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Title: Chemical and physical characteristics of bottom soil profiles in ponds on haplaquents in an arid climate at Abbassa, Egypt

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Abstract: Soil cores were taken from ponds at the Central Laboratory for Aquaculture Research, Abbassa, Sharkia, Egypt. Three ponds received little management since construction in the early 1980s. Three other ponds were fertilized heavily in 1993 and 1994 to stimulate tilapia (*Oreochromis niloticus*) production. Thicknesses of S, M, and T horizons in soil profiles averaged 5, 7.5, and 10 cm, respectively. The S horizon contained more silt than clay, but T and P horizons were 60% clay. Concentrations of total carbon, total nitrogen, total sulphur, phosphorus, calcium, and potassium were greatest in the S horizon and lowest in the P horizon. Intensively managed P-ponds had higher concentrations of phosphorus and lower concentrations of organic matter and sulphur in S and M horizons than B-ponds. Because of high moisture content, low dry bulk density, and greater concentrations of organic matter and nutrients in the S horizon, reactions in this layer probably have a greater influence on pond water quality than those in deeper horizons. For general purposes, soil sampling should be restricted to the S horizon or the upper 5-cm layer where depth of the S horizon is not known. Compared with pond soils from a humid climate in Auburn, Alabama (USA), pond soils at Abbassa had greater concentrations of sulphur, calcium, magnesium, potassium, and sodium, and lower concentrations of iron, manganese, zinc, and copper in S horizons.

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