Policy and Practice Brief 8

A Survey of Climate-Related Risks to Rearing Fish in Ponds

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Inland Aquaculture and Adaptation to Climate Change in Northern Thailand

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Fish farms in Northern Thailand can be found at various heights above sea level: 1) below 100 meters 2) 100-300 meters 3) 300-500 meters and 4) above 500 meters. Therefore, depending on how far above sea level a fish farm is located, impacts from the climate will differ accordingly.

For ponds located in areas below 100 meters, the more common impacts include flooding and hot weather, which effects the fish's appetite, and thus lead to slow growth, and possibly death (see Figure 1).

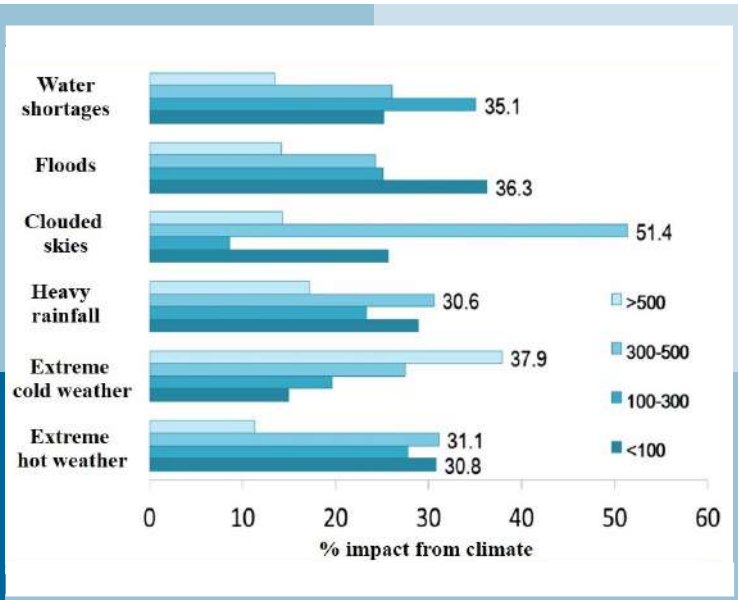

Figure 1: Percentage of the impacts from climate at various heights above sea level

Farms located 100-300 meters tend to face more issues concerning water shortage than those positioned elsewhere. As for ponds at a height of 300-500 above sea level, the most common problem to be contend with is clouded skies; sometimes lasting for a few days at a time (see Figure 2). Lastly, the prevalent issue faced by farms that are placed above 500 meters is cold weather; again effecting the fish's appetite, and in addition, encourage the spreading of diseases during winter. Fish farmers face multiple risks: the spreading of diseases; fish theft; poor quality of juvenile fish; and high cost of feed. The risk that is experienced by the farmers, will again differ, depending on the location of the pond above sea level. However, all farmers regardless of location worry about the risks of purchasing poor quality juvenile fish, as this factor will effects profit the most.

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Figure 2: Clouded skies for consecutive days

Farmers with ponds located less than 100 meters above sea level, and those above 500 meters, tend to be less concerned with the spreading of diseases. Likewise, farms above 500 meters tend to worry less about the cost of feed and fish theft than those farms situated elsewhere; whereas farmers at 300-500 meters are most concerned about the cost of feed. Farmers adapt by reducing the amount of feed during periods where the fish's appetite is suppressed. In addition, they seek extra work that is not to do with rearing fish.

The results of this study show that climate phenomena, such as floods, droughts, consecutive days of clouded skies, extreme hot and cold weathers, effect Tilapia rearing in earthen ponds differently, depending on where the pond is situated above sea level, and the system of rearing that is implemented. Therefore, this implies that the approach to managing the rearing of Tilapia in ponds, needs to be adjusted accordingly, on a case by case scenario.

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