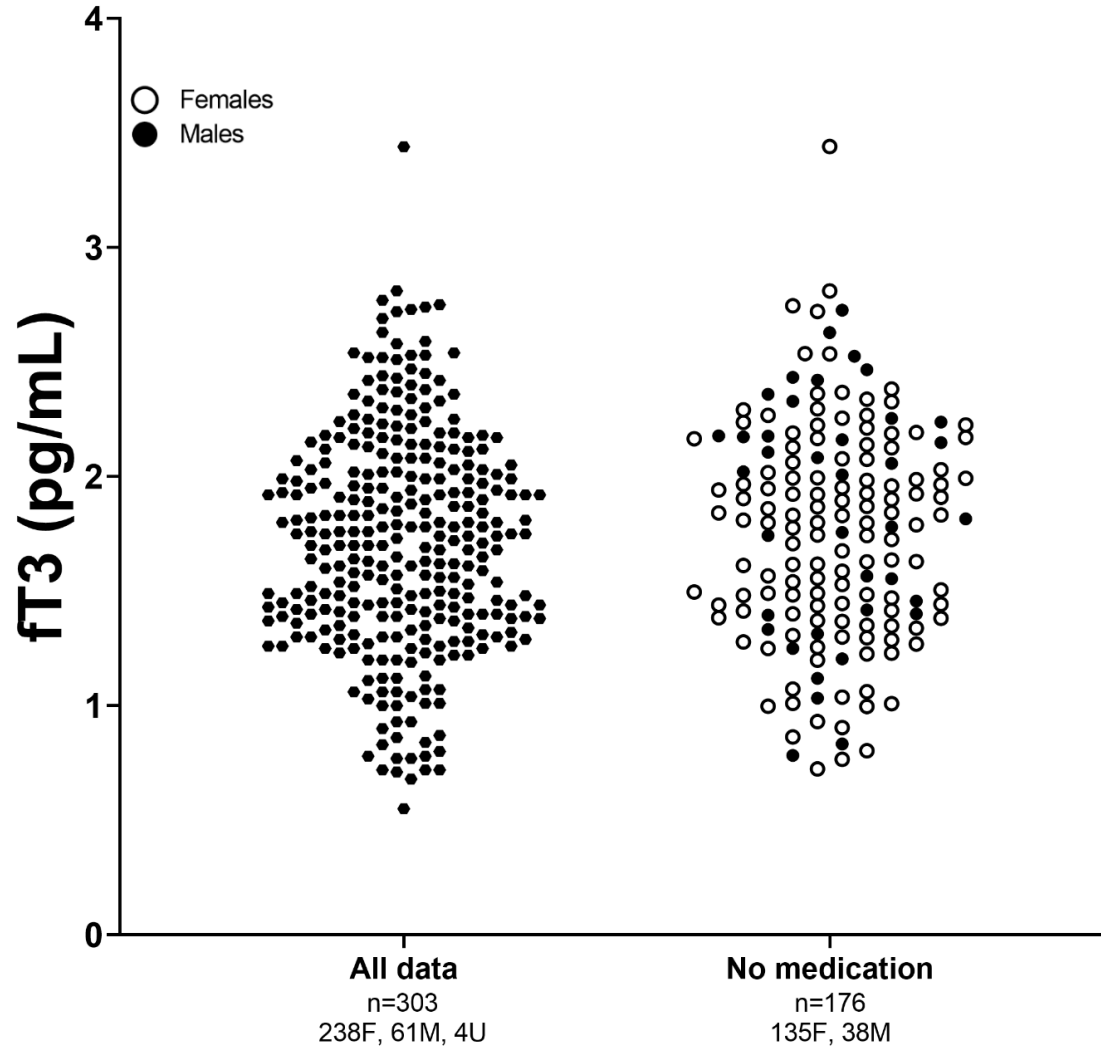
TSH



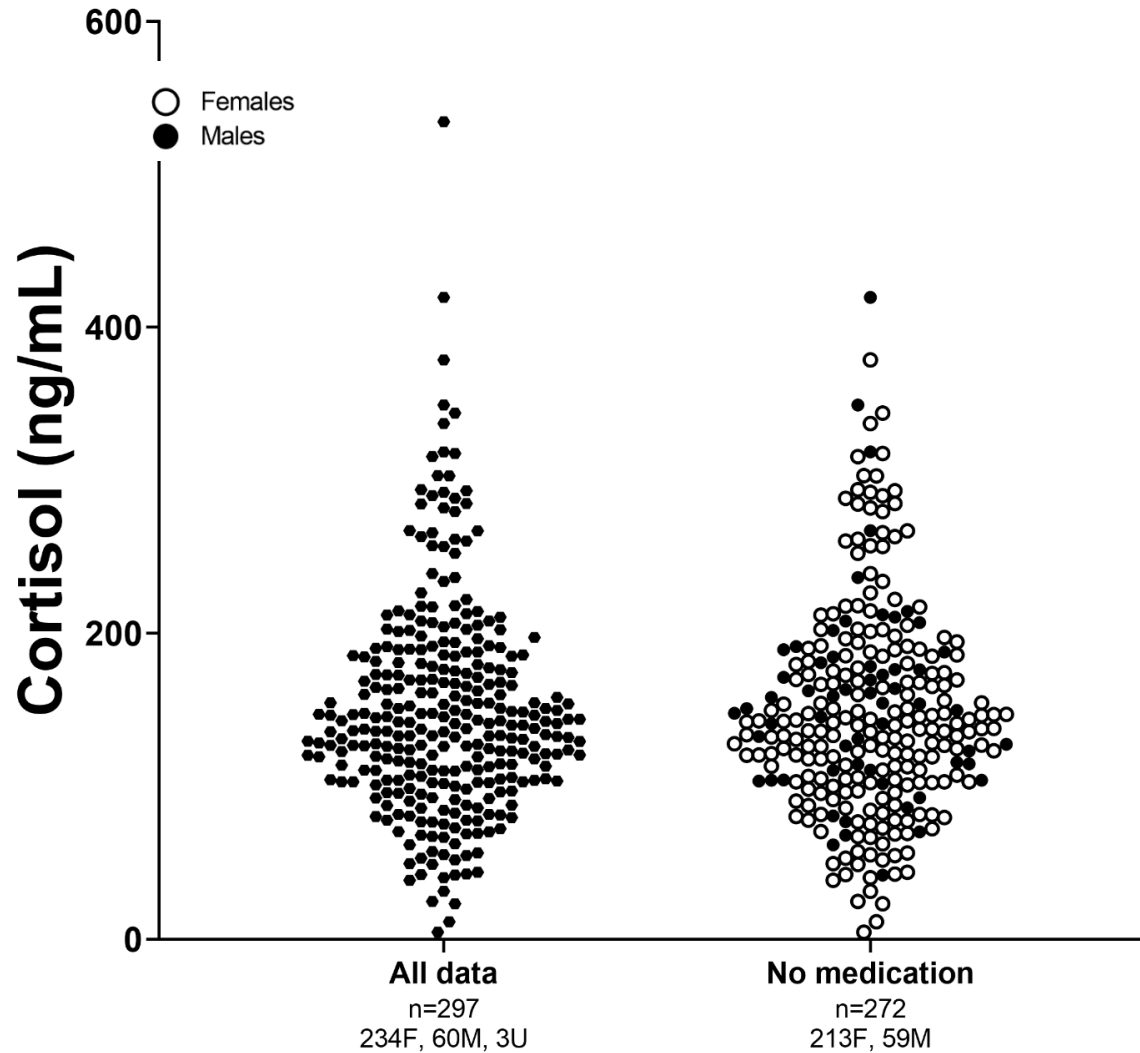
Free T4

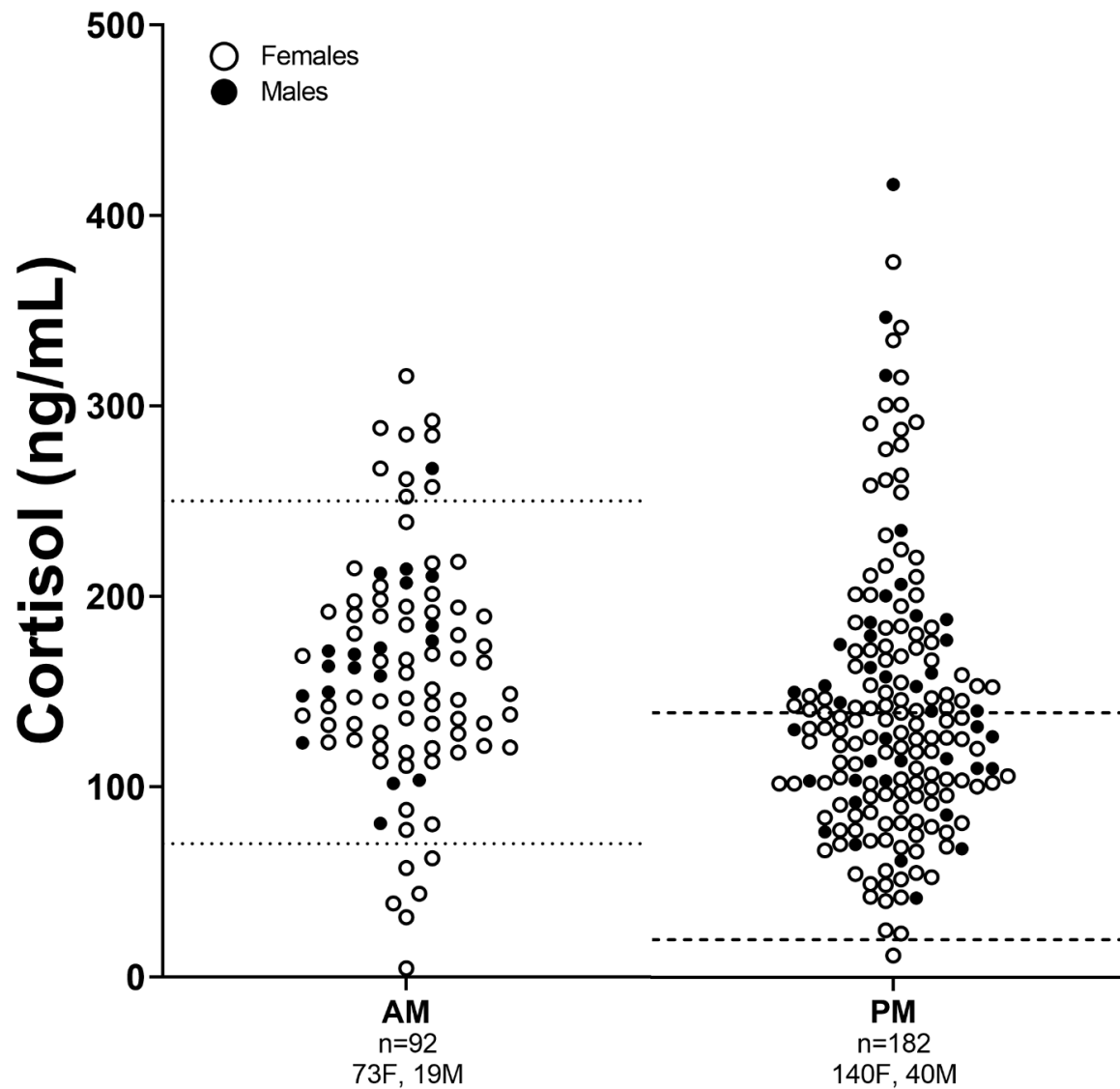


Free T3



Cortisol

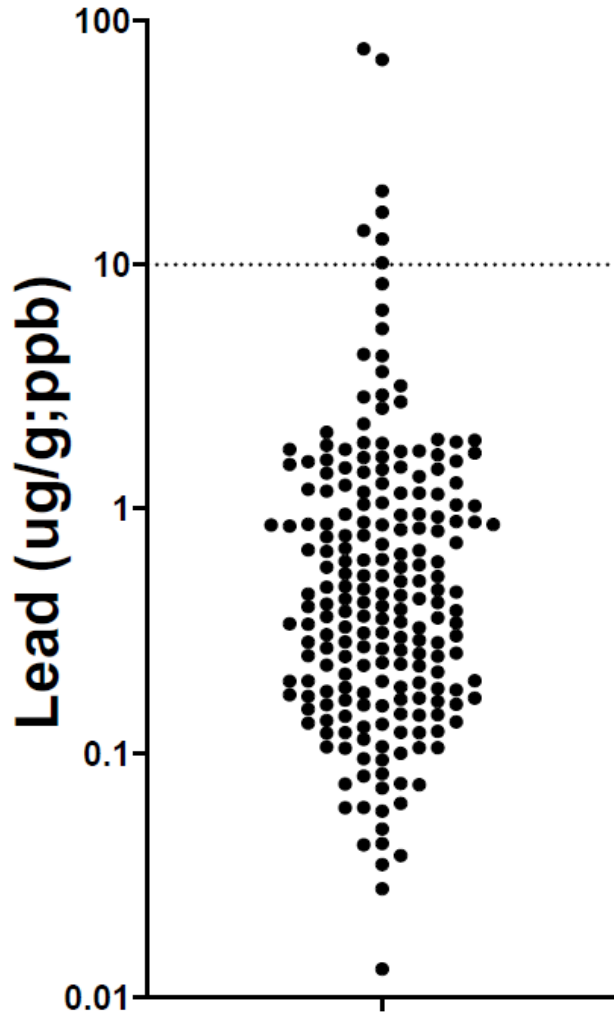




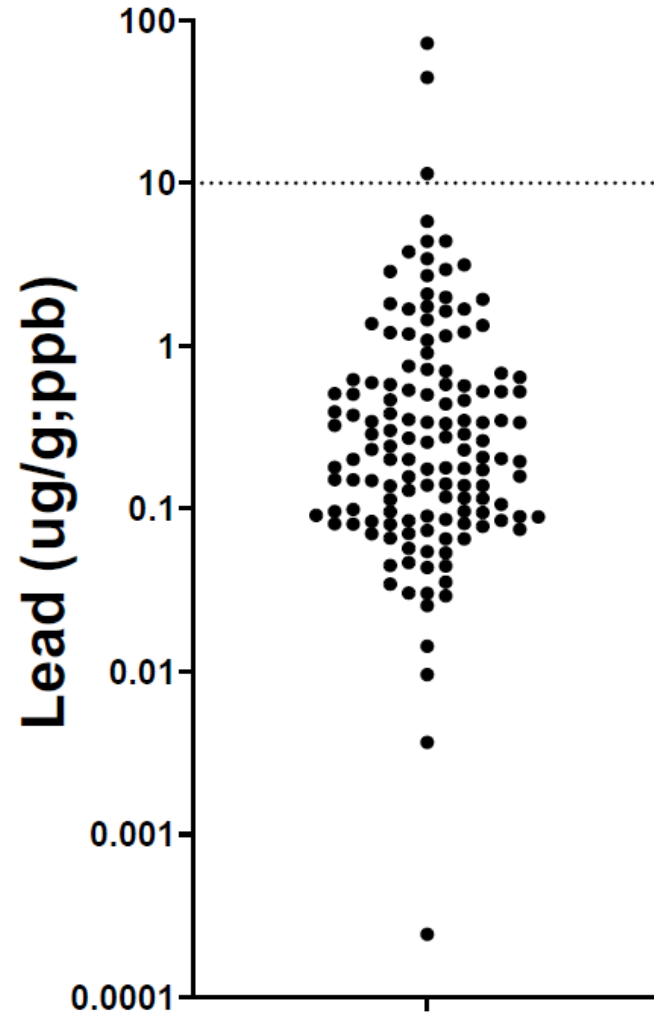
Environmental contaminants

Environmental Contaminants: Lead

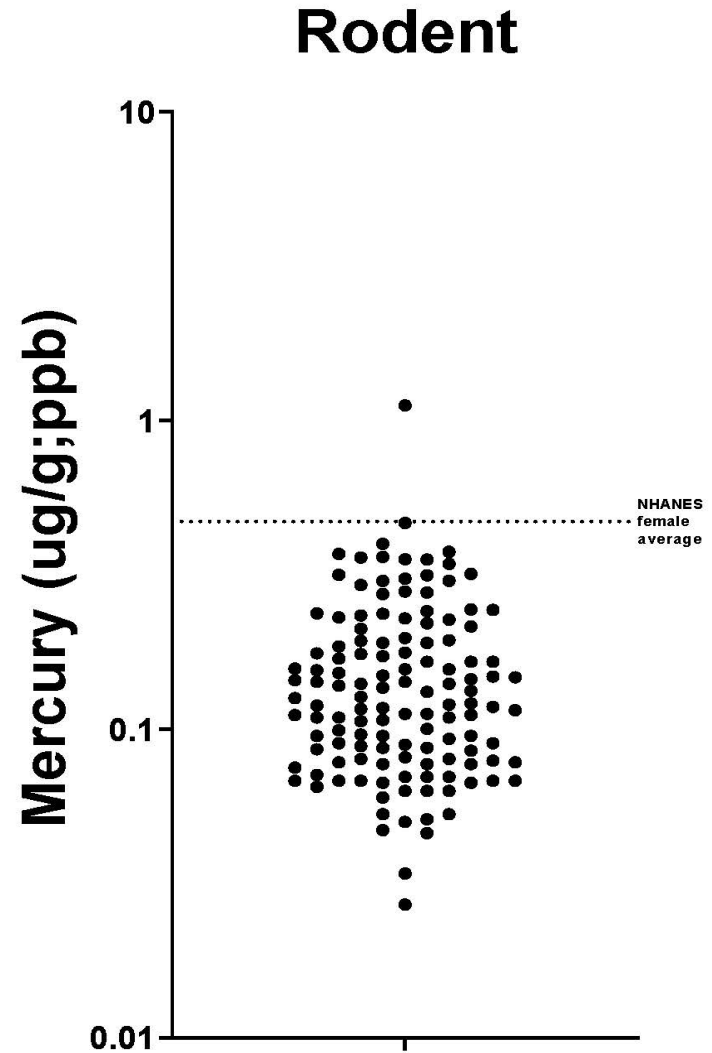
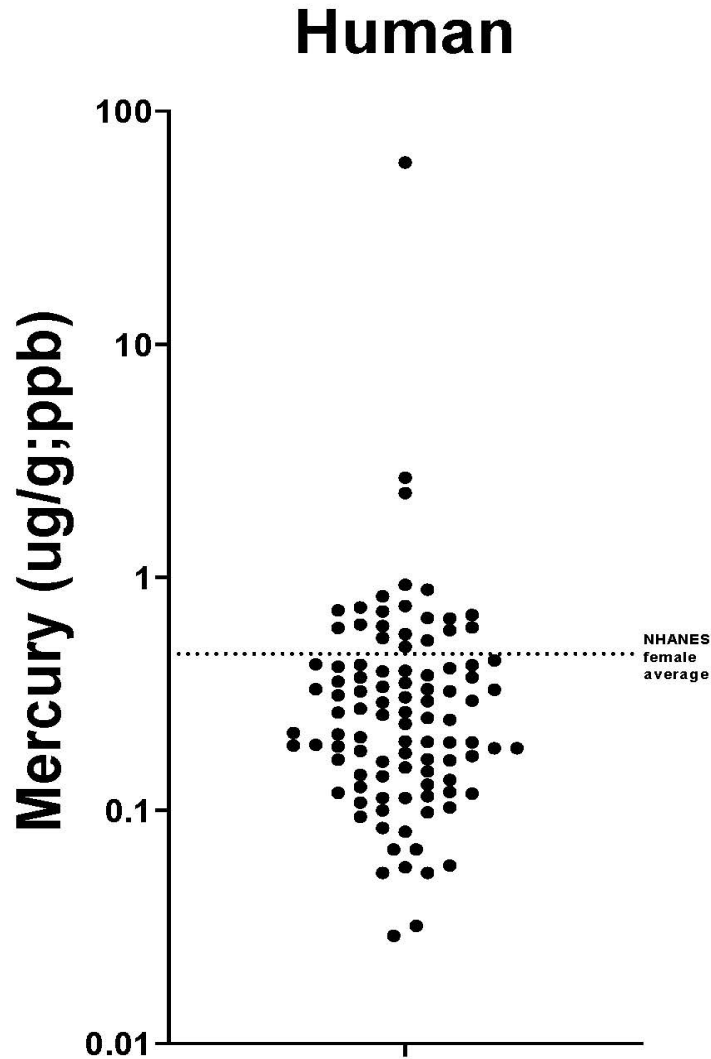
Human



Rodent

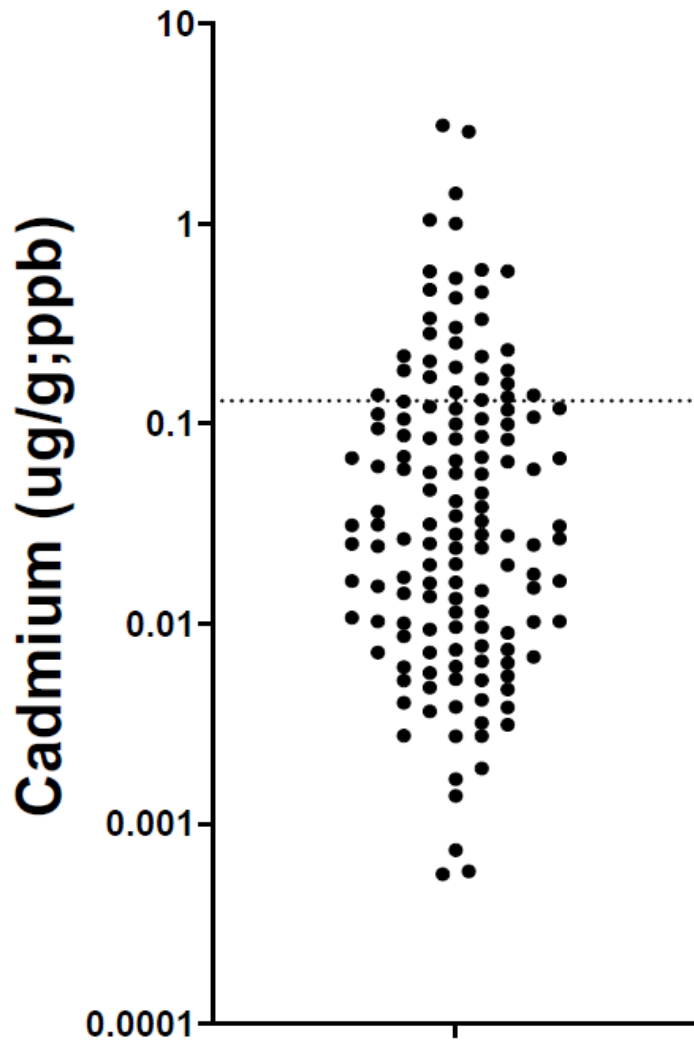


Environmental Contaminants: Mercury

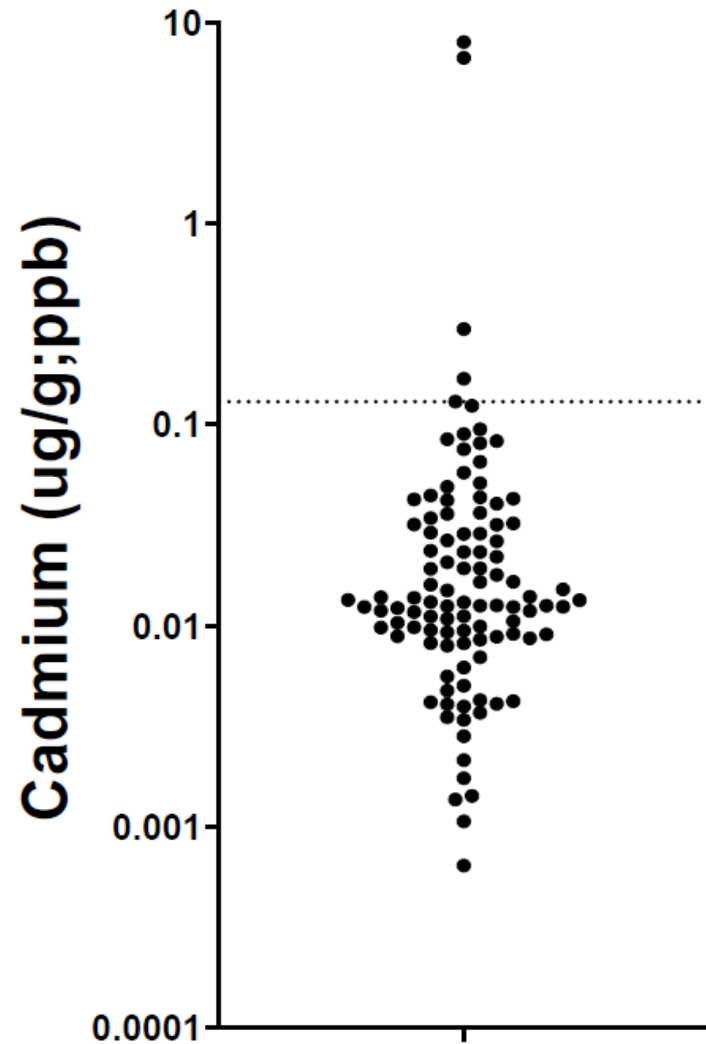


Environmental Contaminants: Cadmium

Human

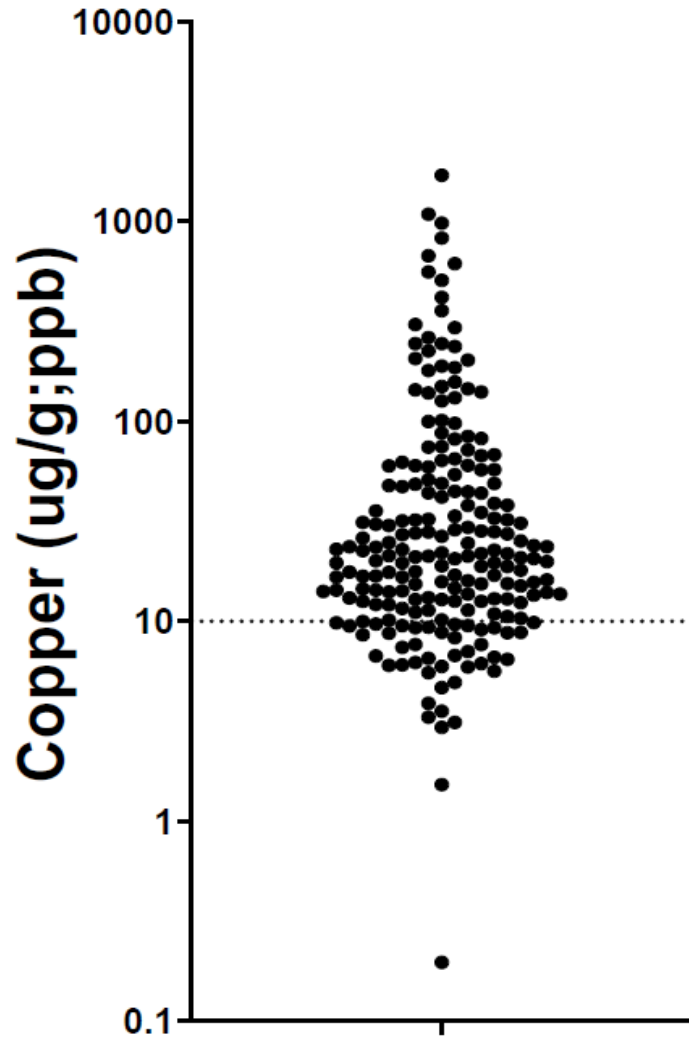


Rodent

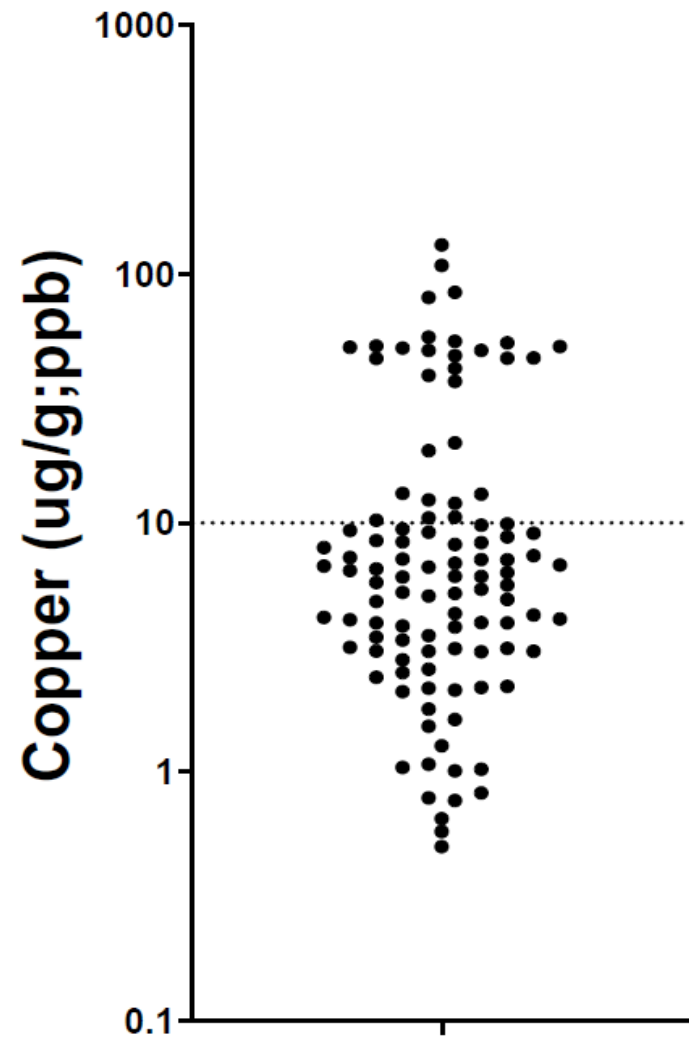


Environmental Contaminants: Copper

Human

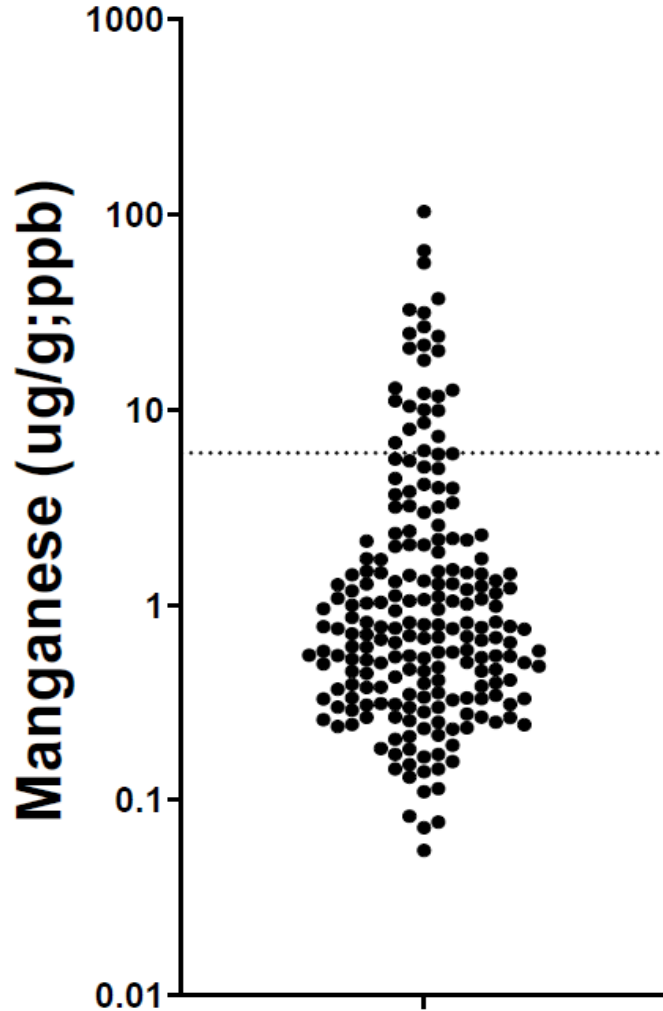


Rodent

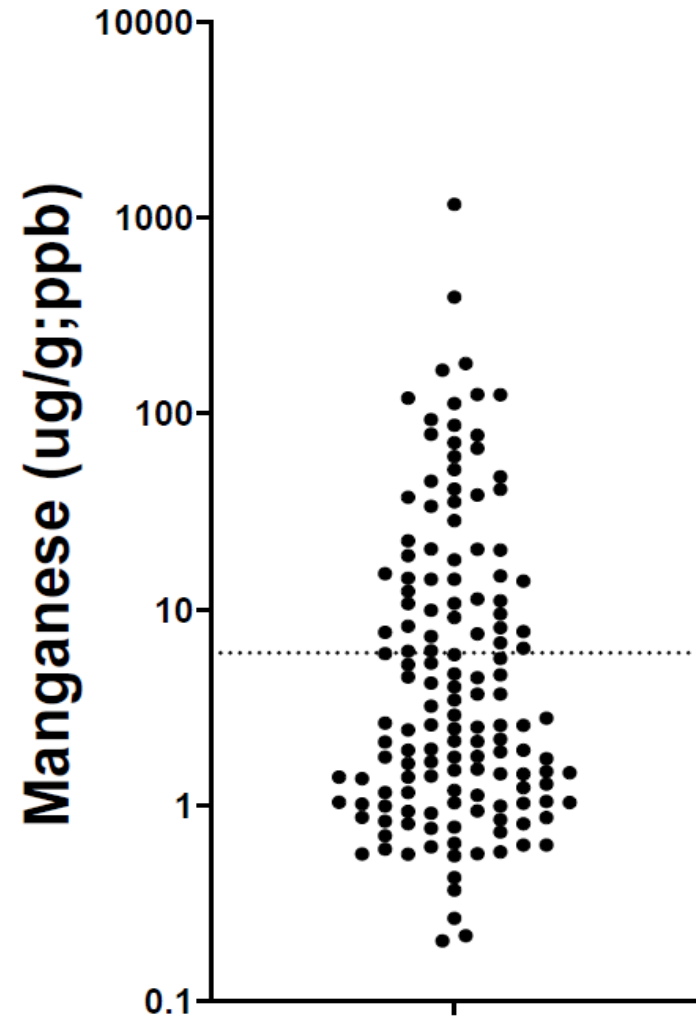


Environmental Contaminants: Manganese

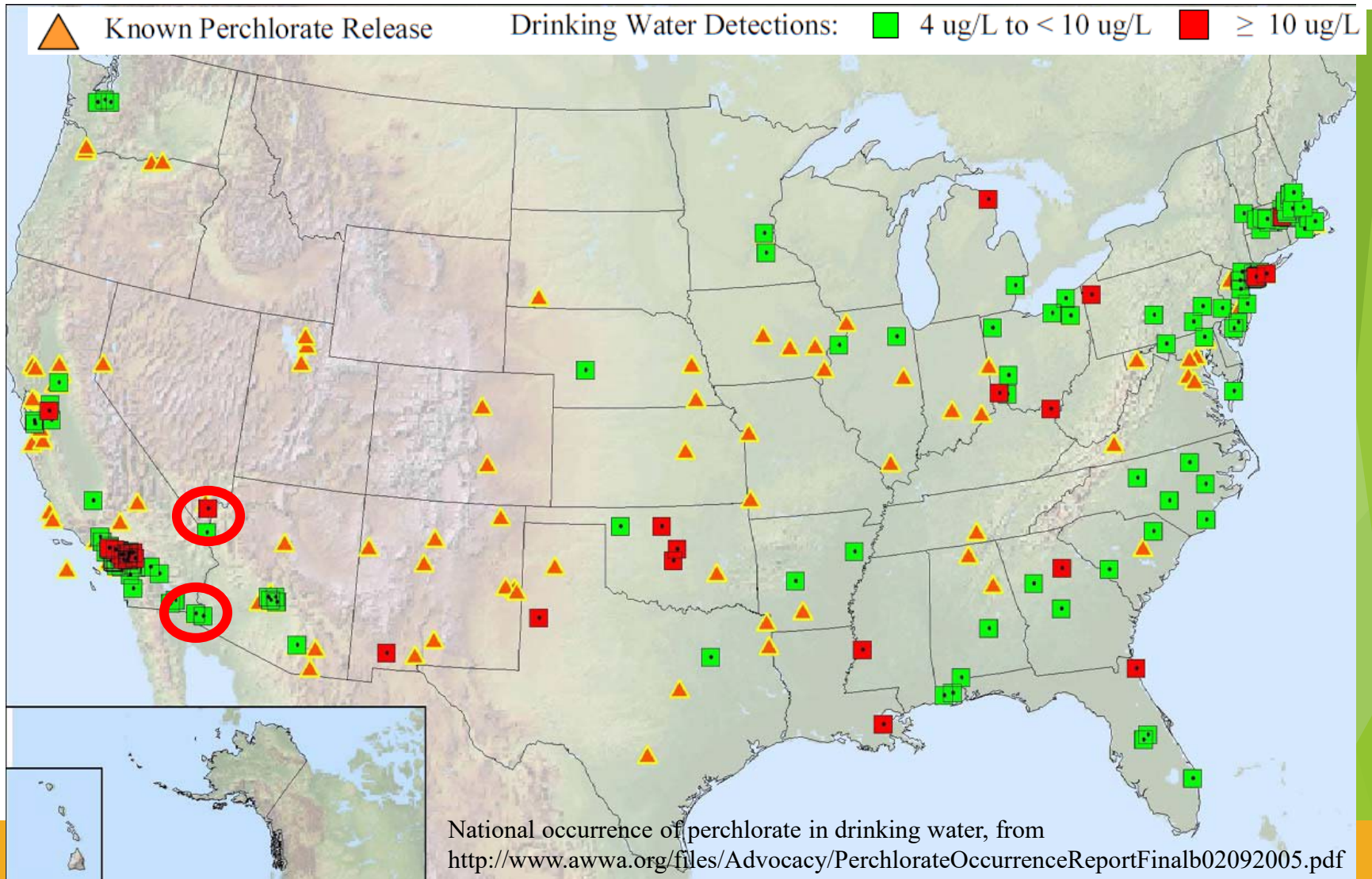
Human

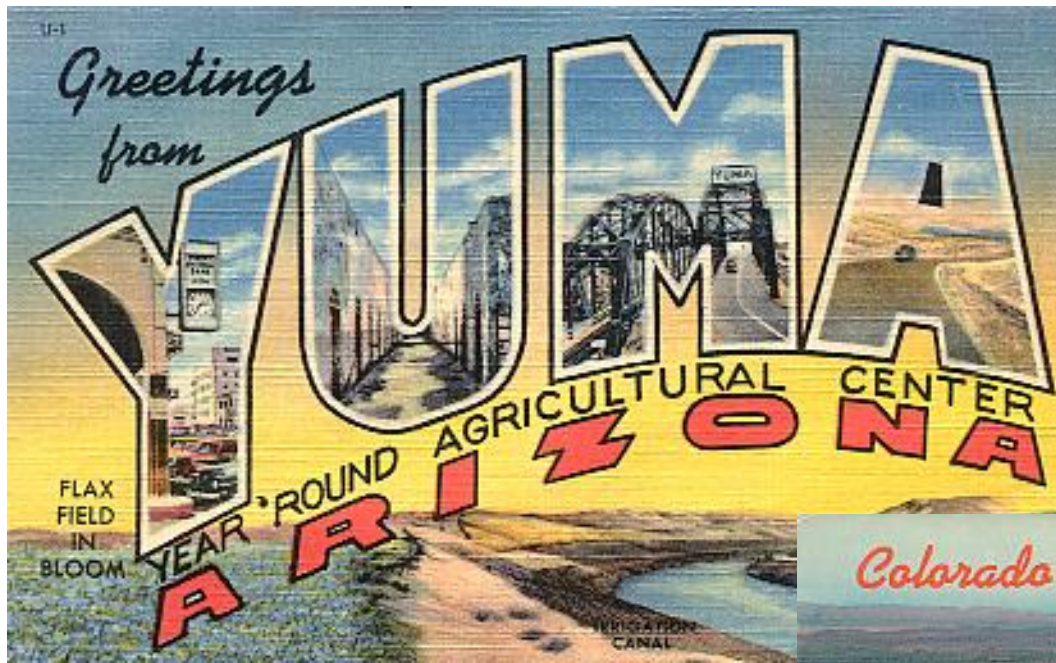


Rodent

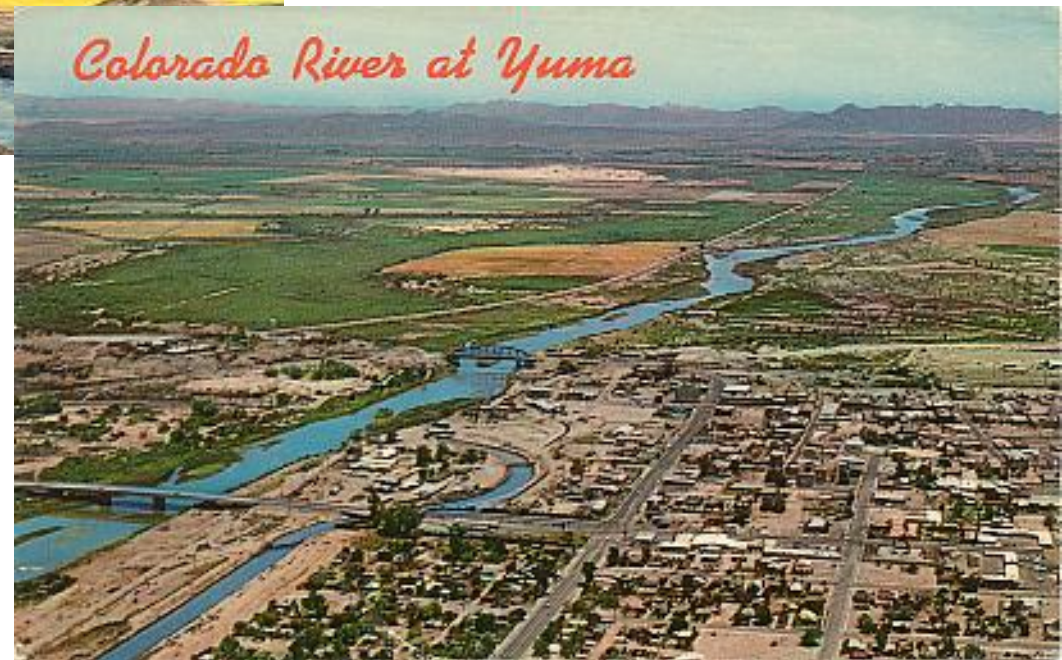


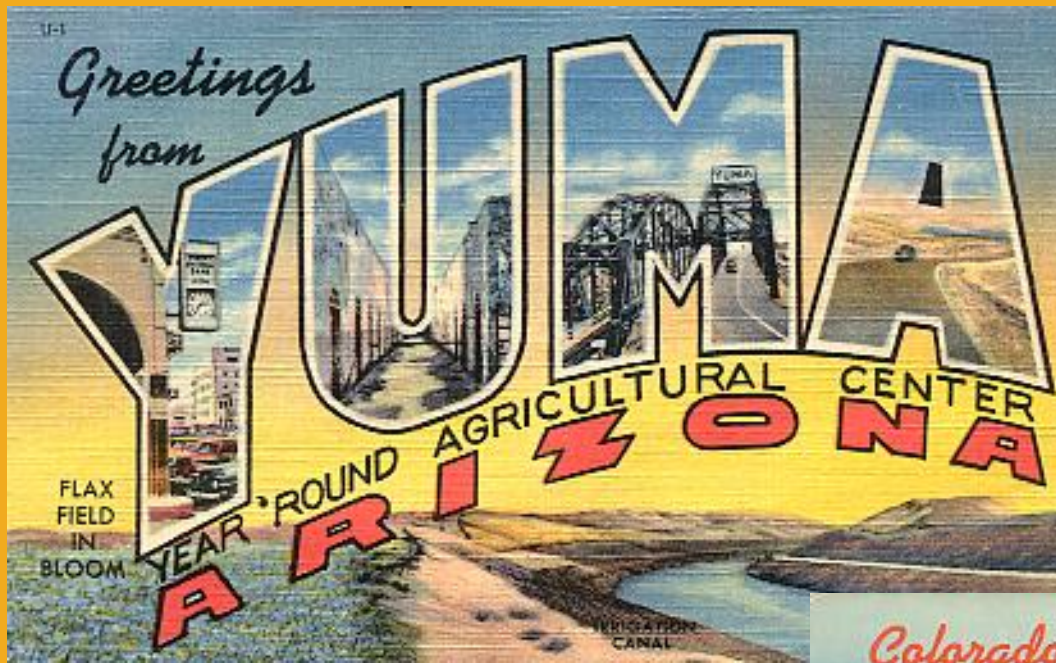
Environmental Contaminants: Perchlorate



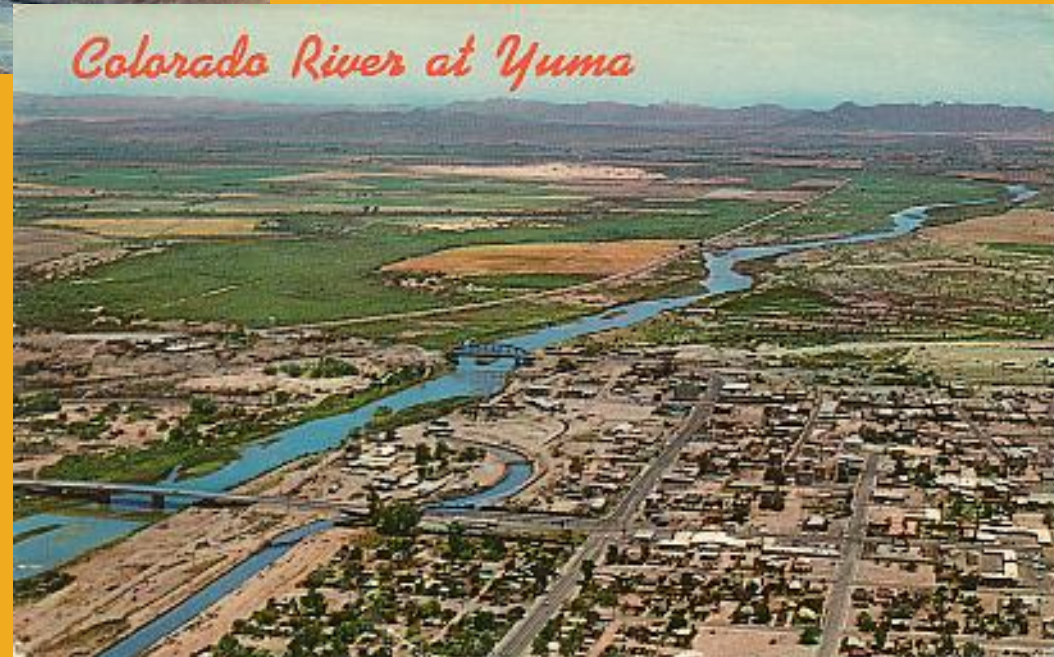


Year-round exposure to agrochemicals





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