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Hammerdirt

Swimmers, surfers, lifesavers

Removing and counting the trash on the shoreline of Lake Léman

Global Movement

- Honolulu strategy
- Oceans initiative
- Marine litter watch
- OSPAR
- Numerous local and regional actors (for example hammerdirt)
- Rencontres nationales des collecteurs de déchets

First study : MCBPI Nov 2014 - Aug 2015

- Focussed on litter removal and background research
- Counted volume not pieces
- Positive message
- Ignored by local, regional, national authorities, and other NGO's
- Adoption of citizen science philosophy



Trouver sur nos rives* :

- 1 Porte monnaie (vide)
- 2 Cotton tiges
- 3 Bourre de cartouches
- 4 Jouet d'enfant (Mc do)
- 5 Morceau de styrofoam

- 6 Bouchon "Brevete S.G.D.G"
- 7 Média filtrant du STEP
- 8 Jouet d'enfant (random)
- 9 Pièce 1 centime (1900)
- 10 Bouchon "Cachat Evian"
- 11 Média filtrant du STEP

* Vous êtes ainsi épargné des photos des tampax, mégots, seringues et des autres cochonneries qu l'on trouve

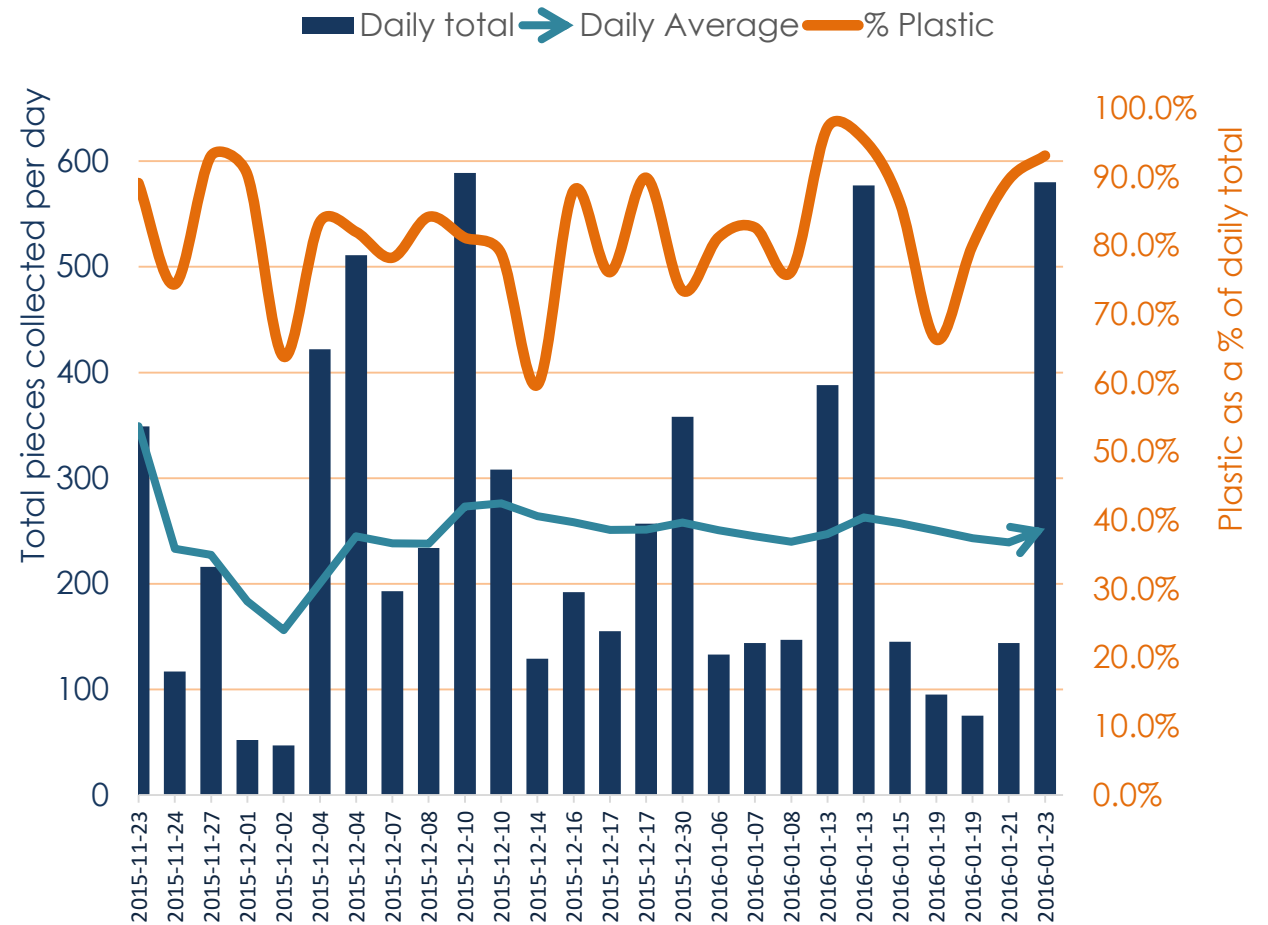
Second project MCBP II Nov 2015 – Nov 2016

- Adoption of Marine litter watch system for litter codes
- Surface area measurements, results reported as density of pcs/m²
- Kobo toolbox : Data is available for download
- Open Data Kit (ODK) for form development
- Formalized reporting methods
- Reports distributed to local and national authorities
- Facilitates comparison of our results to other studies in the world

27 Litter Surveys 23 Nov – 23 Jan

- Five different locations
- 8,560 pieces of trash removed
- Between 60% and 97% plastic

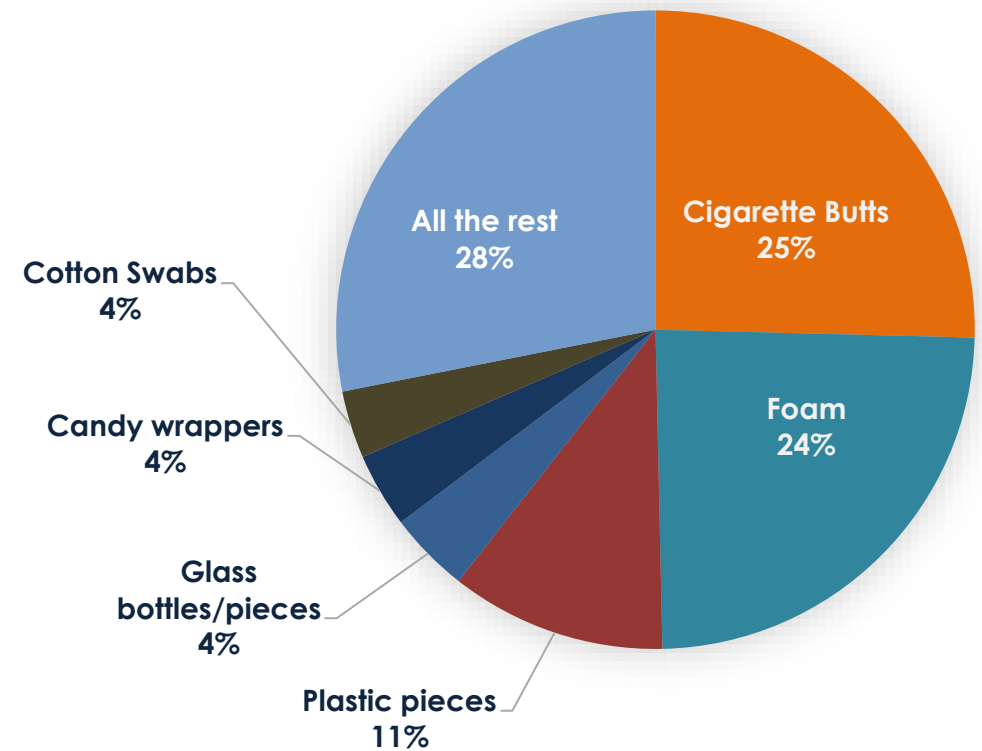
Daily totals and plastic as a % of daily total
Montreux-Clarens-Vevey
November 23 2015 - January 27 2016



Six categories 72% of trash

- Cigarette butts are 25% of total
- Foam and bits of plastic 36%
- The remaining 560 pieces is spread out over 70 categories

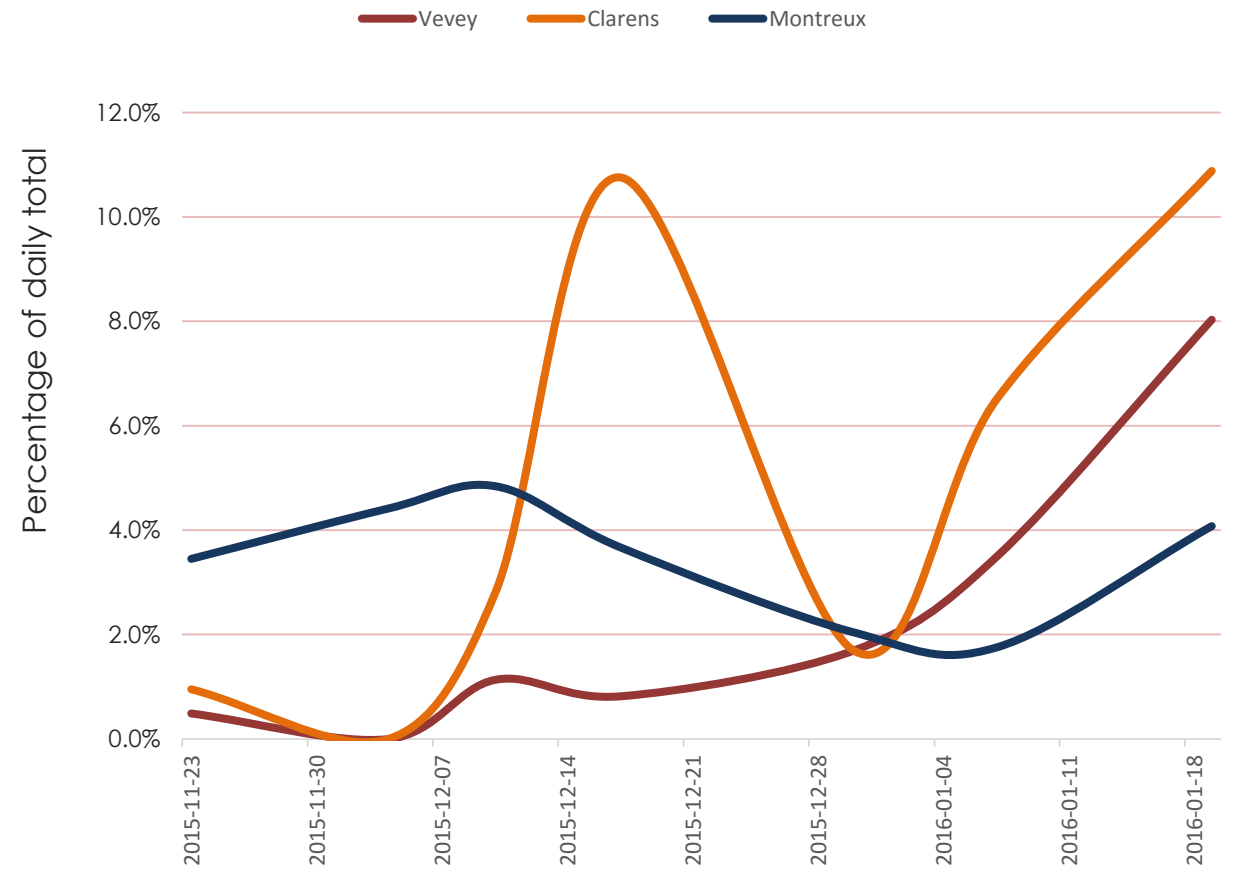
Top six categories of trash found
all sites combined
Montreux - Clarens - Vevey
November 2015 - January 2016



Certain Items have cyclical patterns

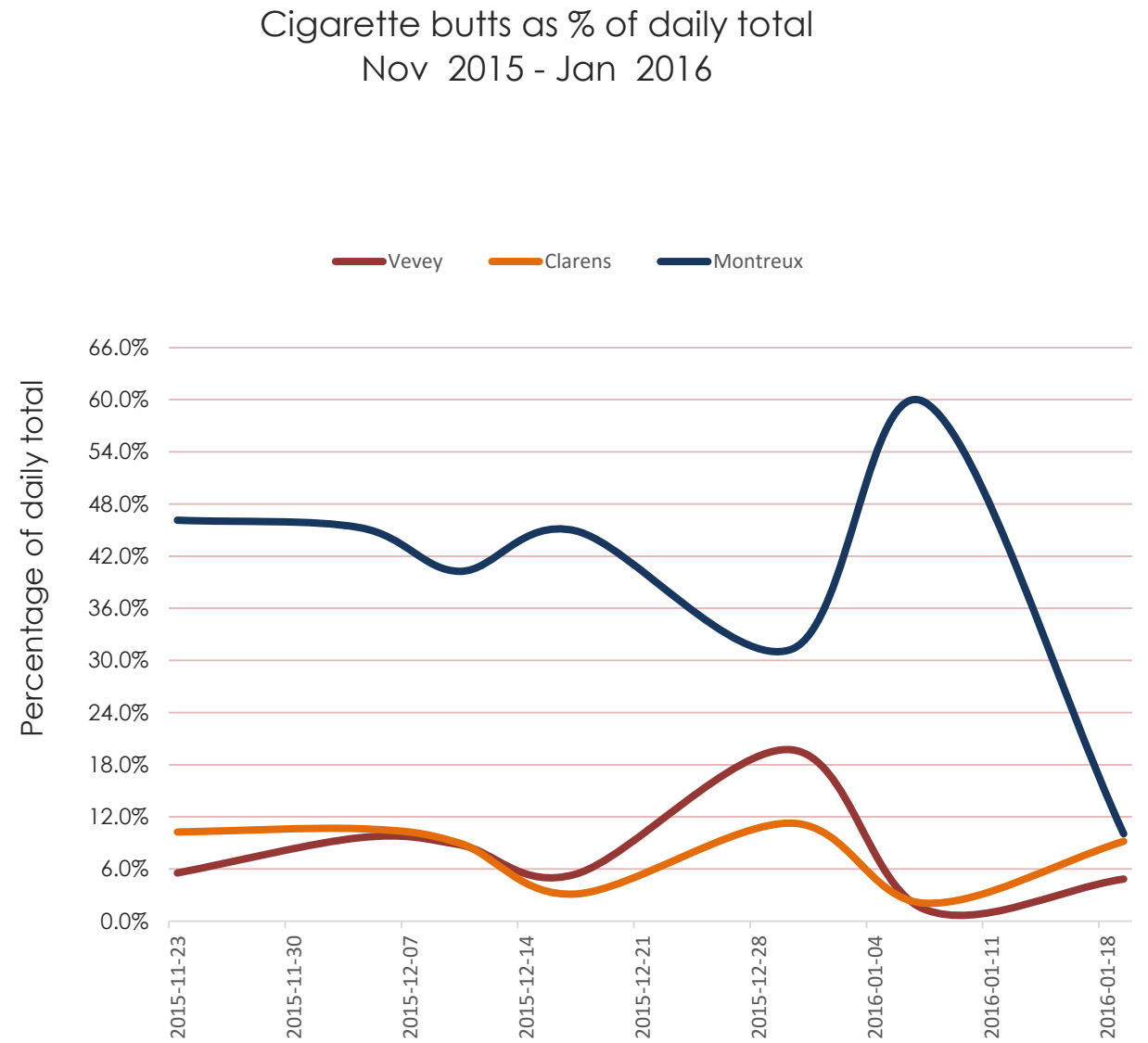
- Cotton swabs
- Foam
- Plastic Bits

Cotton swabs as % of daily total
Nov 2015 - Jan 2016



Other Items not so much

- Cigarette butts are a constant in the environment



Missed opportunities

- Other data can be collected at the same time
- Integration of litter data to socio-economic studies
- Correlation (if any) of the occurrence of items such as cotton-swabs, toilet fresheners, tampons to other biological indicators
- Do the cyclical patterns of items correlate to any biological data/water quality data?
- Transport of bacterial pathogens on waterborne styrofoam and plastic
- Many more...

What is really in our water ?

- Lonza, Syngenta, CHUV, municipal overflow, Tamoil ...
- Microplastics in suspension?
- Heavy metals?
- Analytic chemistry is expensive and requires considerable overhead

How can you help ?

- Adopt a beach in the region (Rennens/Lausanne/Morges)
- Further development of DIY biosensors and water quality sensors
- Development of an automated or semi-automated system for quantifying microplastics in suspension
- Integrate the data in your research

Thank you

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