Plankton: biological PUMP of CONTAMinants in marine ecosystems (CONTAMPUMP)? A new ambitious research ANR project in the Mediterranean Sea

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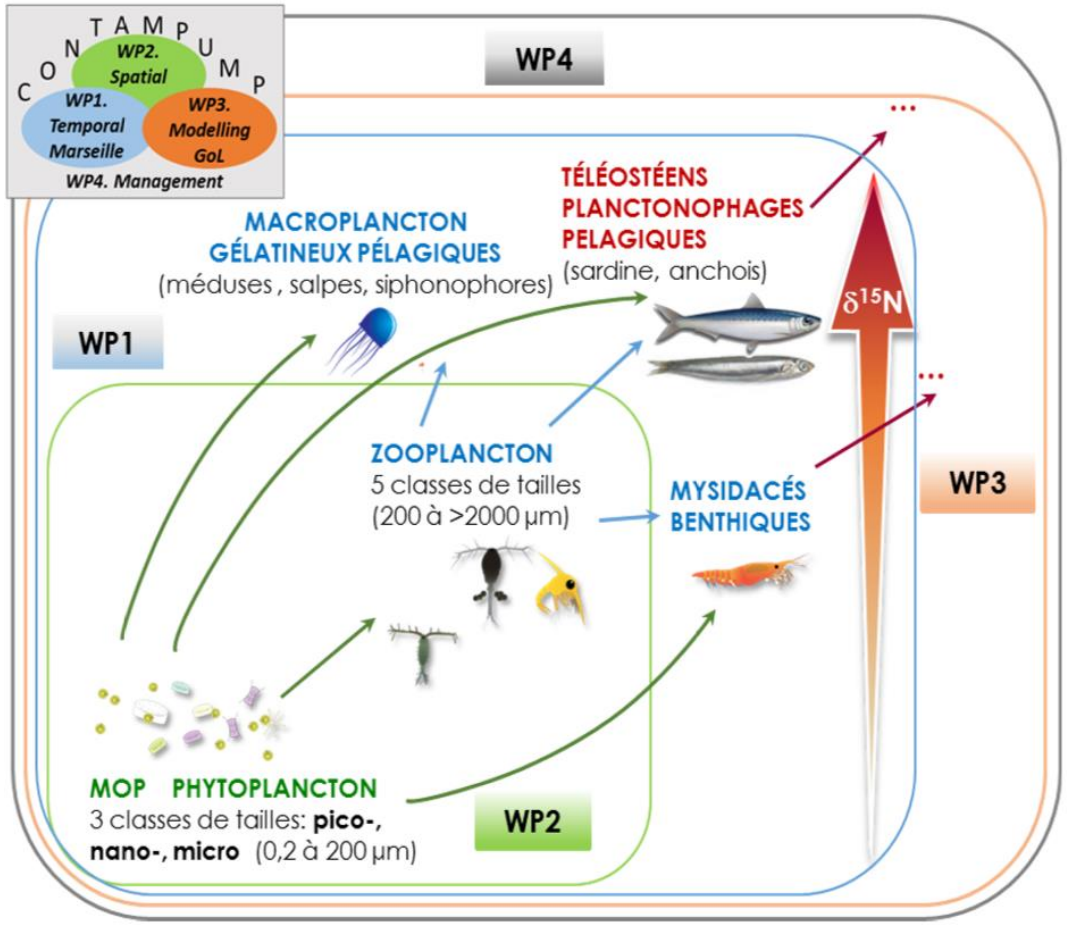
The contamination of the marine environment by elements of natural and anthropogenic origins is a major problem worldwide with

→ effects on the biodiversity and functioning of ecosystems

→ impacts on the exploitation of marine resources, socio-economic activities and human health

Objective : study of the **chemical contamination** at the **basis of marine food webs** (plankton and planktivores) and provide concepts and **models of trophic transfer** of contaminants **from plankton to higher trophic levels**

Target contaminants selected among the priority substances of the WFD (Water Framework Directive) and MSFD lists : **trace metals, Hg, MMHg, PAHs, PCBs, pesticids.**



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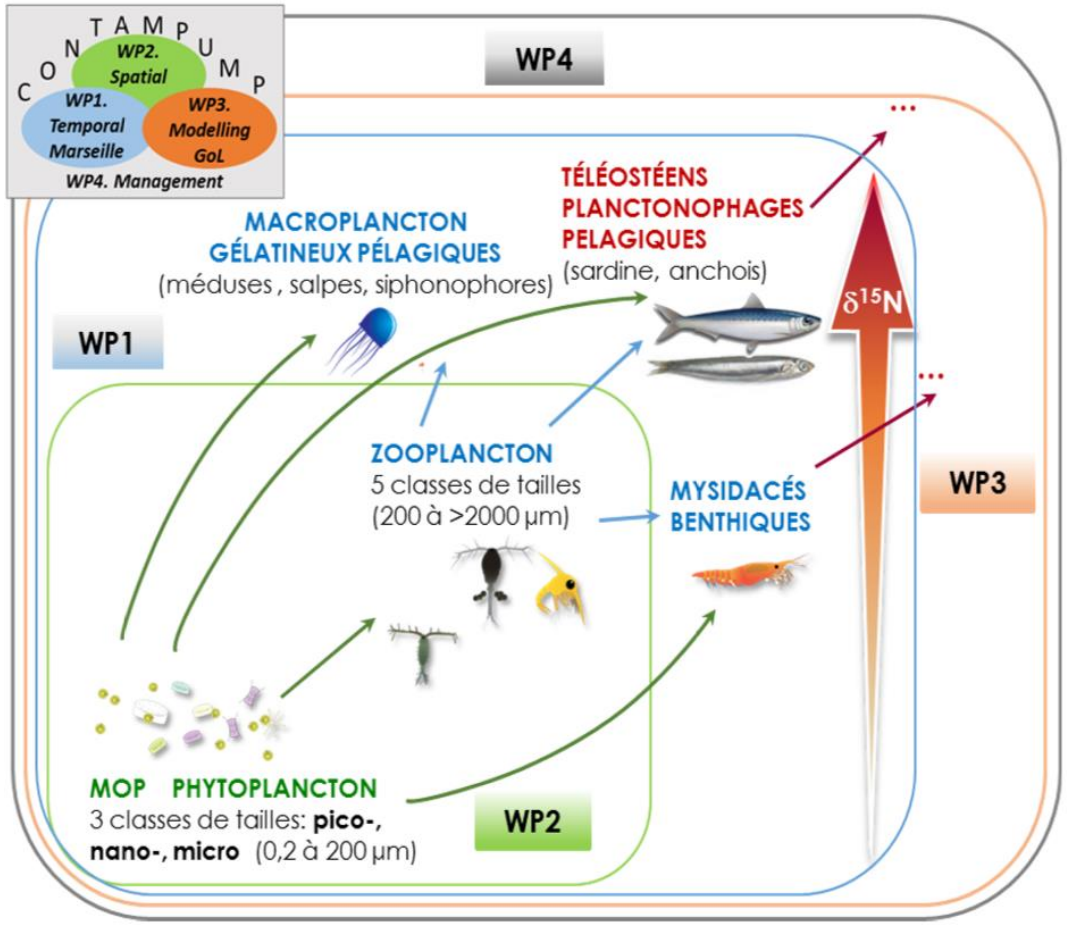
The **main scientific hypotheses** :

(I) organisms size influences the level of contamination (bioaccumulation or biodilution);

(II) trophic level influences the contaminant transfer in the planktonic food web (biomagnification or bioreduction);

(III) food selection influences contaminant concentrations in various planktivorous species;

→ *See also poster Chen et al. MED2020*
Session « Systèmes écologiques et biodiversités »



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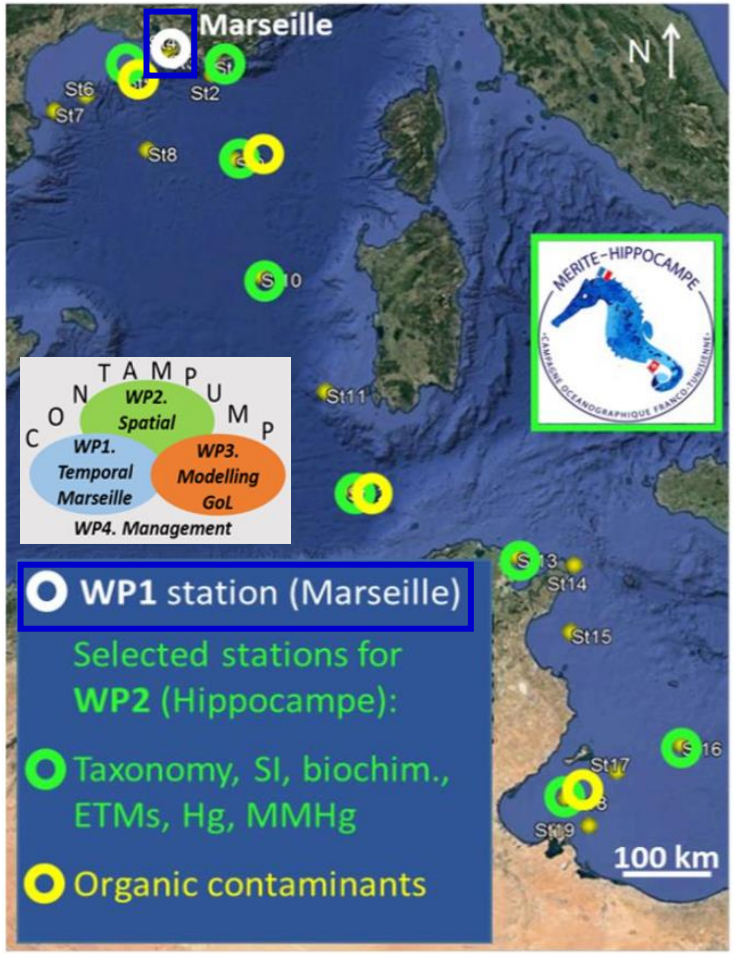
(IV) there are temporal variation of contaminant concentrations in relation to the plankton composition and the potential sources of contaminants (rivers, urban areas, STEP, ports, industries);

→ WP 1 : 18 monthly temporal survey (started in June 2020 in Marseille Bay in SOLEMIO (RNO SOMLIT)



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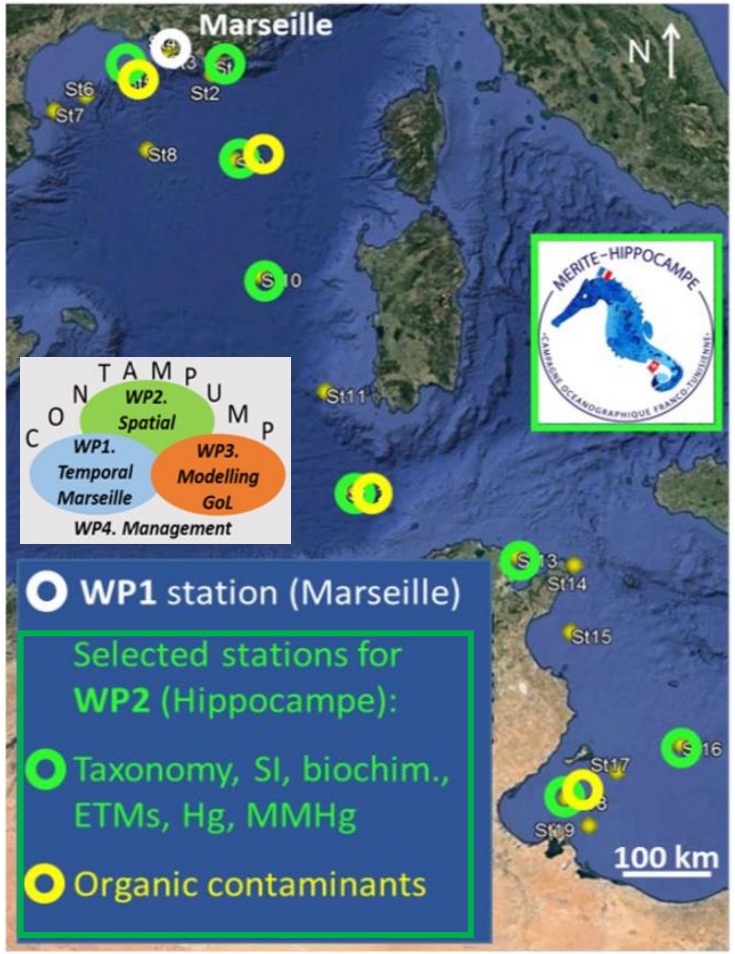
(V) there are different patterns of plankton contamination between contrasted areas

→ WP 2 : contribution with analyses of samples from the HIPPOCAMPE campaign



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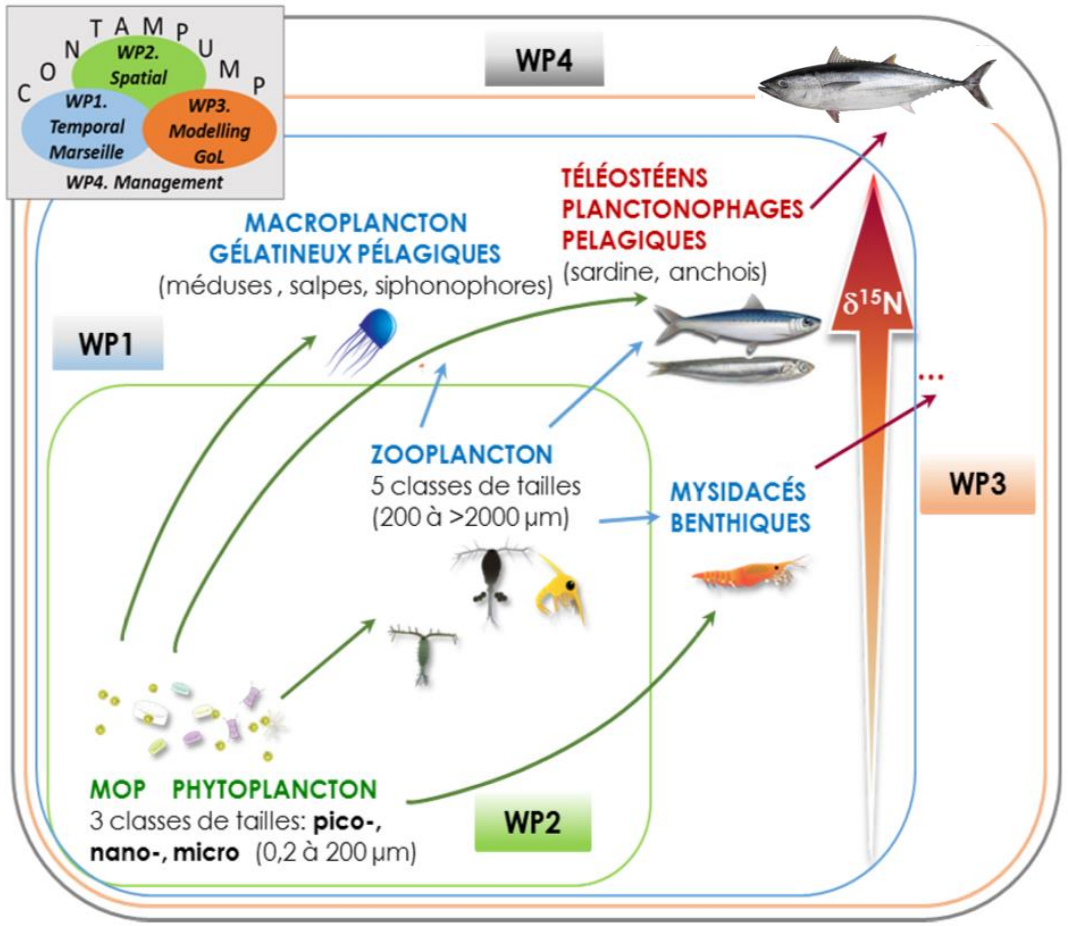
(VI) according to the contaminants considered, **trophic transfers may occur differently from plankton to the fishery resources → WP3 trophic modelling ECOTRACER**



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- Understanding the transfer of contaminants between the lowest size compartments of plankton and their consumers, and develop new methods to sample and measure them represents scientific and technical barriers to be surmounted in this ambitious project that started in January 2020

CONTAMPUMP Kick-off Meeting, MIO, January 2020

CE34 - Contaminants, écosystèmes et santé

https://anr.fr/Project-ANR-19-CE34-0001