

**TABLE 1 : NO<sub>3</sub> content in the water of some of the dug wells**

S. No.	Well No. (See Varanasi Map)	Location	NO <sub>3</sub> in ppm
1.	1	Bhadaini	150
2.	2	Maidagin	150
3.	6	Telianala	568
4.	7	Rajghat	192
5.	8	Bari Bazar	190
6.	9	City Railway Station	92
7.	12	Maldahiya	198
8.	16	Rathyatra	130
9.	21	Naria	160
10.	27	Nadeshwar	102
11.	29	Gilat Bazar	206
12.	34	Nai Basti	174
13.	41	Shivdaspur	142
14.	56	Assi (On road)	106
15.	65	Lanka (P.S.)	132
16.	73	Chaukaghat	98

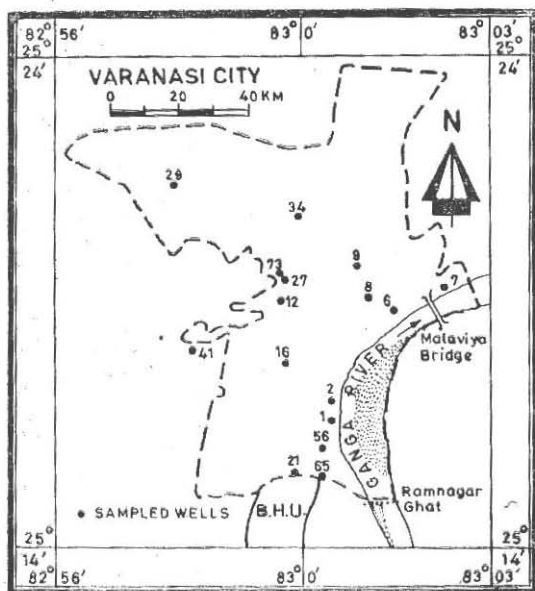


Fig. 1. Location and number of sampled wells.

of its leakage to aquifer beds cannot be ruled out. Vertical percolation of this water through the kankar and sandstone pebbles bearing clay

bed overlying the sand bed which constitutes the rich aquifer of Varanasi City is not improbable. Nitrogenous fertilizers used for good yield of horticultural crop can also be considered as a potential source of nitrate pollution. At many places even the excreta of pigeons, too, may be responsible for increasing the NO<sub>3</sub> content of water.

Intensive systematic study on physico-chemical properties of the well-water together with the soil aspects of many parts of Varanasi region are underway. These are necessary to find ways to prevent hazards.

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#### A note on the record of juveniles of *Rastrelliger kanagartha* (cuvier) in the distant waters off Ratnagiri

Mackerel fishery of India is constituted mainly by *Rastrelliger kanagartha*. Young stages of it are reported to be caught only occasionally from the east and west coast of our country<sup>1</sup>. Recently larval and post larval stages of the mackerel have, however, been

identified in the plankton<sup>2-3</sup>. The spawning ground of the species is not yet clearly known.

Small mackerel of 62-122 mm size were reported to occur off Ratnagiri in September, 1959 by George and Annigeri<sup>4</sup>. Narasimham (Personal communication) also reports occurrence of mackerel of 108-151 mm sizes there in October, 1961 in Rampan catches. Young mackerel of 10-130 mm sizes were reported from March to May in the areas along 10° to 30° N by PFP<sup>5</sup>. It also mentions about the occurrence of three mackerel larvae (3.7, 9.0 and 10.0 mm size) in the plankton samples collected in August, 1972 off Ratnagiri. Young mackerel were reported to occur in the shelf area extending from Tuticorin on the east coast to Ratnagiri on the West coast by PFP<sup>6</sup> during March-August of 1972, 1973 and 1974.

Thirty one juvenile mackerel of size 73-87 and weight 3-5 g were collected from the trawl catches of M. T. 'Matsya Vigyani' operated at 30-35 m depth in Lat. 17°-20'N and Long. 72°-10'E on 4-11-77 at about 70 nautical miles in the distant waters off Ratnagiri. The dominant size contributing to 49% of it was 80 mm group.

The available record of young mackerel from Ratnagiri area indicates that they occur in shelf waters in March-August, PFP<sup>5</sup>. September, George and Annigeri<sup>4</sup> and October (Narasimham, Per. Com.). Presently it is recorded north of Ratnagiri in distant waters in November. The spawning of mackerel is said to extend up to November by Noble<sup>7</sup>.

Peter<sup>8</sup> has reported the occurrence of mackerel larvae from deeper waters. Spawners also recorded in distant waters off Bombay<sup>9</sup>. Juveniles also now reported in distant waters off Ratnagiri.

The stomach contents of 31 specimens consisted of mainly *Coscinodiscus* spp., copepods and young ones of *Acetes indicus*.

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<sup>1</sup>K. V. Rao, Pro. Symposium on Scombroid fishes, Marine biological Association of India, Part I, 1962, p. 469-482.

<sup>2</sup>E. G. Silas, *Indian J. Fish*, **21**, 233-253, 1974.

<sup>3</sup>PFP, UNDP/FAO Pelagic Fishery Project Progress Report No. 7, Fish eggs and larvae studies, 1974.

<sup>4</sup>P. C. George and G. G. Annigeri, *Curr. Sci.*, **29**, 319-320, 1960.

<sup>5</sup>PFP, UNDP/FAO Pelagic Fishery Project Progress Report No. 6, Survey Results, 1974.

<sup>6</sup>PFP, UNDP/FAO Pelagic Fishery Project Progress Report No. 10, young fish studies, 1975.

<sup>7</sup>A. Noble, *J. mar. biol. Ass. India*, **16**, 826-829, 1974.

<sup>8</sup>K. J. Peter, *Nat. Inst. Sci. India*, Part II, **38**, 771-777, 1969.

<sup>9</sup>S. Krishna Pillai, *Indian J. Fish*, **26**, 237-238, 1979.