# Polycyclic Aromatic Hydrocarbons (PAHs) Potential Sources in Sediments of Plawangan Timur, Segara Anakan, Cilacap: Occurrence and Distribution

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| **Title** | Polycyclic Aromatic Hydrocarbons (PAHs) Potential Sources in Sediments of Plawangan Timur, Segara Anakan, Cilacap: Occurrence and Distribution |
| **Author Order** | 5 of 10 |
| **Accreditation** | |
| **Abstract** | Polycyclic Aromatic Hydrocarbons (PAHs) have the potential to contaminate the coastal area of Plawangan Timur, Cilacap, Indonesia. Therefore, this research aims to determine the composition, distribution, source, and contamination level of PAHs in this region. Sediment samples were taken at seven stations. The research findings indicate that among the 16 types of PAHs, the proportion of each PAH varied between 3-12%. Notably, Benzo(a) Pyrene (BaP) had the highest proportion at 12%, while Naphthalene had the lowest proportion at 3%. According to the distribution pattern, PAHs with a high molecular weight (HMW) are more prevalent than those with a low molecular weight (LMW). The total amount of PAHs ranged from 185 to 1289.9 mg.kg-1Ã‚Â (dw), with an average of 1016.97 mg.kg-1 (dw). Using a diagnostic ratio, it was determined that the origin of the PAHs was either petrogenic, pyrogenic, mixed petrogenic and pyrogenic, or pyrolytic. As a result, Plawangan Timur's degree of pollution was classified as a very high polluted. The average concentration value of each PAHs is higher than the values for the Effect Range Low (ERL) and Effect Range Median (ERM) ranges, indicated there is a significant ecological risk that could have negative consequences on marine life and the ecosystem. It is urgently to handle PAHs pollution due to their relatively high content in sediments. This can be achieved by improving the management of wastewater treatment plants (WWTPs) for industry, optimizing the role of mangrove forests in reducing pollution in the waters, as well as building and increasing collaboration between related agencies in the prevention of marine oil spills. |
| **Publisher Name** | Marine Science Department Diponegoro University |
| **Publish Date** | 2024-09-05 |
| **Publish Year** | 2024 |
| **Doi** | DOI: 10.14710/ik.ijms.29.3.393-402 |
| **Citation** | |
| **Source** | ILMU KELAUTAN: Indonesian Journal of Marine Sciences |
| **Source Issue** | Vol 29, No 3 (2024): Ilmu Kelautan |
| **Source Page** | 393-402 |
| **Url** | https://ejournal.undip.ac.id/index.php/ijms/article/view/58874/pdf |
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