

Pornpimol Kodsup 2007: Aquatic Resources Production Potential and Enrichment Status Assessment by Integration of Phytoplankton and Aquatic Plant Database: Case Studies of Vajiralongkorn Reservoir and Srinakarin Reservoir, Kanchanaburi Province.
Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Charumas Meksumpun, Ph.D. 313 pages.

Study on spatial and temporal variation of species, density and biomass of phytoplankton and aquatic plant in Vajiralongkorn and Srinakarin reservoirs that are important fishery resources in western Thai watersheds areas was carried out based on major objectives to determine primary production potentials and to understand enrichment status of the waters. The study was performed by field surveys during February (dry season), May (start of rainy season), and August (mid-rainy season) 2006 in 47 stations and 48 stations of those reservoirs, respectively. Results of the Vajiralongkorn reservoir showed median values of phytoplankton biomass and chlorophyll a of 62.21 g/l and 2.43 µg/l, respectively. The maximum level was found around Bi Kli area. In this reservoir, dense patches of aquatic plant were found around Di Chon Thong area and median value of the biomass was 1,733.8 g/m². Results of the Srinakarin reservoir showed median values of phytoplankton biomass and chlorophyll a of 38.66 g/l and 2.67 µg/l, respectively. Maximum levels were found around Huay Ka Kaeng area. In this reservoir, dense patches of aquatic plant can be found around all near shore areas and median value of the biomass was 4,534.7 g/m². Total primary productions of both reservoirs were highest during August 2006 and environmental factors such as total suspended solid, transparency and pH played significant roles on the productions ($P < 0.05$). Primary production potentials of high productive zones were of 16.27 and 11.25 times of the mean levels in each reservoir, respectively. From the whole analyses, chlorophyll a database can be used to assess enrichment status better than phytoplankton density database. Accordingly, status assessment from chlorophyll a and biomass of aquatic plant indicated that both reservoirs were in oligotrophic status. Such determination was similar with the assessment from the whole primary productions. Nevertheless, some upstream areas such as Huay Nam Kun (in Vajiralongkorn reservoir) and Huay Ka Kaeng (in Srinakarin reservoir) were in eutrophic status. Such eutrophic areas should be suitable as nursery habitat for aquatic animals. The overall information here, thus, can be used for development of area selection guideline for effective fishery resource production further.

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Thesis Advisor's signature

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