Macro and Microplastics: St Louis River Estuary and Lake Superior.

Dr. Lorena M. Rios Mendoza
Cera Johnson, Maryelle Nyeck Nyeck
University of Wisconsin-Superior
Department of Natural Sciences /Chemistry
Endocrine disruptors

POPs are stable chemically. They are lipophilic (oil attracting) and accumulate in the food chain.

Man-made compounds

Endocrine disruptors

Lake Superior

Dr. Lorena M Rios Mendoza, University of Wisconsin Superior, lriosmen@uwsuper.edu
Summer 2016

- Effluent water WWTP (5)
- Manta trawl (17)
- Beach (100m and 1m²) (7)

Dr. Lorena M Rios Mendoza,
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Collecting microplastic samples

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Samples

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Dr. Lorena M Ríos Mendoza,
University of Wisconsin Superior.
loriomen@uwsuper.edu
Water sample outside of the WWTP-Duluth
MICROPLASTICS

Some examples of microplastics detected in St. Louis River Estuary from this WWTP

Dr. Lorena M Rios Mendoza
University of Wisconsin Superior
lriosmen@uwsuper.edu
Effluent water inside to the WWTP

Dr. Lorena M Rios Mendoza,
University of Wisconsin Superior.
liosmen@uwsuper.edu
FTIR Micro Spectrometer

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Summer 2017

9 Rivers
Lake

Creeks:
1. Faxon
2. Bluff
3. Bear
4. Kingsbury
5. Keene
6. Merritt
7. Miller
8. Buckingham
9. Chester
10. Tisher
11. 43rd Avenue East
12. Amity

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Collecting samples Summer-2017

Knife River

Middle River

Lake Nebagamon

Faxon Creek

Merrit Creek

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lirosmen@uwsuper.edu
44 samples
11 sediments
33 manta trawls
11 sediments no visible plastic particles
13 manta samples no visible plastic particles

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
North Pacific Gyre-2014

35% pyrogenic
15% petrogenic
50% mixture

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu
Conclusions

- Microplastic debris is a new source of POPs with unknown consequences in the environment in the Pacific Ocean and the Great Lakes.
- Plastics debris is confused by natural food and ingested by aquatic organisms (fish-fibers)

Questions:

- How fast is the desorption of the POPs?
- What is the significance of this new source of POPs?
- How is the food web affected? And ultimately the human health?
PLASTIC TEAM

Dr. Lorena M Rios Mendoza,
University of Wisconsin Superior,
lriosmen@uwsuper.edu
QUESTIONS?

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St. Louis River Estuary

Dr. Lorena M Rios Mendoza.
University of Wisconsin Superior.
lriosmen@uwsuper.edu