

The Edible Fauna of Some Rivers in Abra and Ilocos Sur

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Abstract

This study aimed to inventory the edible fauna of Baay, Malanas, and Tineg Rivers in Abra, and Burgos in Zocos Sur. It also sought to find out which among the said rivers is the most diverse in terms of the edible fauna population. It further classified the organisms in terms of their common name, class, and scientific name. The index of similarity of the organisms found in the four stations was also computed, using the Sorensen's Index of Similarity (ISs).

Samples of each species collected were preserved and later brought to the National Museum Zoological Laboratory for proper identification.

Nine edible invertebrates and 21 fish species were gathered in Baay River. The nine edible invertebrates were distributed in three classes, namely: one species under class Pelecypoda, three species for class Crustacea, and five species under class Gastropoda. For Tineg River, eight edible invertebrates were gathered and classified as follows: three species under class Pelecypoda, five species under class Gastropoda, and one species under class Crustacea. Thirteen fish species were also gathered in said river. For Malanas River, six edible invertebrates were gathered and classified as follows: one species for class Pelecypoda, four under class Gastropoda, and one species under class Crustacea. Fourteen fish species were caught in this river. For Burgos River, eight edible invertebrates were gathered and distributed in three classes namely: one species for class Pelecypoda, four species under class Gastropoda, and three species under class Crustacea. Nineteen fish species were gathered in said river.

In terms of the diversity of the edible fauna gathered, Baay River in Abra was the most diverse, as evidenced by the 30 species gathered, followed by Burgos River, with 27 species, Tineg River with 21 species, and Malanas River with 20 species.

Data gathered indicated that some are habitat-specific, that is, some species found in one river were not found in other rivers of the study. The similarity indices among the data gathered in the four rivers varied from 66.66%-92.68%. The highest ISs value recorded was 92.68% between Malanas and Tineg Rivers, and the lowest was between Tineg and Burgos Rivers with an ISs of 66.66%.

Introduction

Background of the Study

The Baay, Malanas, and Tineg Rivers have been considered as some of the most productive rivers in the province of Abra. Said rivers have played significant roles in the economic life of the people over the years by providing transportation routes, drinking water, supporting agricultural activities, and providing sustenance to a large number of people. These rivers were once rich sources of edible invertebrates and fish species, like the famous lodong, igat and iwet, bunog, palileng, odang, bennek and suso, for human consumption. But nowadays, these rivers are no longer as productive as they were in the past. The famous lodong is nearing extinction due to pollution and human intervention. Measures must be done before this very important fish species will become extinct

Burgos River in Ilocos Sur was also one of the most productive rivers in the province. People within the locality depended much on it for their everyday living. Catches of bunog, kappi, bisukol, and duriken were good enough to supplement their daily diet. But due to pollution and illegal fishing practices, catches of the once very large odang turned into a tiny one.

Since there is still no record of the edible fauna of said rivers, this study was deemed necessary. Results would guide government and non-government agencies concerned in formulating policies and laws to protect and conserve the rivers. Results would also hopefully open the eyes of the violators of fishery laws.

Objectives of the Study

This study aimed to inventory the edible fauna of Baay, Malanas, and Tineg Rivers in Abra and Burgos River in Ilocos Sur.

Specifically, it tried to:

- a. classify the organisms in terms of their common name, class, and scientific name, and
- b. find out the index of similarity among the edible fauna in the said river

Scope and Limitation of the Study

This study was limited to the inventory and classification in terms of common name, class, and scientific name of the edible fauna in Baay, Malanas, and Tineg Rivers in Abra, and Burgos River in Ilocos Sur.

Review of Related Literature

The Philippine is a very fortunate country for it possesses a lot of natural resources to include fishery resources that supply fish and other fish products abundantly for the ever increasing population. The Filipinos are basically fish and rice-eating people, thus, making fishing one of the vital sources of their livelihood. Moreover, fish has been regarded as a stable, dependable, and nutritious food whether from the sea or fresh water.

Rivers convey excess water directly to oceans. Collectively, they represent the world's water resources as they carry virtually all the water that are available for human management and use (Grolier Encyclopedia of Knowledge, 1998). One of the largest rivers of Northern Luzon is the Abra River which has formed an extensive and rich valley. It flows northward and changes its course westward to its mouth, going directly to the mass of seawater, the China Sea.

As per observation, coastal and inland fisheries are facing some serious problems, one of which is the indiscriminate use of the so-called riverine culture. Gone are the days when one can transparently see the graceful movements of different fish species in our rivers. Today, the clean and transparent water has turned to a green and muddy structure caused by siltation, erosion, and quarrying.

The Abra River is not an exemption. As one moves down and upstream to the rivers, the greenish to brown color of the water signifies the presence of impurities caused by peculiar disturbances to the desired purity of the water. The long range which was once a pride of the municipalities of Lagangilang, Abra to Caoayan, Ilocos Sur is now a scenario of deteriorating sanctuary of very rare but sturdy species of shells and fishes that have amazingly survived.

A study by Segismundo and Florendo in 2003 assessed the status of the Eel Industry Along the Abra River. Findings showed a decline in the eel catch per fishing effort due to illegal fishing practices and indiscriminate fishing.

Bagayan et. al. (2000) assessed the edible fishes along the lower portion of the Abra River, and found out that the once abundant fishery resources have increasingly declined.

Methodology

This study-made use of the descriptive method of research. Data gathering was done from April to November 2001.

One data collector was assigned per river to gather data at five days per week for eight months. A sample of each species was preserved and later brought to the National Museum Zoological Laboratory for proper identification and verification of the scientific name.

The Sorensen's Index of Similarity (ISs) was used to find out the percentage value of the common species of edible fauna found among the four rivers, with the formula:

$$IS = \frac{2C}{A+B} \quad \text{y } 100\%$$

where:

- A = number of species in one station
- B = number of species in another station
- C = number of species common to both stations

Results and Discussion

There were nine edible invertebrate species from the total 30 species gathered in Baay River. Five species belong to class Gastropoda, three species to class Crustacea, and one to class Pelecypoda. All species but one (birabid) are identified. Twenty-one fish species were also gathered, all belonging to class Osteichthyes. Fifteen species were identified, while the rest (six species) remains unidentified.

Table 1. The Classification of the Edible Fauna in Baay River

Species Common Name	Class	Scientific Name
Bennek	Pelecypoda	<i>Corbicula fluminea</i>
Birabid	Gastropoda	•
Bisukol	Gastropoda	<i>Ampullaria p.</i>
Duriken	Gastropoda	<i>Melanooides gr@nifera</i>
Kappi	Crustacea	<i>Varuna litterata</i>
Kuros	Crustacea	<i>Caridina sp.</i>
Leddeg	Gastropoda	<i>Syncera sp.</i>
Suso	Gastropoda	<i>Melanooides tuberculata</i>
Udang	Crustacea	<i>Homarus sp.</i>
Bagsang	Osteichthyes	<i>Apogon amboinensis</i>
Bagset	Osteichthyes	•
Botobot	Osteichthyes	<i>Eleotris sp.</i>
Bunog	Osteichthyes	<i>Rhinogobius giurimus</i>
Buntiek	Osteichthyes	<i>Rhicephalus striatus</i>
Burasi	Osteichthyes	# _____
Butingting	Osteichthyes	• _____
Dalag	Osteichthyes	<i>Ohicephalus sp.</i>
Gurami	Osteichthyes	<i>Trichogaster trichopterus</i>
Igat	Osteichthyes	<i>Anguilla sp.</i>
Iwet	Osteichthyes	<i>Conger sp.</i> _____
Kampa	Osteichthyes	<i>Platycephalus indicus</i>
Karpa	Osteichthyes	<i>Cprims sp.</i>
Osoos	Osteichthyes	<i>Hyporhamphus intermedius</i>
Palileng	Osteichthyes	<i>Bay gobi sp.</i>
Paltat	Osteichthyes	<i>Clarias batrachus</i> _____
Susay	Osteichthyes	<i>Halicampus punctatus</i>
Tang-al	Osteichthyes	<i>Gobius sp.</i> _____
Tilapia	Osteichthyes	<i>Tilapia nilotica</i> _____
Totot	Osteichthyes	• _____
Usok	Osteichthyes	• _____
TOTAL		30
undetermined		

There is still high diversity of edible fauna in Baay River as evidenced by the 30 species gathered. The species caught years ago were still same species being caught nowadays. According to the fishennen it is only the abundance of these organisms which is being affected. This may be due to the disturbance of the organisms' habitat as a result of quarrying, mining, and reports of illegal fishing activities like dynamite fishing.

Table 2. The Classification of Edible Fauna in Tineg River

Species Common Name	Class	Scientific Name
Beldat	Pelecypoda	# _____
Bennek	Pelecypoda	<i>Corbiculafluminea</i> _____
Birabid	Gastropoda	# _____
Bisukol	Gastropoda	<i>Ampullaria</i> sp. _____
Duriken	Gastropoda	<i>Melanoides granifera</i> _____
Leddeg	Gastropoda	<i>Syncera</i> sp. _____
Suso	Gastropoda	<i>Melanoides tuberculata</i> _____
Udang	Crustacea	<i>Homarus</i> \$p. _____
Bagset	Osteichthyes	● _____
Botobot	Osteichthyes	<i>Eleotris</i> sp. _____
Bunog	Osteichthyes	<i>Rhinogobius giurinus</i> _____
Buntiek	Osteichthyes	<i>Qhicephalus striatus</i> _____
Dalag	Osteichthyes	<i>Qhicephalus</i> sp. _____
Igat	Osteichthyes	<i>Anguilla</i> s. _____
Iwet	Osteichthyes	<i>Conger</i> sp. _____
K.arpa	Osteichthyes	<i>Cyprinus</i> sp. _____
Palileng	Osteichthyes	<i>Bay gobius</i> sp. _____
Paltat	Osteichthyes	<i>Clarias batrachus</i> _____
Susay	Osteichthyes	<i>Halicampus punctatus</i> _____
Tang-al	Osteichthyes	<i>Gobius</i> sp. _____
Tilapia	Osteichthyes	<i>Tlapia nilotica</i> _____
TOTAL		21

- undetermined

Eight edible invertebrate species were gathered in Tineg River, with five species belonging to class Gastropoda, two species to class Pelecypoda, and one species to class Crustacea. Two species (beldat and birabid) were unidentified. Thirteen fish species were also gathered from said river. All but one (bagset) were identified, and belong to class Osteichthyes.

Twenty-one edible fauna is still considered high in terms of diversity. Same species were caught years ago, only the abundance was affected. This may be due to the disturbance of their habitat as a result of illegal fishing practices and quarrying and change in the course of the river.

Table 3. The Classification of the Edible Fauna in Malanas River

Species Common Name	Class	Scientific Name
Bennek	Pelecypoda	<i>Corbicula fluminea</i>
Bisukol	Gastropoda	<i>Ampullaria</i> sp.
Duriken	Gastropoda	<i>Melanoides granifera</i>
Leddeg	Gastropoda	<i>Syncera</i> sp.
Suso	Gastropoda	<i>Melanoides tuberculata</i>
Udang	Crustacea	<i>Homarus</i> sp.
Bagset	Osteichthyes	t
Botobot	Osteichthyes	<i>Eleotris</i> sp.
Bunog	Osteichthyes	<i>Rhinogobius giurinus</i>
Buntiek	Osteichthyes	<i>Qhicephalus striatus</i>
Dalag	Osteichthyes	<i>Qhicephalus</i> sp.
Gurami	Osteichthyes	<i>Trichogaster trichopterus</i>
Igat	Osteichthyes	<i>Anguilla</i> sp.
Iwet	Osteichthyes	<i>Conger</i> sp.
Kara	Osteichthyes	<i>ypimus</i> sp.
Palileng	Osteichthyes	<i>Batygobius</i> sp.
Paltat	Osteichthyes	<i>Carias batrachus</i>
Susay	Osteichthyes	<i>Halicampus punctatus</i>
Tang-al	Osteichthyes	<i>Gobius</i> sp.
Tilapia	Osteichthyes	<i>Tilapia nilotica</i>
TOTAL		20

- Undetermined

Six identified edible invertebrate species were gathered in Malanas River, with four species belonging to class Gastropoda, one to class Pelecypoda, and one to class Crustacea. Fourteen fish species were also gathered from said river. All but one (bagset) were identified, and belong to class Osteichthyes.

Malanas River is the least diverse compared to the three rivers in terms of the edible fauna gathered, but the number of invertebrate as well as fish species is still good. Only a few species present in the three rivers were not found in this river. Disturbance and

destruction of habitat due to illegal fishing practices and quarrying which has changed the river route are two reasons why some of the usual catches years ago were no longer found in this station.

Table 4. The Classification of the Edible Fauna in Burgos River

Species Common Name	Class	Scientific Name
Bennek	Pelecypoda	<i>Corbicula fluminea</i>
Bisukol	Gastropoda	<i>Ampullaria</i> Sp.
Duriken	Gastropoda	<i>Melanooides granifera</i>
Kappi	Crustacea	<i>Varuna litterata</i>
Lagdaw	Crustacea	<i>Macrobrachium</i> sp.
Leddeg	Gastropoda	<i>Syncera</i> sp.
Suso	Gastropoda	<i>Melanooides tuberculata</i>
Udang	Crustacea	<i>Homarus</i> sp.
Ayungin	Osteichthyes	<i>Lutjanus russelli</i>
Bag>sang	Osteichthyes	<i>Apogon amboinensis</i>
Bagset	Osteichthyes	#
Bulan-bulan	Osteichthyes	<i>Megalops cyprinoides</i>
Bunog	Osteichthyes	<i>Rhinogobius giurimus</i>
Dalag	Osteichthyes	<i>Oicephalus</i> sp.
Gurami	Osteichthyes	<i>Trichogaster pectoralis</i>
Igat	Osteichthyes	<i>Anguilla</i> sp.
Iwet	Osteichthyes	<i>Conger</i> sp.
Kampa	Osteichthyes	<i>Platycephalus indicus</i>
Kara	Osteichthyes	<i>Cyprinus</i> sp.
Osoos	Osteichthyes	<i>Zyprhamphus intermedius</i>
Palileng	Osteichthyes	<i>Baygobius</i> sp.
Sisiaw	Osteichthyes	#
Susay	Osteichthyes	<i>Halicampus punctatus</i>
Talakitok	Osteichthyes	<i>Cararx</i> sp.
Tilapia	Osteichthyes	<i>Tilapia nilotica</i>
Totot	Osteichthyes	†
TOTAL		27

Eight edible invertebrate species were collected in Burgos River, with four species belonging to class Gastropoda, three to class Crustacea, and one to class Pelecypoda. Nineteen fish species all belonging to class Osteichthyes were also gathered from said river. Sixteen species were identified, and three were unidentified.

There is still high diversity of edible fauna in Burgos River as evidenced by the 27 species gathered. The species caught years ago were still same species being caught nowadays. It is only the abundance of these organisms which is being affected as claimed by the fishermen. Five fish species were found to be endemic in this river. These are the lagdaw, ayungin, bulan-bulan, sisiaw, and talakitok. The Burgos River exits through Maynganay River which is near a saltwater source, so the possibility of a higher salinity may be one reason for the presence of these organisms in this particular sampling site.

Table 5. Index of Similarity (ISs) of the Edible Fauna in Baay, Malanas, Tineg, and Burgos Rivers

Number of Species		No. of Common Species	Index of Similarity
Baay River 30	Malanas River 20	20	80%
Baay River 30	Tineg River 21	20	78.43%
Baay River 30	Burgos River 27	22	77.19%
Malanas River 20	Tineg River 21	19	92.68%
Malanas River 20	Burgos River 27	17	72.34%
Tineg River 21	Burgos River 27	16	66.66%

Using the Sorensen's Index of Similarity (IS), the similarity indices among the edible fauna in the four rivers ranged from 66.66%-92.68%. The highest IS value recorded was 92.68% between Malanas and Tineg Rivers, and the lowest at 66.66% between Tineg and Burgos Rivers.

The importance of knowing the index of similarity is to determine the extent of diversity of organisms within the areas, in terms of its total population which species can survive.

Conclusions and Recommendations

The edible fauna of Baay, Malanas, and Tineg Rivers in Abra and Burgos River in Ilocos Sur showed high diversity. It is only the abundance of these organisms which was affected. As claimed by the fishermen, species found before are still the same species

found nowadays. Reasons for the decrease in abundance are illegal fishing practices, quarrying, and mining for the rivers in Abra.

A follow-up study on biodiversity taking into consideration the catch per fishing effort of edible organisms must be conducted to assess their abundance. Likewise, studies that would look into the impact of illegal fishing practices, quarrying, and mining in said rivers must also be conducted. Results would determine if these activities are the key players in the decrease in abundance of the edible fauna in said rivers.

Some species were habitat-specific, that is, some species found in one station were not found in other station/s.

This inventory of the edible fauna on said rivers, being the first conducted, would serve as baseline information for researchers who would conduct biodiversity studies. Results would also serve as basis for policy-makers for the preservation of aquatic resources.

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