Progress Report
E&R Base in Thailand

EFFORTS FOR THE BETTER ENVIRONMENT AT KASETSART UNIVERSITY: LAND-USE AND ENVIRONMENT IN THAILAND

Report by… Assoc. Prof., Dr. Poonpipope Kasemsap and Dr.Tiwa Pakoktom

The regular water quality monitoring from 3 water sources: Irrigation canal, natural canal and ponds in Kasetsart University, Kamphaeng Saen Campus.

Assumption of this research is water quality has the effects on plant growth and yield. There for it is necessary to investigate the water qualities from each locations or sources. Variation water sources for agriculture are found in Thailand such as from the dam pass-through irrigation canal (photo 1) or natural canal (photo 2) or pond (photo 3). Aerial photo of sampling points are shown in Photo 4. Simple qualities such as pH, Electrical Conductivity (EC), and temperature are measuring.

Photo 1. Maklong dam which supply the water for agricultural area in western past of Thailand pass through irrigation canal

Photo 2. Natural canal ‘Bangpla Thasan’ passes through Kamphaeng Saen City

Photo 3. A pond for reserving water and supply for pasture field in Kasetsart University (KU), Kamphaeng Saen Campus.

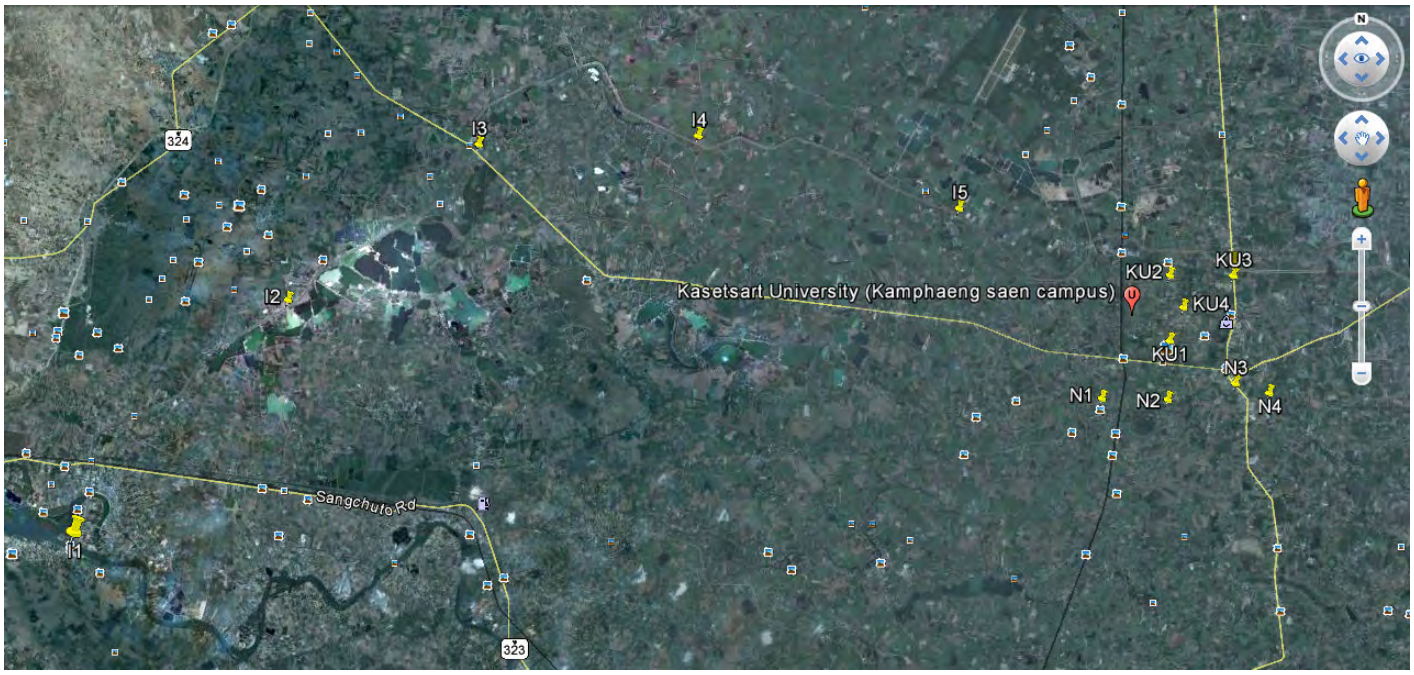

Photo 4. Aerial photo showing overall sampling area, I represent the irrigation canal, N represent the natural canal and KU represent ponds in Kasetsart University.

Photo 5a. Preparing the instrument before measuring the water qualities including EC, pH and temperature.

Photo 5b. A 4 years bachelor student conducting the EC and pH data.

Photo 5c. Young generation interested our activity while we took the sample from irrigation canal.

Four sampling points were selected from each water sources and four sampling were taken for measuring the qualities. The figure below (Figure 1.) show seasonal trends of water EC. The water EC from irrigation and natural canal are not change over season and the value showed fluctuation between 162–436 μS/cm which in the rank of normal water. Water EC from ponds in KU was showed different and EC higher than other sours. The water EC value higher than 2000 μS/cm means it is saline water. Water EC from a pond in KU shown large variation especially, in December, 2011 which is less water due to the dry season in Thailand.

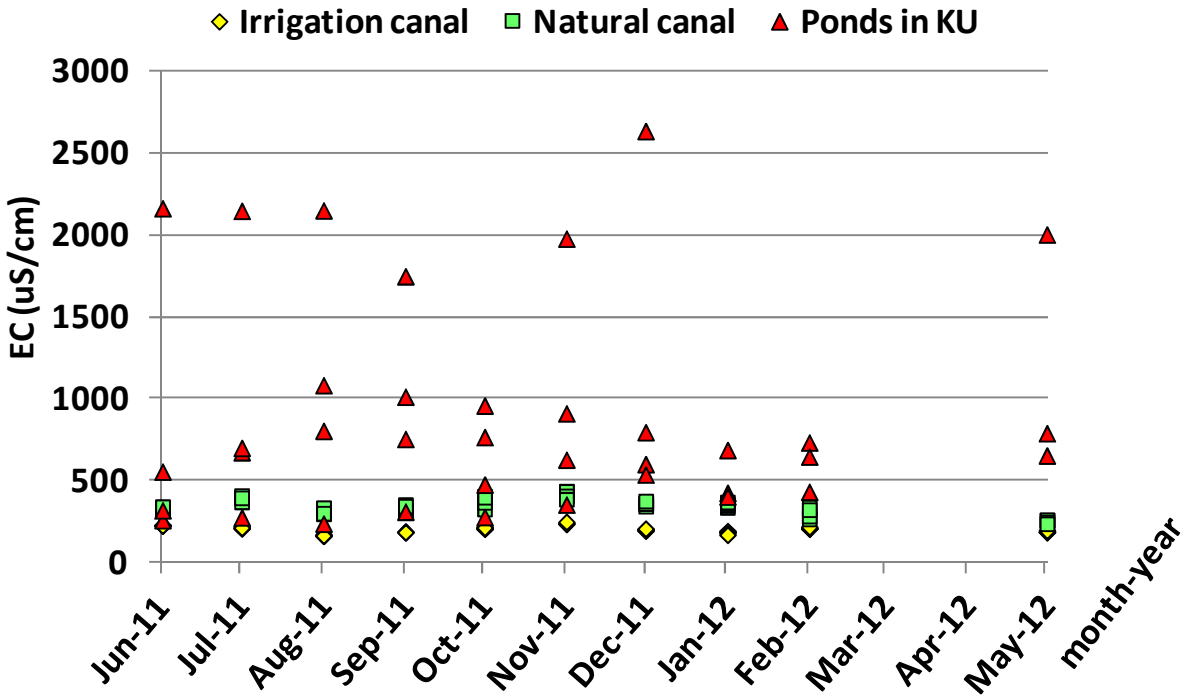

Figure 1. Seasonal trends of water EC from irrigation canal, natural canal and ponds in KU.

The water temperature for measuring EC from different water sources are shown in Figure 2. The seasonal trend shown similar trend and it seem decrease due to the winter season start from November in Thailand while summer season start from March. The water temperatures for EC of 3 sources are fluctuation during 25.9-36.6 °C.

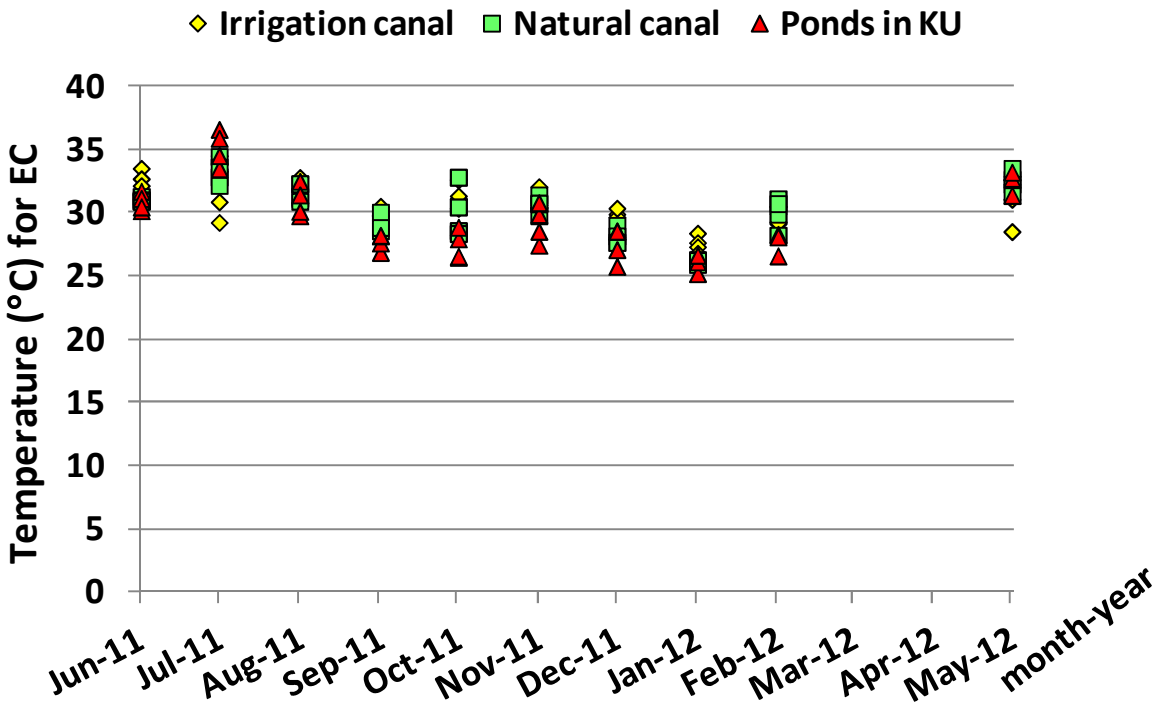

Figure 2. Seasonal trend of temperature for EC of irrigation canal, natural canal and ponds in KU.

The water pH from different water sources are shown in Figure 3. Water pH from each sours were not different in each month. The seasonal trend had shown similar in each source. The seasonal trend shown decrease from July, 2011 until May, 2012. The reason of decreasing trend was not clear. The water pH of 3 sources is fluctuation during 5.09 -5.85.

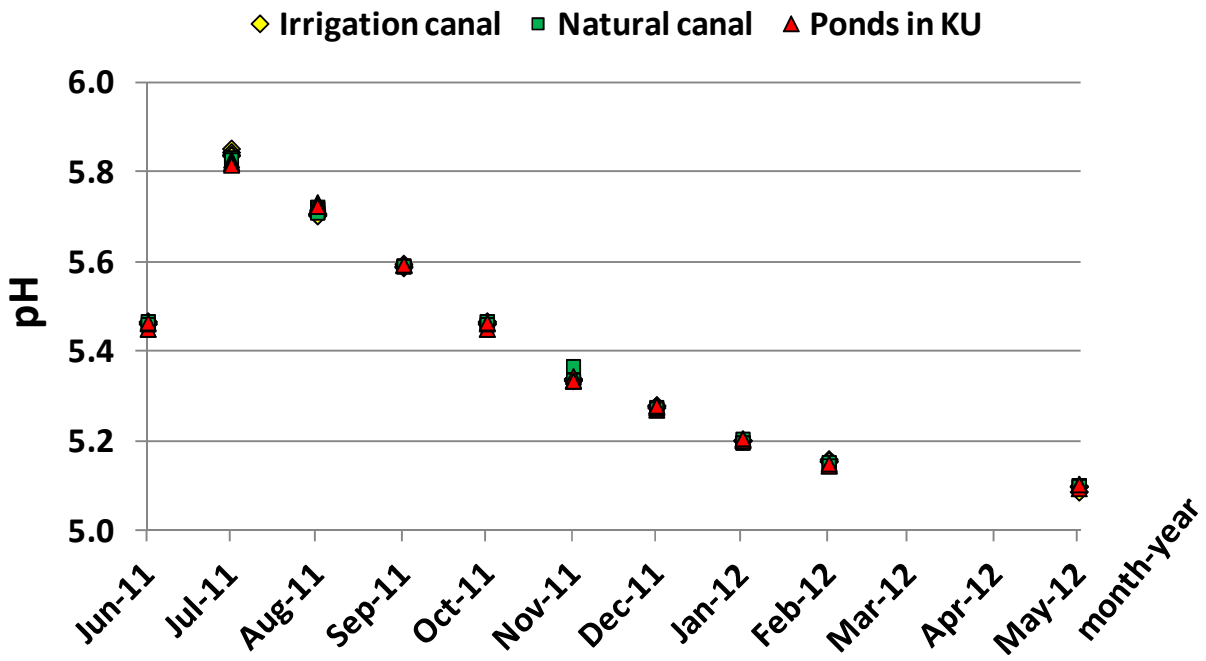

Figure 3. Seasonal trend of water pH from irrigation canal, natural canal and ponds in KU.

The water temperature for measuring pH from different water sources are shown in Figure 4. The seasonal trend and fluctuation were shown similar trend of water temperature for measuring EC (Figure 2).

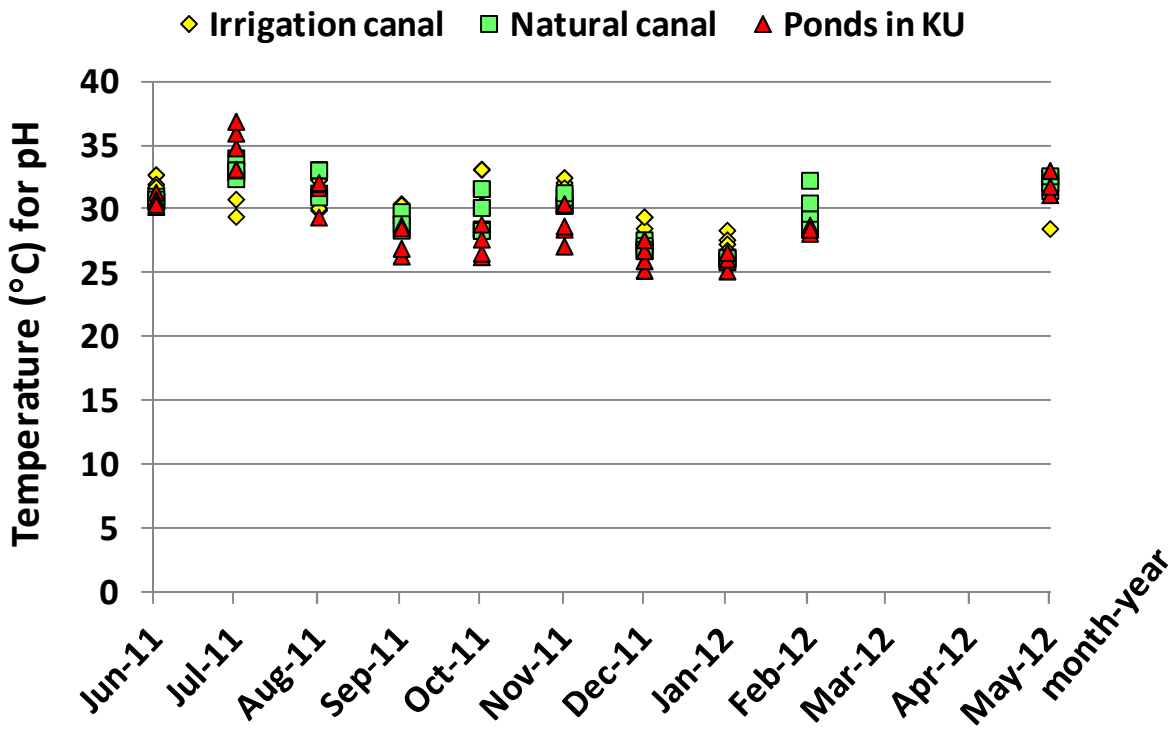

Figure 4. Seasonal trend of temperature for pH of irrigation canal, natural canal and ponds in KU.

Water sample from each water sources was collected and sent to the water laboratory in The Central Laboratory, Kasetsart University, Kamphaeng Saen Campus to analyze dissolved oxygen (DO) content in water in each month as shown the result in Figure 5. The DO from each water sources is shown different and large fluctuation was found from KU pond. The seasonal trends showed decrease of DO from July, 2011 to May, 2012.

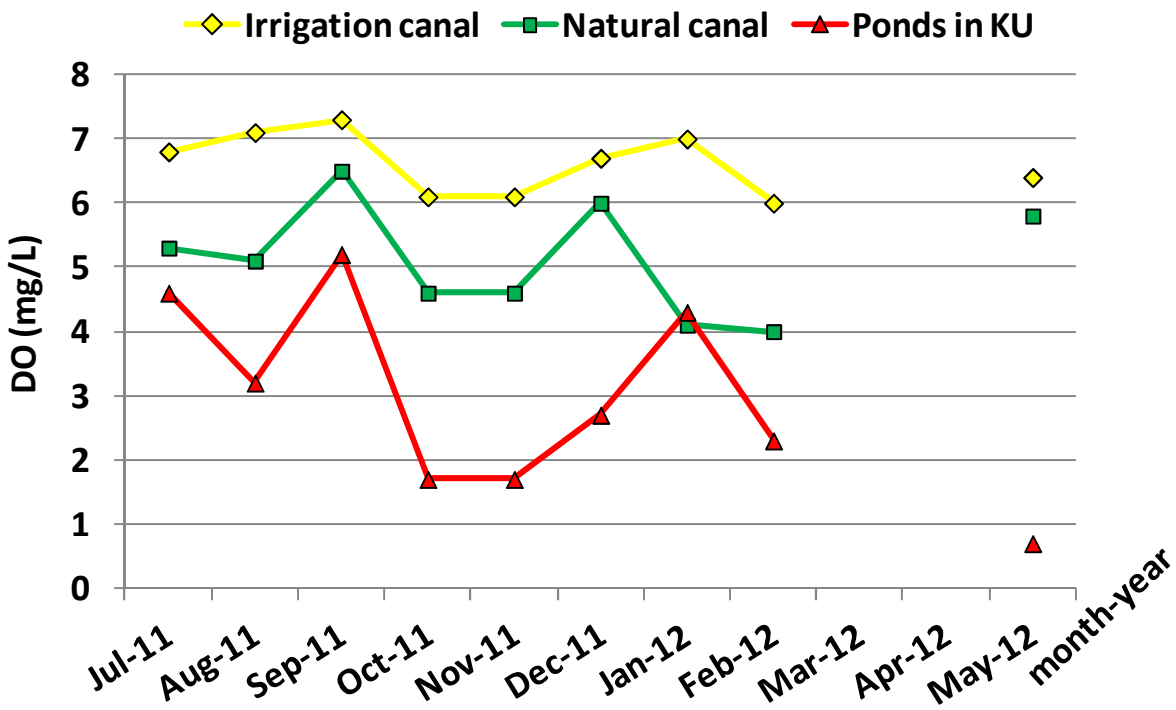

Figure 5. Seasonal trend of water DO which taken form irrigation canal, natural canal and ponds in KU.