

How far and how often do fish on coral reefs disperse



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In the study of vertebrates, fish in coral reefs stand out to be under enormous threats from different human activities. The massive threat has led to a deeper investigation of the dynamic ecological issues that lead to the diversity in dispersion of coral reefs. The difference is caused by the fact that the dispersion pattern is often evaluated from different levels. It ranges from wide geographical areas to small geographical areas mainly in terms of ecosystems, communities, and populations.

The importance of the study on coral reef dispersion cannot be understated. For a start, though many studies have been conducted on the issue, these studies have left a large gap of information. Despite the studies, dispersal is a component of evolution and ecology that is scarcely understood (Clobert, 2001). More so, there is no unified definition that arises from the various studies and researches. Further investigation of the issue helps in increasing survival rates of coral reefs through higher supply of resources often limited in the area of dispersal (Barlow, 1991). The study is also important in decreasing predators and the disturbances in areas of dispersal.

## 2. 0 How the issue relates to the topics covered in Bi 213

First, the speed and distance in dispersion of fish in coral reefs directly relate to the principles of general biology (Bi 213) on the functionality of organisms in relation to their environment. This study is aimed at investigating the pattern and process of fish survival and how it is affected by the environment. Secondly, the central idea of this study is to evaluate natural selection through the adaptive behavior of fish in coral reefs. The topics in general biology centrally focus on how natural selection affects population.

Thirdly, the last half of third term in the course investigates how population of various organisms is affected by human activity. As discussed above, the population of fish in the coral reefs has been greatly threatened by various human activities.

The paper seeks to explain the current incident of fish in coral reefs. It gives a series of researches as evidence of the dynamic dispersion of coral reefs fish. While the study asserts that inadequate investigations have failed to come up with a unified explanation to the issue, it also asserts that coral reefs are facing an enormous threat of extinction. This threat has resulted into a series of researches and theories. Theories such as Hubbell Neutral theory and Brown et al Metabolic theory aim to explain how dispersal has led to varied ecological patterns such as population differences.

The study assumes that dispersion has played a spectacular role in maintaining population and community imbalance of coral reefs. It critically evaluates information on coral reefs dispersal to show that biases, varied interpretations, and procedural artifacts have failed to provide an adequate conclusion on the “ open” or closed coral reef population systems. For instance, inadequate conclusion in the field has led to the development of sub-fields such as macro-ecology. The study concludes that since dispersion is affected by various factors, any strategy to conserve the species should be based on the dispersion pattern.

#### 4. 3 Strengths and weaknesses of the source

The study provides a thorough background of the previous researches and studies. It forms a comprehensive background of the previous research <https://assignbuster.com/how-far-and-how-often-do-fish-on-coral-reefs-disperse/>

findings. For instance, in providing a clear background to the study, the paper brings out key assumptions of early findings such as the passive larvae dispersal pattern and the assumption that the population of reef fish was open. The study provides a leading attempt to give a macro ecological investigation of marine fish. It also tries to connect and unify the various studies basing them on theory in the attempt of giving a solution to the extinction of fish in coral reefs.

In its weak points, the study is based on the assumption that the patchiness of the habitat reduces with dispersal. The expectation is that the size will reduce among species whose habitat rises in patchiness. Also, it is narrowed down to the Indian and Pacific Ocean. These two cannot provide a varied generalization to explain macro-ecological patterns of coral reefs.

#### 4. 4 Usefulness for your presentation

The opposing views in the study of the past researches and present findings provide important background knowledge into the speed and distance of dispersal of fish in coral reefs. The study also provides various graphical and mathematical representation of information that is helpful in a thorough analysis of the presentation. The various citations and studies are adequate for further analysis of the issue.

#### 5. 0 Citation 2

Ecological Society of America. 2009. Estimating dispersal from genetic isolation by distance in a coral reef fish: *Hypoplectrus puella*.

McGillUniversity press. Montreal-Canada.

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## 5. 1 Main assertions

The paper mainly deals with genetic isolation by distance. It acknowledges that the study has been conducted in the dispersion of coral reefs. However, much of research in regards to dispersion ignores the marine systems, and, at times, the studies at the marine systems are inadequate due to the limited sample selection.

The paper puts an emphasis of the importance of conducting the studies at the pelagic larva stage. The stage lasts from 2 weeks to 5 weeks and at times may last a couple of hours. The research asserts that most often the dispersal of coral reef fish through the marine currents occurs at the pelagic larva stage as opposed to the adult stage. However, it acknowledges that during this stage, the larva is small and difficult to track. This has made the spatial dispersion of coral reefs especially in the marine systems seem almost a mystery. As studies have estimated, there is a 60% potential of some larva being retained at the original place, concentrating the process of dispersal at a local level reveals that the isolation will occur by distance i. e. difference in genetics increases with the distance (Leis, 1991).

## 5. 2 Strengths and weaknesses of the source

The paper provides strong background information on the process of dispersion of coral reefs. It gives a variety of formulas and graphic representation that helps solve the process speed and distance of dispersion. On the other hand, the paper concentrates too much on the local level rather than on a wider geographical scale. More dispersion is likely to occur at

greater geographical areas such as oceans due to the strong oceanic currents rather than at the local level.

### 5. 3 Usefulness for your presentation

There is a wide range of literature that acts as a guide for further research into the issue. Samples have been conducted as evidence of the diversity of the process of dispersion by distance. The comparative approach used in the study of comparing dispersion at 15 different locations will be helpful in the presentation as evidence of the population diversity by distance. A variety of theories as well as guiding frameworks of study have been well presented in the paper.