

OLLSCOIL NA hÉIRANN
COLÁISTE NA hOLLSCOILE, GAILLIMH

SUMMER EXAMINATIONS 1999

DENOMINATED B.Sc. DEGREE IN MARINE SCIENCE (Honours)

PAPER 1
(MR 402 - *Marine Microbial Processes*)

Dr A. Eleftheriou

Dr. J.W.Patching

Time allowed: *Three* hours.

Answer **three** questions.

1. The Light-Nutrient-Mixing (LNM) hypothesis describes phytoplankton production in relation to the availability of light, the availability of nutrients, and water column stratification. With reference to the LNM hypothesis, describe the annual cycle of phytoplankton growth in a temperate shelf sea.
2. What is the difference between the terms **new** and **recycled** nitrogen. Outline what processes can transport new nitrogen into the surface mixed layer.
3. Describe the relationship between water column stratification and phytoplankton dominance. In your answer, outline **briefly** ways of expressing the degree of stratification.
4. What is a tidal mixing front? Why is phytoplankton production markedly enhanced at a tidal front.
5. What do you understand by the "microbial loop"? How much has our understanding of the loop changed since its initial description
6. Discuss the role of phagotrophic protists in pelagic food webs