Gokhale Education Society's

ARTS, COMMERCE & SCIENCE COLLEGE

Shreewardhan-402110, Dist. Raigad

Phone No. 02147-223333

MINOR RESEARCH PROJECT TITLED

"STUDY OF INTERTIDAL FAUNAL DIVERSITY WITH RESPECT TO ANTHROPOGENIC ACTIVITIES ALONG SHRIWARDHAN COAST OF MAHARASHTRA."

A PROJECT REPORT

SUBMITTED TO

UNIVERSITY GRANTS COMMISSION

BY

MR.NILESH S. CHAVAN.

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G.E.SOCIETY'S ARTS, COMMERCE & SCIENCE COLLEGE,

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Annexure – VI

Final Report of the work done on the Minor Research Project.

1. Project report No. 1st /Final - **Final**
2. UGC Reference No.- **File No :47-693/13 (WRO)Date 21/05/2014**
3. Period of report: **from June 2015 to May, 2017**
4. Title of the Research Project : **"STUDY OF INTERTIDAL FAUNAL DIVERSITY WITH RESPECT TO ANTHROPOGENIC ACTIVITIES ALONG SHRIWARDHAN COAST OF MAHARASHTRA."**
5. (a) Name of the Principal Investigator:- **Mr. Nilesh Shridhar Chavan**

   (b) Department: - **Zoology**

   (c) College where work has progressed: -

G.E. Society's, Arts, Commerce and Science College Shriwardhan, Dist. Raigad

6. Effective date of starting of the project: - **01.06. 2015**
7. Grant approved and expenditure incurred during the period of the report:

a. Total amount approved- Rs. 1,60,000/-

b. Total expenditure - **Rs.** 1,74,548 /-

c. Report of the work done

i. Brief objective of the project

This research was undertaken to achieve the following objectives.

1. To study physico-chemical parameters of selected coastal areas.
2. To study the ecological status in terms of population density, seasonal variation and frequency of few inter tidal benthic macrofauna in predetermined stations.
3. To investigate possible effect of anthropogenic activities on benthic macrofauna at predetermined stations.

ii. Work done so far and results achieved and publications, if any, resulting from the work

For present investigations, three different sites were selected along the Shreewardhan coastline near Jivna to Shekhadi-Bharadkhol , Dive agar to Adgav-sarva,

Harihareshwar .The physico-chemical parameters were studied to check the water quality, every season for two years. A.P.H.A.' s Analytical Methods were used.

Sampling method was used for the study. Water samples were collected from pre-defined 3sampling points. Water temperatures and pH values were recorded at the site. Water samples were collected using l litre plastic bottles that had been cleaned by soaking in 10% acid and rinsing with distilled water. At the sampling site the bottles were rinsed twice with the water to be sampled prior to filling. Dissolved oxygen, Biological Oxygen demand etc. were analyzed in the laboratory.

Physico-Chemical Parameter:- (Analyzed in Water)

1. Temperature
2. pH
3. Electrical Conductance
4. Turbidity
5. Total Dissolved Solids
6. Dissolved Oxygen (D.O.)
7. Biochemical Oxygen Demand (B.O.D.)
8. Free Carbon dioxide (free CO2)
9. Total Hardness (T.H.)
10. Chlorides
11. Alkalinity
12. Acidity
13. NO2-N
14. NO3-N
15. SO4

The study was conducted between all seasons for two years (2015-2017). During this period, each sampling sites along Shreewardhan coastline was surveyed regularly for the qualitative assessment of macrofaunal diversity.

After bringing to the experimental laboratory, the specimens were washed with a mixture of tap water, detergent, and disinfectant, air-dried and later were identified using authentic bibliographic sources including species identification field guides.

The identified shells are then sorted according to the family for further detail study—

Classification is done on the basis of structures. Different molluscs have different feeding habits, namely herbivores, omnivores, scavengers, detritus feeders etc. The structure of radula gives clear evidence of evolution from the lower algal scrapers or herbivores to predatory molluscs.

Each and every species of molluscs has its unique habitat. Only practice can tell where and how to search for the shell. The availability of species is noted at each site and accordingly diversity of species was estimated.

During the study, the intertidal zone of each sampling sites were surveyed regularly on monthly basis. All intertidal macrofauna and algae observed were recorded

properly and later classified systematically. Animals under various phyla were recorded. Photographs were taken for the identification of the species. The identification keys, literature available in the form of books, journals, reports and with extensive use of internet will be used for correct taxonomic identification of the specimens.

The preliminary survey of foraminferans at 3 coasts of Shreewardhan namely Shrivardhan-Shekhadi-Bharadkhol coast, Diveagar-Adgaon-Sarva coast and Harihareshwar coast were carried out.mounting of foraminiferans was carried out by taking a microscope glass slide in hand, labelling it with information about the sediment sample and placing a few drops of distilled water in its center. Tiny fraction of the sediment sample was collected with a toothpick, and mixed it into the water on the glass slide. The wet sediment was spread with the toothpick until it forms a thin translucent coat across the glass slide, and then carefully a cover slip placed on the slide. Smear slides can then be examined under a common or a petrographic light microscope. The species were identified using online identification keys, online foraminiferan plates.

The complete study was conducted in a non-destructive manner in which the organisms were handled with minimum disturbance. Type of various anthropogenic activities such as tourism, fisheries, port activity, industry, sewage and disposal waste were surveyed to classify it's influence on the coastal macrofauna.

It has been observed that there is no remarkable variation in the range of parameters at each station during the study period for example there is no remarkable variation in the range of parameters at station-1during the year 2015-16 and 2016-17. However the parameters are showing linear positive correlation at all stations during the study period.

It has further been observed that station-2 has shown maximum availability of molluscan species and Foraminiferan shells during the study period followed by Station-1 and Station-3. However part of Station-1 & 3 i.e. Shrivardhan- Bharadkhol & Harihareshwar are affected by tourist activity so the number of species available are less as compared to Station-2 i.e.Dive agar- Adgaon-Sarva.

This research has helped to investigate the Productiveness of the study area, pollution due to anthropogenic activities. For this, research has assisted to identify the level of richness of biodiversity, whether the biodiversity is affected by anthropogenic activities? Shrivardhan is now a day becoming popular as tourist place. Though development is needed, there should not be exploitation of resources. This study will

definitely help to provide idea of the effect of anthropogenic activity and to steps taken to mitigate the pollution level.

iii- Details of Publications

Sr. No.	Year	Published By	Description
01	2016	International Journal of Multidisciplinary Research ISSN 2277-9302 Vol.V, Issue11(I) ,2016	Checklist of Marine Molluscan Diversity along Shreewardhan Coast (M.S)
02	2017	Elixir Appl. Zoology 105C (2017) 46093-46099 ISSN 2229-712X	Survey of Marine Molluscan diversity along the coasts of Shreewardhan (M.S.)
03	2017	Proceeding of SAARC ECUBE-17 Pp221-224.	Study of Foraminiferan Diversity of Shriwardhan taluka, Dist.- Raigad (M.S.)

iii. Has the progress been according to original plan of work and towards achieving the objective. if not, state reasons:- Yes

iv. please enclose a summary of the findings of the study.

Summary of the findings of the study

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v. Any other information- Nil

PRINCIPAL INVESTIGATOR

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Arts, Commerce & Science College (Seal)

PRINCIPAL

Principal

Arts, Commerce & Science Colleg

Shreewardhan Dist. Raigad