

Biodiversity of Aquatic Animals on the Basin Lam Pao Dam Kalasin Province

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ABSTRACT

The research biodiversity of aquatic animals on the basin *lam pao dam* kalasin province was performed for the following purposes: 1) to study on species of aquatic animal on the basin *lam pao dam*, 2) to study on diagnostic characters which could be used identification and description characteristic and 3) to study their scientific names and common names. All specimens were collected from 3 communities, 1) Ban tha reaw, tambon nachaek, yangtalad district, kalasin province, 2) Ban dongnoi, tambon phusing, sahat-sakhan district, kalasin province, 3) Ban nonsomboon, tambon khamsrangthiang, samchai district, kalasin province. The specimens were conducted by field survey on May 2014 - April 2015. The fishing gear were used fishnet, fishhook, dip-net and fish traps. The aquatic animals were found 19 species, 9 families of fishes and 1 species, 1 family of shrimp. The dominant of fish samples were found in Cyprinidae groups. Top 5 of fish species were found *Henicorhynchus siamensis* de Beaufort (1927), *Clupeichthys aesarnensis* Wongratana (1983), *Puntioplites proctozysron* Bleeker (1865), *Micronema apogon* Bleeker (1851) and *Pangasius pangasius* Hamilton (1822).

Keywords: biodiversity, aquatic animals, kalasin province, lam pao dam.

INTRODUCTION

Lam pao dam is the biggest irrigation in Thailand, meant exclusively for agricultural purposes, constructed of an earthen dike and non-electricity (Winyoo et al., 2008). It is in the kalasin province and situated on the northeastern part of Thailand. It was built to block the Lam pao river. Lam pao dam was

constructed between 1963 and 1968 to ensure regular water supply to the surrounding agricultural businesses and to limit damages from seasonal floods. In addition the lake is presently being used for **fish farming** by the neighbouring communities. It took until 1985 to complete the damming of the approximately 1.430 million cubic meters of water and the construction of the irrigation

system. It is an earth dam which is 33m high from water level and is 7.8 km long (Lam Pao Operation and Maintenance Project, 2007). The dam is built across the Pao and Huai Yang rivers, creating a double reservoir. It was built to alleviate floods, help agriculture and is also used for fish breeding. There are recreational facilities include flowers, szeged, a virtual paradise beaches of the East. The beach along the lake is a popular rest spot and tourism for locals.

Biodiversity is a basically, the variety of life forms, and most of people mean higher species numbers when they talk about the higher biodiversity. Biodiversity can therefore be measured by the number of species, with particular reference to the number of endemic species (restricted to that area or region), and the number of rare or threatened species. Biodiversity is a quantity, variety and distribution across biological scales ranging genetically and life forms of ecosystems, communities, populations and species (Mace et al., 2005). Biodiversity were affected the capacity of living systems to respond to changes in the environment, underpine ecosystem function and provides the ecosystem goods and services that support human well-being (e.g., nutrient cycling, clean water; Costanza et al., 1997; Hooper et al., 2005; Diaz et al., 2006). As well as having intrinsic value, biodiversity have aesthetic value: many of us have admired the

wonderful colours and shape of fishes on the lam pao dam and other habitats.

Moreover, biodiversity of aquatic animal is important for the future sustainability of lam pao dam resources that include commercial fisheries. While it is axiomatic that biodiversity is essential for sustainable productive aquatic animals there are surprisingly little supporting evidence. The fisheries that exploit a range of species or a range of populations may have more stable catches than fisheries that exploit a single species (Dulvy et al., 2000; Hilborn et al., 2003). The contribution of some geographic components and of different life histories and populations to fisheries yield had been minor in one climate regime yet dominant in another (Hilborn et al., 2003). Maintaining such diversity or biological complexity of population structures can only build resilience and insure against climate change (Yachi and Loreau, 1999).

Aquatic animals are dominant organisms in terms of biomass, feeding ecology and significance to humans, in aquatic ecosystems (World Conservation Monitoring Centre, 1998). The aquatic animals communities not only play a vital role in maintaining the ecological integrity of aquatic ecosystems, they are also used as an indicated of ecosystem health and freshwater biodiversity.

MATERIALS AND METHOD

1. Site selection

Three village communities in 3 different districts of kalasin province were chosen for

case studies. All specimens were collected from 3 communities, 1) Ban tha reaw, tambon nachaek, yangtalad district, kalasin province, 2) Ban dongnoi, tambon phusing, sahat-sakhan district, kalasin province, 3) Ban nonsomboon, tambon khamsrangthiang, samchai district, kalasin province.

2. Aquatic animals sampling

The specimens were conducted by field survey every 1 month during on May 2014 - April 2015. At all three sites, aquatic animals were collected using fishing gear such as: fishnet, fishhook, dip-net and fish traps.

3. Identification of aquatic animals

Aquatic animals sampling identifications of species were referenced to Nelson (2006), Smith (1945), Kottelat (2001), Robert (1989) and Rainboth (1996). Any species not immediately identifiable were preserved in formaline and sent to the Department of Fisheries for positive identification.

RESULTS AND DISCUSSION

The aquatic animals were found 19 species, 9 families of fishes such as: *Hemibagrus nemurus* Valenciennes (1840), *Mastacembelus armatus* Lacepede (1800), *Puntioplites proctozyson* Bleeker (1865), *Morulius chrysophekadion* Bleeker (1850), *Mystus mysticetus* Roberts (1992), *Barbodes altus* Gunther (1968), *Hampala dispar* Smith (1934), *Henicorhynchus siamensis* de Beaufort (1927), *Osteochilus hasselti* Valenciennes

(1842), *Clupeichthys aesarnensis* Wongratana (1983), *Oxyeleotris marmorata* Bleeker (1852), *Wallagonia attu* Schneider (1801), *Micronema apogon* Bleeker (1851), *Notopterus notopterus* Pallas (1780), *Chitala ornata* Gray (1831), *Channa striata* Bloch (1795) *C. micropeltes* Cuvier (1831), *Pandasianodon gigas* Chevey (1930), *Pangasius pangasius* Hamilton (1822) and 1 species, 1 family of shrimp: *Macrobrachium rosenbergii* de Man (1879). The dominant of fish samples were found in Cyprinidae groups because they have usually and highest spawning in upstream and inlet areas of the dam (Chainarong and Jaruk, 2008). List of the family, common name and scientific name of these aquatic animals were showed in Table 1.

To supported by continuous water supply from an efficient irrigation system, farmers on the basin lam pao dam area grow crops; other activities include aquaculture, fisheries and post harvesting. In general, aquatic animals in lam pao dam are less abundant today than they were 10 years ago. Jaruk and Chainarong (2008) reported that 58 fish species 18 families of the fishes in lam pao dam. During the course of this study, several species were found to be more abundant than others. Top 5 of these included *H. siamensis* de Beaufort (1927), *C. aesarnensis* Wongratana (1983), *P. proctozyson* Bleeker (1865), *M. apogon* Bleeker (1851) and *P. pangasius* Hamilton (1822).

CONCLUSION

The aquatic animals were found 19 species, 9 families of fishes and 1 species, 1 family of

TABLE 1: List of aquatic animals on the basin lam pao dam (May 2014 - April 2015)

Family	Common name	Scientific name
Family Bagridae	Yellow Mystus	<i>Hemibagrus nemurus</i> (Valenciennes,1840)
	Stripped Catfish	<i>Mystus mysticetus</i> (Roberts,1992)
Family Mastacembelidae	Tire Track Eel	<i>Mastacembelus armatus</i> (Lacepede,1800)
Family Cyprinidae	Smith’s Barb	<i>Puntioplites proctozysron</i> (Bleeker,1865)
	Black Sharkminnow	<i>Morulius chrysophekadion</i> (Bleeker,1850)
	Common Silver Barb	<i>Barbodes altus</i> (Gunther,1968)
	Eye-Spot Barb	<i>Hampala dispar</i> (Smith,1934)
	Jullien’s Mud Carp	<i>Henicorhynchus siamensis</i> (de Beaufort,1927)
	Greater Bony Lipped Barb	<i>Osteochilus hasselti</i> (Valenciennes,1842)
Family Clupeidae	Thai River Sprat	<i>Clupeichthys aesarnensis</i> (Wongratana,1983)
Family Eleotridae	Marbled Sleepy Goby	<i>Oxyeleotris marmorata</i> (Bleeker,1852)
Family Siluridae	Great White Sheatfish	<i>Wallagonia attu</i> (Schneider,1801)
	Common Sheatfish	<i>Micronema apogon</i> (Bleeker,1851)
Family Notopteridae	Grey Featherback	<i>Notopterus notopterus</i> (Pallas,1780)
	Clown Featherback	<i>Chitala ornata</i> (Gray,1831)
Family Channidae	Common snakehead Fish	<i>Channa striata</i> (Bloch,1795)
	Giant Snakehead Fish	<i>C. micropeltes</i> (Cuvier,1831)
Family Pangasiidae	Mekong Giant Catfish	<i>Pangasianodon gigas</i> (Chevey,1930)
	Yellowtail catfish	<i>Pangasius pangasius</i> (Hamilton,1822)
Family Palaemonidae	Giant Fresh Water Prawn	<i>Macrobrachium rosenbergii</i> (de Man,1879)

shrimp. The abundance of most of these aquatic animals have declined over the past 10 years. The dominant of fish samples were found in Cyprinidae groups. Most of these aquatic animals found were used as food. Top 5 of these aquatic animals species were found *H. siamensis* de Beaufort (1927), *C. aesarnensis* Wongratana (1983), *P. proctozysron* Bleeker (1865), *M. apogon* Bleeker (1851) and *P. pangasius* Hamilton (1822). The data collected on these aquatic animals are useful for the conservation, restoration and sustainability of the basin lam pao dam.

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