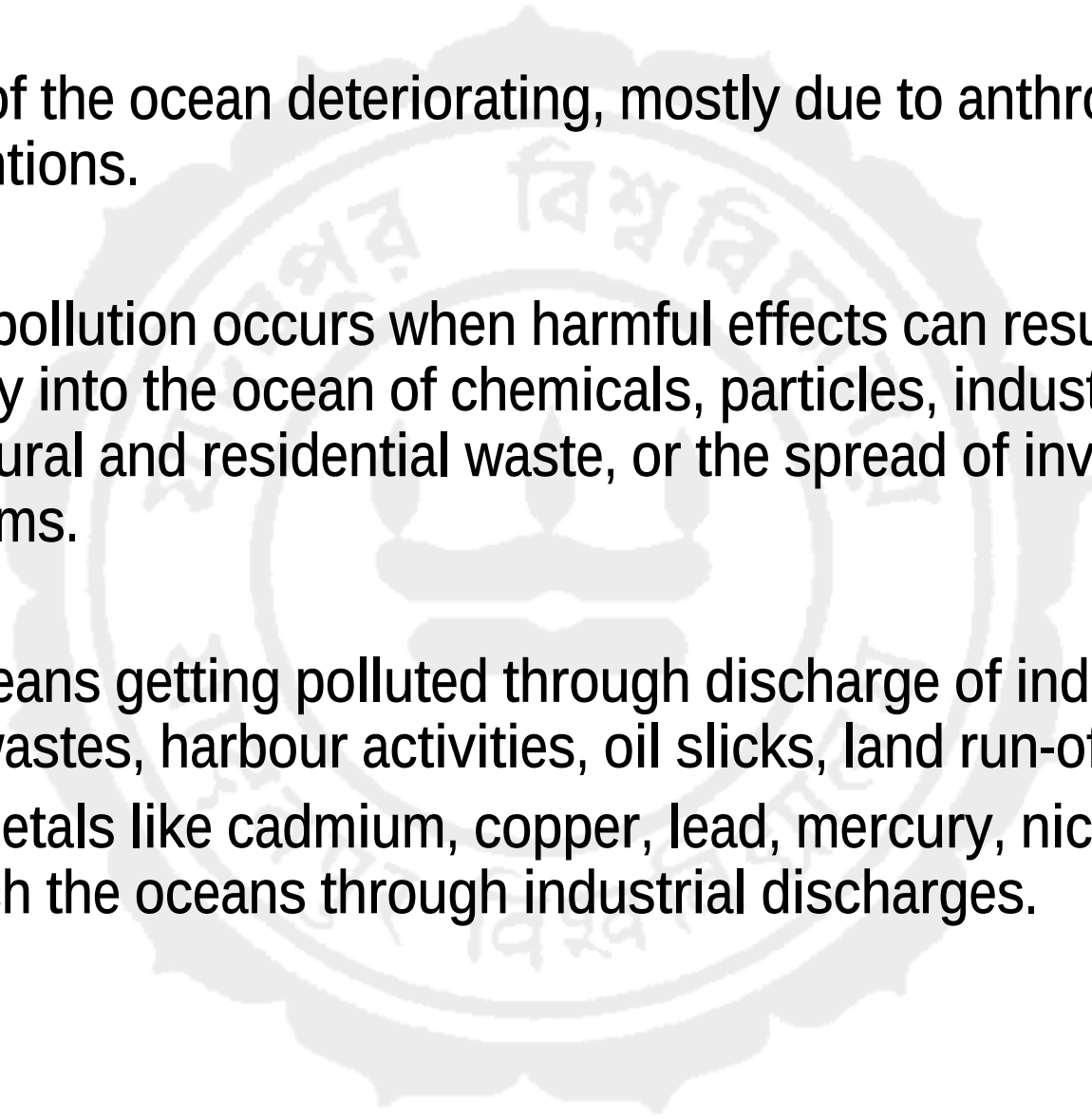
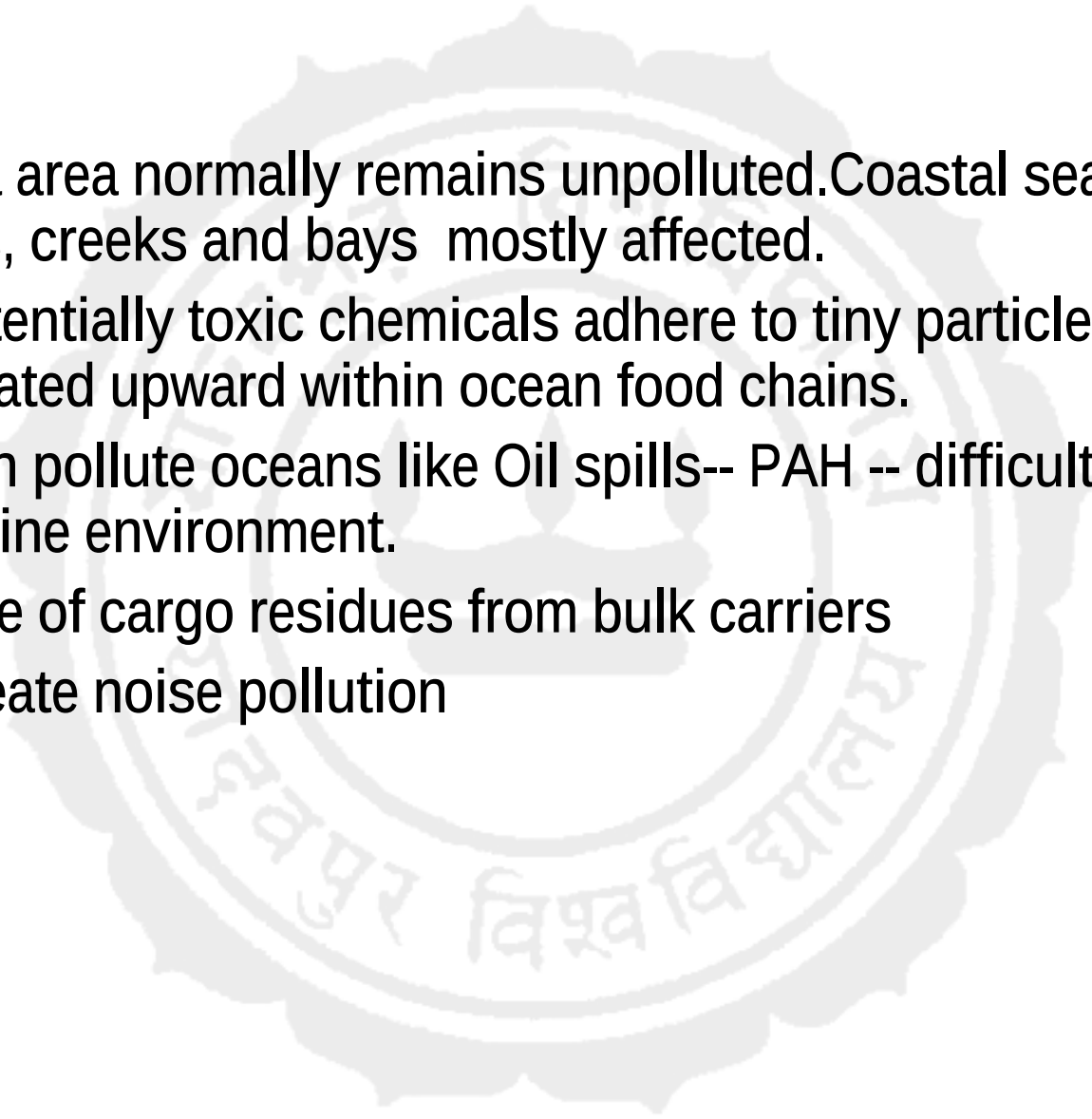


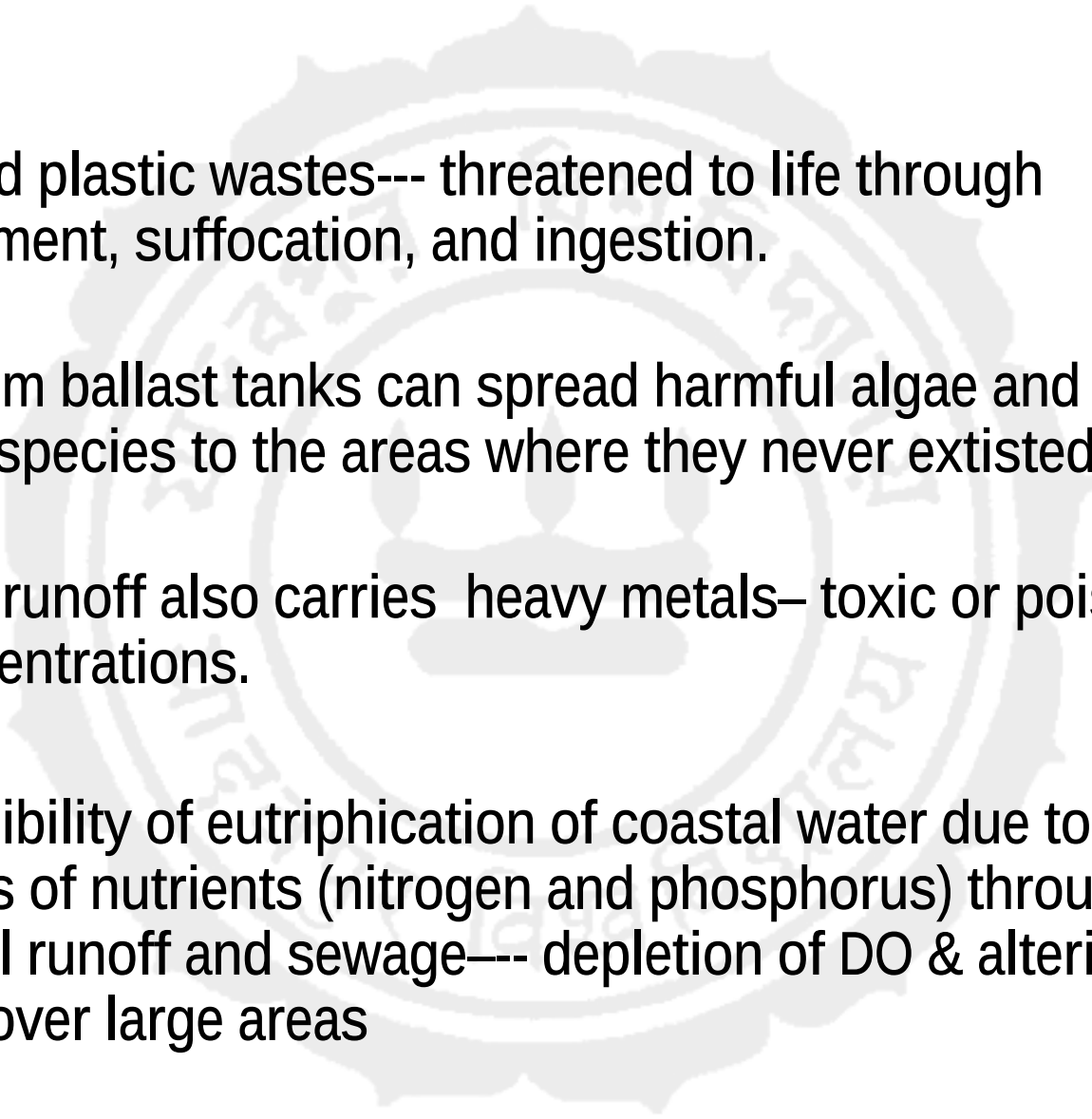


Marine Pollution

BIJAN KUMAR SAHA

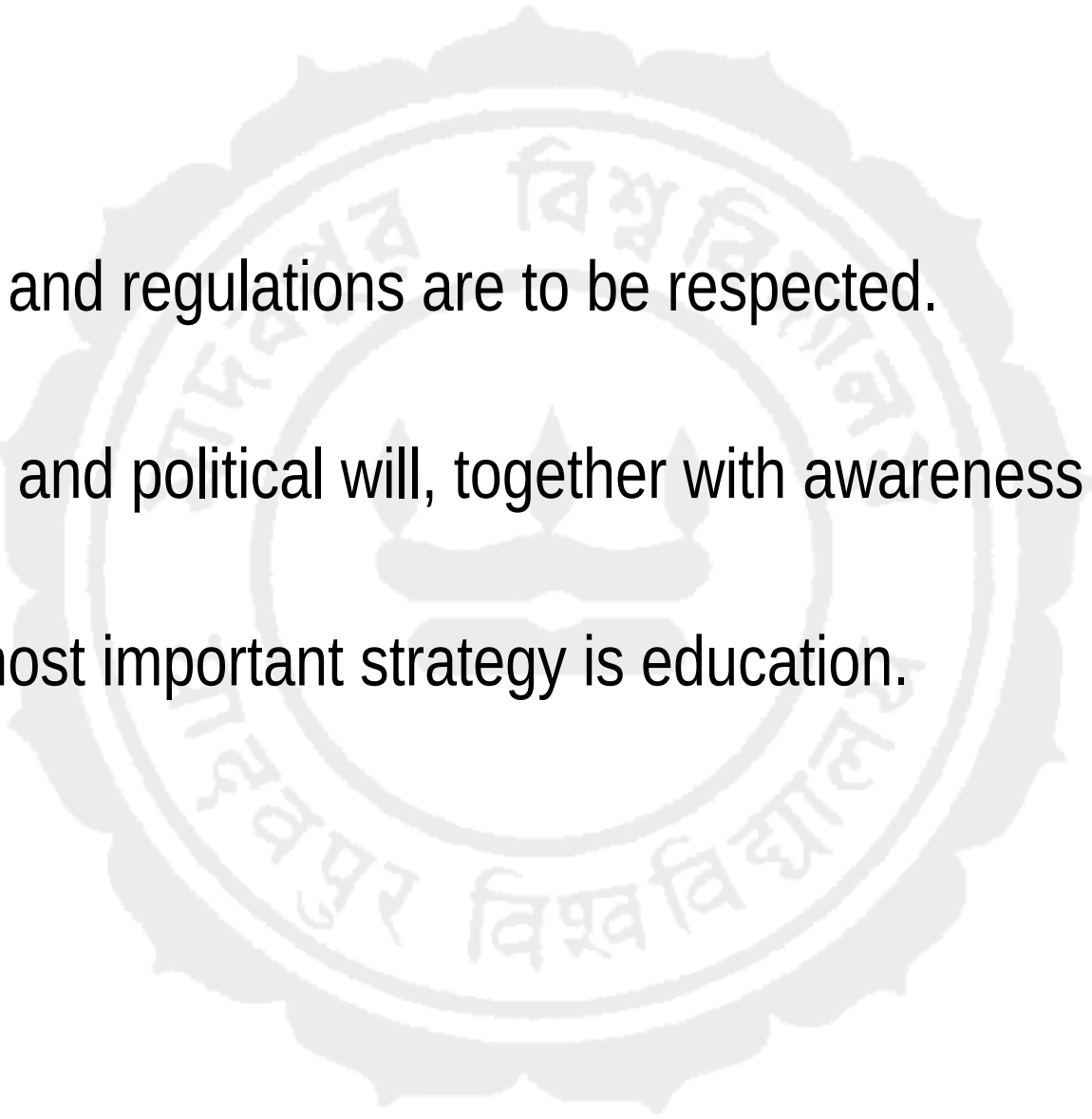
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- ❑ Health of the ocean deteriorating, mostly due to anthropogenic interventions.
 - ❑ Marine pollution occurs when harmful effects can result from the entry into the ocean of chemicals, particles, industrial, agricultural and residential waste, or the spread of invasive organisms.
 - ❑ The oceans getting polluted through discharge of industrial and urban wastes, harbour activities, oil slicks, land run-off etc.
 - ❑ Toxic metals like cadmium, copper, lead, mercury, nickel, zinc etc reach the oceans through industrial discharges.

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- ❑ Deep sea area normally remains unpolluted. Coastal sea including estuaries, creeks and bays mostly affected.
 - ❑ Many potentially toxic chemicals adhere to tiny particles and concentrated upward within ocean food chains.
 - ❑ Ships can pollute oceans like Oil spills-- PAH -- difficult to clean up from marine environment.
 - ❑ Discharge of cargo residues from bulk carriers
 - ❑ Ships create noise pollution

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- ❑ Discarded plastic wastes--- threatened to life through entanglement, suffocation, and ingestion.
 - ❑ Water from ballast tanks can spread harmful algae and other invasive species to the areas where they never existed before.
 - ❑ The land runoff also carries heavy metals– toxic or poisonous at low concentrations.
 - ❑ The possibility of eutrophication of coastal water due to increase in the fluxes of nutrients (nitrogen and phosphorus) through terrestrial runoff and sewage--- depletion of DO & altering marine ecology over large areas

Atmospheric carbon dioxide increasing-- oceans becoming more acidic-- vulnerable to dissolution, affecting corals and to the ability of shellfish to form shells.

- Near-shore mining-- more likelihood of causing environmental damage than Deep Ocean.
- Mining of sand, gravel and minerals in immediate offshore area or on beaches could lead to erosion of the adjacent coastal areas, disturbances of fish breeding grounds etc.

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- ☐ Rules and regulations are to be respected.
 - ☐ Social and political will, together with awareness campaign.
 - ☐ The most important strategy is education.