

EL FERROL AND COISHCO BAYS, CHIMBOTE, PERU: APRIL AND JULY 2002 ENVIRONMENTAL ASSESSMENT

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ABSTRACT

This work was into the Network of Environmental Monitoring, Institutional Operational Plan 2002 IMARPE. In the first period (April 26-30) 16 sea sample points, and in the second one (July 24-27), 19 points were fixed; in both cases, 12 each sample stations, one in Lacramarca river and other in Santa river, were set. Indicators of the marine environment and of the pollution from land were evaluated. In El Ferrol Bay the sewage are discharged through four pumping chambers in the north, and in the south, the Lacramarca river flows into the sea. The Coishco bay receives agricultural and domestic runoff, forming water mixes with the Santa river, with a typical salinity. The temperature corresponded to the área and season studied. Dissolved oxygen levels were low in July, with anoxia off fish factories in El Ferrol Bay, and hypoxia in some áreas into Coishco bay. Silicates and phosphates were high, mainly due to the influence of Santa river to Coishco. The total suspended solids (TSS) were within the permissible limits of the Peruvian General Waters Law. The Hydrogen sulfide concentrations were low. Oils and fats reached significant levels in some points of El Ferrol Bay southeast. In Coishco bay, the values of thermotolerant coliforms were high mainly in the central área; in El Ferrol bay, in July, those values exceeded the LGA for IV, V and VI classes. The Cd, Pb and Zn, trace metals had the lowest average concentration in the last two years. Hydrocarbon concentrations in sediments were generally low. The water quality of Santa river, at the end of the lower basin showed high concentrations of silicate and nitrate inputs; besides mainly thermo tolerant coliform contamination, mainly in April, and BO₅D within the permissible levels.

CALLAO BAY, PERU. ENVIRONMENTAL ASSESSMENT IN MARCH 2002

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ABSTRACT

At 26 stations, 17 by sea and 9 by coastline, different parameters were evaluated: a) physical and chemical, b) indicators of microbiological contamination; c) the amount of organic mater from domestic and industrial wastewater dumped into the bay without any treatment, d) heavy metal trace levels in sediments and organisms. In bottom sediments the results were: cadmium (0.81 to 5.47 mg/g), lead (12.00 to 120.25 mg/g), copper (7.72 to 74.7 mg/g) and zinc (8.94 to 197.16 mg/ g). Higher values in general were found off Callao Port Terminal and the Rímac river mouth; and low values were recorded off San Lorenzo Island. Traces of metal in the muscles were evaluated in three mollusks: clam, *Gari solida*, pique or señorita, *Crepipatella dilatata* and black snail, *Stramonita chocolata*. The issuance of industrial and domestic effluents and Rímac river water carry organic matter into the central área of Callao Bay, producing a negative impact on water quality, with values beyond the permissible limits of the General Water Law for classes IV, V and VI. Pollution in the bay of Callao has not changed in the past 22 years, so it maintains its rating of severe chronic contamination. Hence, emerges the need for management measures such as integral sanitation with the treatment of wastewater dumped into the bay, to give adequate protection to the marine environment and minimize the risks to human health.

PERSISTENT ORGANIC POLLUTANS (POP) FOUND IN THE MARINE COASTAL ZONE OF CAÑETE, PERU. MAY 2002

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ABSTRACT

As part of the IMARPE Program of Environmental Monitoring Network, this first evaluation was conducted to evaluate the presence of POP in living resources and marine and freshwater sediments, on the coast of Cañete. In this valley is an important agriculture, and also artisan shore fishing, so it is very important to assess the presence of organochlorine pesticides in the environment and aquatic biota. The methodology used for chemical analysis and instrumentation was that described in No. 71 of UNEP/IOC/IAEA/1997. The highest incidence of groups Aroclor 1254, 1260, including DDT and its metabolic forms were detected. In the river sediments higher content of Aroclor 1254 (821.02 ng/g) was found, but in the marine samples it was lower (7.98 ng/g); these values were maintained in the range from coastal áreas of Peru (19,2 ng/g) evaluated in the years 1994 and 1997, including DDT, which did not exceeded 2.8 ng/g. In "River shrimp" *Cryphiops caementarius* residues of DDT and its metabolite, DDE (5.8 ng/g) were found. In the fish "lisa" *Mugil cephalus*, Aroclor 1254 was found to a maximum of 28.96 ng/g; and in the "fish fox" *Menticirrhus rostratus*, Aroclor 1260 with 11.81 ng/g; DDT in all its forms in each species evaluated were present.

ENVIRONMENTAL QUALITY IN THE COASTAL MARINE ÁREA OFF HUARMEY, PERU. MARCH 2002

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ABSTRACT

This paper presents the water quality parameters and the metal content in sediments and benthic marine molluscs of Huarmey bay, in the austral summer 2002. Cold Coastal Waters (CCW) dominated the bay. Levels of dissolved oxygen (2,71-6,73 mL/L) were excellent, exceeding the minimum requirements of the General Law of Waters (1970 Regulation) and increased over the autumn and spring 2000 data (<3,0 mL/L); the values of suspended solids (<35 mg/L), pH (7,79-8,17), and sulfide (<1 ug-at H₂S-S/L) remained within the ranges of those evaluations. The metal content in sediments (Cd <4,0 mg/g, Pb <10,0 mg/g, Zn <29 mg/g); was maintained with regard to past assessments, but copper showed a significant increase, especially at south of the bay. Benthic mollusks showed, in general, metal concentrations below the consumption limits set in international standards (FAO 1983, FDA 1983), an exception was the mussel *Semimytilus algosus* containing 2.1 mg/g cadmium, that slightly exceeded the established limit. Variability and similarity in metal content, in relation to past evaluations, was conditioned by physiological and environmental conditions.

HUARMEY BAY, ANCASH, PERÚ. APRIL 2003 ENVIRONMENTAL ASSESSMENT

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ABSTRACT

The studies were conducted from April 24 to 26, 2003. There were cool coastal waters and cold mixture (CCW), with homogeneous temperatures in surface and bottom ranged from 15.1 to 16.4 °C. Oxygen values were lower than in the last assessment in 2002, with mean 2.2 mL / L (maximum 3.14 mg / L) in surface and 0.7 mL / L (1.00 mg / L) in bottom. The total suspended solids showed a slight decrease compared to past surveys but did not exceed 26 mg / L. The low organic matter content was reflected in low values of BOD (<5.0 mg / L) and sulfide (<0.7 ug-at H₂S-S / L) and coliform content did not exceed the limits established for Class V of the General Water Law.

PETROLEUM HYDROCARBONS IN MARINE COASTAL AREAS OF PERÚ. 2004

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ABSTRACT

Aromatic hydrocarbons have been evaluated in water and marine sediments. The content of aromatic compounds in bottom sediments, was used as an indicator of deterioration or pollution. The results showed critical situations in Talara (31.7 ug/g), El Ferrol, Chimbote (28.7 ug/g), Callao (12.7 ug/g). In Coishco, Huarmey, Supe-Paramonga, Carquín, Huacho, Chancay, the content did not exceed 1.0 ug/g of aromatic compounds. The áreas of Paita, Sechura, Malabrigo, Samanco, Paracas, presented significant revenue of oily waste stays in the water column (1.0 m of surface), and it is necessary to increase existing information with sediment analysis, to point out the pollution degree.