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Combined Study of Himalayan Geography and Hill Stream Fishery under the Integrated Teacher Education Programme (ITEP)

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***Abstract* - Geography integrates methods and knowledge from many different disciplines and encompasses both the physical and social sciences, Geography links with Biological Science of also. The flora and fauna are habitated in different Geographical regions. Himalaya is a mountain range in Asia and it is separating the plains of Indian subcontinent from the Tibetan Plateaus the Himalayas are drained by 19 major rivers, of which the Indus and Brahanputra are the largest. The Himalaya range was formed by the tectonic movement of the Indo-Australian Plates. The Fishery is the Science of Fishes and also the part of the Zoology (Life Sciences), the fishes is inhibited in Himalayan rivers and streams of Himalaya. The Integrated Teacher Education Programme (ITEP) recommends the integration of different disciplines. The Geography and Fishery Science, Himalayan Geography and Hill Stream Fishes may be put in the Integration.**

Keywords: Geography, Himalaya, Hill Streams, Fishes & ITEP.

I. Introduction

Geography integrates methods and Knowledge from many different disciplines and encompasses both the physical and social sciences. It links all these disciplines to determine why things happen in a particular location or according to particular spatial patterns. Physical geography incorporates geology, climatology, biology, ecology, hydrology, and other natural sciences. cartography, which is the art and science map making, provides graphic representations of geographic setting.

Fishery is the science of fishes' life and their uses in the life of human beings. Fishes are living in the water (both Fresh water Resources and Marine water Resources sea). The Way of Hydrology (Science of water Resources) inter relates the Fisheries with Geography.

The Himalaya is a mountain Range in Asia separating the plains of the Indian Subcontinent from the Tibetan Plateau. The range has some of the Earth's highest peak including the highest, Mount Everest. More than 100 peaks exceeding elevations of 7,200 m (23,600 ft) above sea level lie in the Himalayas. The Himalayas is around or cross five countries Nepal, India, Bhutan, Pakistan and China. The Himalayan range is bordered on the northwest by the Karakoram, and Hindu Kush ranges on the north by the Tibetan Plateau, and on the south by the Indo-Gangatic Plain, Some of the world's major rivers, the Indus, Ganga, and the Tsangpo-Brahmputra, rise in the vicinity of the Himalayas, and their combined drainage basin is home to some 600 million people, 53 million people live the in the Himalaya. The Himalayas have profoundly shaped the cultures of south Asia and Tibet. Many Himalayan peaks are sacred in Hinduism and Budhism.

The Himalayas are drained by 19 major rivers, of which the Indus and the Brahamputra are the largest, each having catchment basin in the mountains of about 100,000 Square miles (2,60,000 square km) in extent, Five of the 19 rivers, with a total catchment area of about 51,000 sq. miles (132,000 sq. km.) belong to the Indus system the Jhelum, the Chenab, the Ravi, the Beas and the Sutlej and collectively define the vast region divided between Punjab state in India and Punjab province in Pakistan, of the remaining rivers, nine belong to the Ganges system - the Ganges, Jamuna, Ram-ganga, Kali (Kali Gandak), Karnali, Rapti, Gandak, Baghmati and Kosi rivers - draining roughly 84,000 square miles (218,00 square km.) in the mountains, and three belong to the Brahamputra sysrtem. The tista, the Raidak and the Manas draining another 71,000 square miles (184,000 -Square Km). in the Himalayas.

Man has been harvesting fishes and other edible products from aquatic system since time immemorial. Capture fishing is a practice as old as civilization itself or even older. It takes advantage of the natural productivity of aquatic system, Availability of plant nutrients, like phosphorous and nitrates, in natural waters, stimulate plant growth - mainly algae to which supports a large Variety of aquatic organisms like fishes, crabs, lobsters, shrimp, clams, oysters, mussels, squids, etc., which are useful for mankind.

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II. Geography of Himalaya Mountain

The geography of the Himalaya mountain range is impressive because the mountain range is young in terms of history, giving it striking and imposing features that have yet to be softened by the effects of time like other mountain ranges in the world. The Himalaya range was formed by the tectonic movement of the Indo-Australian Plate and the Eurasian Plate converging along their borders deep underneath the surface of the Earth. This plate movement caused the abrupt upheaval of the Earth's surface creating the dramatic mountain range at present.

Both the Indo-Australian and Eurasian plates are made up of low density continental crust which allowed them to rise into the mountain range as opposed to sub conducting one above the other. The Indo-Australian plate is also moving horizontally against the Tibetan plateau which also assists in the further lifting of the Himalayan range.

Current estimations state that the Himalayas are rising at a rate of about 5 millimeters per year as a result of the continued tectonic activity going on deep below. This movement also creates geology instability in the range leading to often de devastating earthquakes affecting rural areas of India, Pakistan, Nepal & Tibet.

The Himalayas can be broken up into multiple Zones, each with unique and different material structure and make ups. These zones called the Trans-Himalaya, the Tethyan Himalaya, the Higher Himalaya, the Lesser Himalaya and the sub-Himalaya.

The Himalayas contain glaciers on all sides, some interesting and joining with each other and others ebbing and flowing solitarily with the rapid changed in the mountain weather patterns.

The Himalayas are the perfect breeding ground of new glaciers as it is the highest range in the world and can support consistent glacial formation along the majority of its approximates 1500 mile length.

At an average width of 100-150 miles wide the Himalayas provide an imposing geographical barrier between the northern Plateau of Tibet and India to south.

III. Drainage of the Himalayas

The Himalayas are drained by 19 major rivers, of which the Indus and the Brahamputra are the largest, each having catchment basin in the mountains of about 100,000 square miles (2,60,000 Square km) in extent, Five of the 19 rivers, with a total catchment area of about 51,000 square miles (132,000 square km), belong to the Indus system - the Jhelum, the Chinab, the Ravi, the Beas and the Sutlej - and collectively define the vast region divided between Punjab state in India and Punjab province in Pakistan. The remaining nine rivers, belong to the Gangas system - the Ganga Yarmuna, Remganga, Kali, Kali (Gandak), Kamali, Rapti, Gandek, Bughmati and Kosi rivers - draining roughly 84,000 square miles (218,000 square km) in the mountains, and three belongs to Brahamputra- System the Tista, the Ridek and the Manas draining another 71,000 square mile (184,000 square km) in the Himalaya Himalayas.

The major Himalyan rivers rise north 1 of the Mountain ranges add and flowed through the deep George that have generally reflect some geologie structural control, such as put a fault lime. The rivers of the Indus system as a rule follow north warstly courses, whereas those of the Ganges-Brahumputa systems generally take costly course while flowing through to mountain region.

IV. Conditions in the Hill Streams

Special physiochemical and geological conditions occurring in the hill streams influence the morphology and biology of fish fauna. These are:

(i) The water current in hill stream is generally very rapid and strong. The fish living in those streams develop various adhesive mechanisms to with stand the swift current.
(ii) Water in the hill streams is well aerated and plenty of dissolved oxygen is available.
(iii) Water is clear and streams are shallow. As a result, bright and intense light is available throughout the day.
(iv) Plenty of food in the form of algae and insects is available in the hill streams. However, plants Count can't grow due to fast current of water and food consisting of worms and crustaceans is scarce,
(v) As fishes can find protection and Shelter under only small sized fishes are found in the hill streams.

The above conditions prevail in the fast flowing rivers and streams, but pod and ditches also occur at various points along the streams, where and such conditions do not exit. Hence, species which live in pools and lichens differ from those living in fast flowing streams.

V. Origin of the Hill Stream Fishes

The fishes living in sluggish water of the rivers of the plains gradually migrated up into the hill streams, in search of good. Plexy of food is available there, and there is practically no competition. Predatory fishes are also absent. These fishes gradually developed organs of adhesion, and other adaptive features to make them best suited for life in the fast flowing

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streams of the hills. Some species like the Glyptothorax, Garra, and Pseudechenesis became highly specialized for life in mountains, while others like Crossocheitus represent intermediate Conditions. It has also been found that species of Garra can be arranged in an ascending series on the basis of specialization in relation to the strength of the flowing water.

The ancestral fishes inhabiting the sluggish streams probably migrated to hill streams for food and safety. Plenty of food is available in hill streams in the form of algae slimes but only these species can utilize it, which have their jaws modified for rasping this food. As regards safety, there is very little competition in the hill streams due to the absence of large predatory animals. Shelter is available below stones and rocks. It therefore appears that the fishes living in the sluggish waters of the plains slowly ascended the hill streams in search of food and shelter. Gradually they acquire characters making them successful for living in the rapid flowing hill streams.

Main Hill Stream Fishes

1. Glyptothorax straitus
2. Glyptosternum spp
3. Pseudecheneis sulcatus
4. Balitora brucel'
5. Crossscheilus latius
6. Labio gonius
7. Homeloptera spp
8. Garra gotyla
9. Glyptothorax pectinopterus

Families of Hill Stream Fishes

Family	Genera
Cyprinidae	Bazeling, Bhavania, Balitora, Barbus, Crossochelius, Gazza, Labeo, Psilorhynchus, Schitothorax Parasilorhynchus, etc.
Siluri	Erethistes, Glyptothorax, Glyptosternum, Laguvia, Pseudochensis,
Cobitidae	Botia, Nemocheilus,

VI. Integrated Teacher Education Programme (ITEP)

National Council for Teacher Education (NCTE) launched Teacher Education Programmes (ITEP) in 57 Teacher Education Institutions from the academic session 2023-24 through the country this is flagship programme of NCTE under NEP 2020, ITEP course was conceived with a crucial objectives to prepare teachers for any align their competencies with the new school Structure that Symbolize 5-3-3-4 stages, structure, Foundation, Middle and secondary. This new structure came into existence as per of National Education Policy (NEP) 2020 and has the core endeavor to attract competitive and committed student talent to transform its efficient teachers. One of the key highlights of the integrate Teacher Education Programme (ITEP) is that it keeps the students grounded and closer to the Indian ethos, values, cultures and traditions, step helps students understand Indian languages and their diversity ends its leads them an immense opportunities to be exposed to modern effective, and experiential pedagogy and teaching advancement.

VII. Recommendations

The rapid advances in science and technology have put the Scientists and Technologists on their heels to cope up with the simultaneous changes that have been occurred during the past decades. Various types of revisions, rectifications as well as modifications even all together innovated Ideas that modifications and something developed in numerous fields of specialization have required to be incorporated with the advanced level concepts in one order to keeps pace with the recent researches advanced in the concerning fields of the study.

The innovative techniques have put the researches on consistent 'think' and 'rethink' level to entertain higher concepts related to the biology,

Based on the present study the following recommendations can be advanced since the incorporation of units of Indian Geography and Hill stream Fisheries & significant roles in bringing about:

1. Awareness towards the health and hygiene cleanliness of Himalayan region and Environment of Fisheries.
2. Awareness about the rare and endangered species of Fishes for Himalayan regions and Hill stream.
3. Combined study of Geography Fishery as well as Life Science under Integrated Teacher Education Programme (ITEP) is recommended by Indian Education System.

REFERENCES

[1] en.wikipedia.org/wiki Himalayasbritanica.com/place/Himalayas/Drainage
[2] geographyrealm.com/geography-himalayas/
[3] tutaroot.com/bicg/what-is-4-year-itep-programme-highlight-details-course-innovation-course-details
[4] National Geographic Word Records Answer Book
[5] Asthana D.K., Meera Asthana (1999) ENVIRONMENT: Problems and solutions, S.Chand & Company, Ram Nagar, New Delhi (India).
[6] Gupta, Ashwani Kumar (1992). Study of Effectiveness of Local Resources in conservation of Phenomena of Life and Programme of Biology Education, Ph.D.

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[7] Khanna S.S., H.R. Singh (2005). A Text Book of Fish Biology and Fisheries, Narendra Publishing House, Delhi (India).

[8] Pandey Kamelshwar, J.P. Shukla (2012). Fish and Fisheries. Rastogi Publications, Meerut (India).

[9] Sharma, P.D. (2013), Environmental Biology and Toxicology. Rastogi Publications, Meerut (India).

[10] Shiba P. Chaterjee, Berry. C. Bishop. Encyclopedia Britanica in britanica.com/place/Himalayas/Drainage.

[11] Yadav, R.S. (1980) - An Experimental study of Comparison between Lecture Methods on II Grodk students, J. Edu. Res, Ext, 17:51-52.

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