Anthropogenic effects, processes, objects, or materials are those that are derived from human activities, as opposed to those occurring in natural environments without human influences. The term is often used in the context of environmental externalities in the form of chemical or biological wastes that are produced as by-products or otherwise purposeful human activities. Many different chemicals are regarded as pollutants, ranging from simple inorganic ions to complex organic molecules. Every class of pollutants has its own specific ways of entering the environment and its own specific dangers. Organotins, or butyltins (BTs), are a group of organometallic compounds that were first synthesized in the 1930s, but did not gain wide commercial use until the 1960s and beyond (Tanabe, 1999).

The toxicity of Tributyltin compounds has become a unique focusing point for research because of the extensive uses of TBT includes biocide (fungicide, bactericide, insecticide) in paints and coatings used for marine antifouling applications, preservative for wood, textiles, paper, leather. The environmental and economic impact of TBT did not become evident until the deformative and reproductive failures of *Crassostrea gigas* i.e imposex. The environmental impact of organotin as a group of compounds has been the subject of a large amount of research in the past 10 years Tributyltin (TBT) compounds are organic derivatives of tetravalent tin (Sn⁴⁺) and have the general formula (CH₃-CH-CH)₃ Sn - R where R is a covalently linked anion or group.. Tributyltin (TBT) was widely introduced into the environment in the 1980s as the bioactive component of antifouling paints, which were used to prevent the attachment of barnacles, algae, and other organisms to boat hulls. The commercially important tributyltin
derivatives include TBT oxide, TBT benzoate, TBT methacrylate, TBT chloride, TBT hydroxide and TBT fluoride. These compounds were developed to be used as antifouling paints for a wide range of maritime activities. Tributyltin (TBT) compounds are metabolized to dibutyltin (DBT) and at last monobutyltin (MBT). Triorganotin are used as general biocides against microbial and invertebrate pests and in marine antifouling paints (Laughlin and Linden, 1985). The first antifouling paints incorporating an organotin compound as a biocide were developed in 1961. In India, TBT compounds had been used as antifouling agents in paints earlier; however, there is a ban on the usage of these paints is in force now. There are few studies on the distribution of butyltin residues in water and sediment samples collected from the east coast of India (Rajendran, et al., 2001). Not much is known about the organotin concentrations in marine and fresh waters of the south Asian region in general and in Indian waters in particular (Bhosle et al., 2004).

Among the contaminants, heavy metals constitute one of the main dangerous groups, because they are toxic, persistent and not easily biodegradable. The species and concentrations of metals in water are determined by geochemical processes and large scale releases into the aquatic environment by human activities (anthropogenic activities). Rapid industrial developments as well as the use of metals in production processes have led to the increased discharges of heavy metals into the environment. The harmful effects of heavy metals as pollutants result from incomplete biological degradation. Therefore, these metals tend to accumulate in the aquatic environment. Since heavy metals are non-biodegradable, they can be bio-accumulated by fish, either directly from the surrounding water or by ingestion of food. In addition, Heath (1987) indicates that when metals reach sufficiently high concentrations in body cells they can alter the physiological functioning of the fish. Copper is an essential trace nutrient that is required in small amounts (5-20 micrograms per gram (μg/g)) by humans, other mammals, fish and
shellfish for carbohydrate metabolism and the functioning of more than 30 enzymes. It is also needed for the formation of hemoglobin and haemocyanin, the oxygen-transporting pigments in the blood of vertebrates and shellfish respectively. However, copper concentrations that exceed 20 micrograms per gram (μg/g) can be toxic, as explained by Bradl and Heike (2005). Copper has been known to humans for at least 6000 years. Its uses in alloys, tools, coins, jewelry, food and beverage containers, automobile brake pads, electrical wiring and electroplating reflect its malleability, ductility and electrical conductivity. The use of copper to kill algae, fungi and mollusks demonstrates that it is highly toxic to aquatic organisms. In fact, copper is one of the most toxic metals to aquatic organisms and ecosystems. Fish and crustaceans are 10 to 100 times more sensitive to the toxic effects of copper than are mammals. Copper normally as Copper sulphate has been used extensively in aquaculture and is a significant industrial and agricultural pollutant, consequently there have been numerous studies reporting its lethal limits to a variety of fish.

Fish contributes to food security in many regions of the world, providing a valuable supplement for diversified and nutritious diets. Fish is highly nutritious. It provides not only high-value protein, but also represents an important source of a wide range of essential micronutrients, minerals and fatty acids. Fish is a vital source of food for people. It is man's most important single source of high-quality protein, providing 16% of the animal protein consumed by the world's population, according to the (FAO) of the United Nations (1997). It is a particularly important protein source in regions where livestock is relatively scarce fish supplies <10% of animal protein consumed in North America and Europe, but 17% in Africa, 26% in Asia and 22% in China (FAO, 2000). The FAO estimates that about one billion people world-wide rely on fish as their primary source of animal protein (FAO, 2000).
Water pollution due to xenobiotics is a serious problem; due to their toxicity and persistence in the environment. As a result of their usage, they find their way into the freshwater resources with the run-off water from agricultural land, or by direct application, spray drift, aerial spraying and by discharge of effluents from factories and sewage. Most environmental problems of concern today are attributed to the production and release of toxic chemicals capable of interacting with the environment and disrupting the ecosystem. Indiscriminate discharge of biocides from agricultural runoff and other sources into aquatic media affects non target organisms such as which is of great economic importance to humans. Triorganotin and Copper sulphate in the form of biocides are one of the most potentially harmful chemicals liberated into the environment in an unplanned manner. Though they have contributed considerably to the welfare of humans, their adverse effects on non-target organisms are enormous. The impact of chemical environmental contamination on fish health, consequently fish productivity is of economical relevance for fishes as well as aquaculture. Environmental pollutants have been reported to accumulate in fish and have threatened human health either directly or indirectly through the food chain. However, the proper handling and use of biocides in aquatic areas are especially critical, accidental spills or over dose can kill fish or cause other damage to its habitats that may lead to reduction in the fish population. Majority of the studies concerning the effects of heavy metals on fish have been confined to the acute toxicity test with the death of fish as an end point but it is only due to interference in the functioning of vital organs like gill, liver and kidney etc.

Freshwater fish, *Rasbora daniconius* selected for the present study, occur in a variety of habitats in the rivers, lakes and ponds in Marathwada region of Maharashtra, State. Marathwada region particularly Aurangabad is fast growing in industries included pharmaceutical, pulp and paper, plastic breviaries and
automobile. These industries release their effluents in the environment and it reaches in the nearby water bodies may affect the aquatic animals including fish community.

Specific aims of the study are, to assess toxicity to *R. daniconius* used as a bioindicator evaluating the acute concentration of tributyltin oxide and copper sulphate. And to study oxygen consumption and biochemical responses detectable in a comparable time frame following to tributyltin oxide and copper sulphate.