Monitoring the state of the environment at the petroleum port of Mlaka

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Air quality

Seawater quality

Soil quality

Marine sediment quality

Biocenological analyses

PIXEL- Port IoT for Environmental Leverage
H2020-EU.3.4. – Smart, Green And Integrated Transport
Topic: MG-7-3-2017 – The Port of the future
Contract Number: 769355
EC funding: 4 890 222,50 €
Duration: 1 May 2018 – 30 April 2021
15 partners

N45°20'31.2"
Z1
AP Mlaka (SO_2, NO_2)
N45°20'5.28"
Krešimirova 52 (PM_{10})
Z2
Z3
Krešimirova 38 (PM_{10})
Google Earth
Image © 2019 DigitalGlobe
N
600 m

Ordinance on Air quality monitoring (Official Gazette 79/17)

Air quality: I category

T1
T2
M1
M2
S1
E 14°24'51.84"
M3
M4
S2
Google Earth
N

Seawater quality

4 locations, two inside the port and two outside the port

- water temperature
- transparency
- pH
- salinity
- DO (dissolved oxygen)
- % of oxygen saturation
- concentration of hydrocarbons
- concentration pf polycyclic aromatic hydrocarbons

Seawater of good ecological status!

T1
T2
M1
M2
S1
E 14°24'51.84"
M3
M4
S2
Google Earth
N

Marine sediments

2 locations, one inside the port and one outside the port

- PAHs
- alkanes
- BTEX
- Heavy metals (Cu, Cr, Hg, V, Zn, As, Cd i Sn)

High concentrations of PAHs and heavy metals!

T1
T2
M1
M2
S1
E 14°24'51.84"
M3
M4
S2
Google Earth
N

Soil

2 locations

- PAHs
- alkanes
- BTEX
- Heavy metals (Cu, Cr, Hg, V, Zn, As, Cd i Sn)

High concentrations of PAHs and heavy metals! The concentration increases with depth!

0
B - 135
1
2
3
4
5
6
7

T1
T2
M1
M2
S1
E 14°24'51.84"
M3
M4
S2
Google Earth
N

Biocenological analyses

1 transect inside the port

A total of 23 species of flora and 38 species of fauna have been identified. The biological diversity is relatively low and is characteristic of eutrophic and somewhat degraded environments with heavy sedimentation which are under the influence of anthropogenic factors.

Presence of the bivalve *Mytillus galloprovincialis* indicates an inflow of freswater from land

Conclusions

Air quality – I category (not polluted)
Sea water quality – good ecological status (but not the best)
Sea sediments – high concentration of PAHs and heavy metals
Soil – polluted with PAH and heavy metals, concentration of tar increases with depth
Biocenological analyses – degraded habitats, eutrophicated