Biodiversity is an essential component of ecosystem functioning and defines its resilience to various stresses, yet it is declining globally. If we want to maintain or manage biodiversity, we must first understand the species involved, their distribution, habitats, ecology, and so on. The first step towards conservation is being able to identify all species that occur in a given area unambiguously. Exotic invasions are frequently cited as one of the leading causes of global biodiversity loss, although the mechanisms and consequences of species invasions may differ across ecosystems, taxa, and spatial scales (Hooper *et al.*, 2005). Competition from invasive species can act as an additional filter for native species, sometimes stronger than environmental gradients. Exotic species contribute significantly to the Mediterranean region's loss of biological diversity, particularly in freshwater areas. The functional organization of Mediterranean freshwater fish populations is mostly unknown, and ecological characteristic characterisation of native and alien fish species has just recently been established in some places. Finally, this allows for more investigation into the relationships between biological invasions, functional diversity, and the environment (Milardi *et al.*, 2019).

However, invasions appear to be a major cause of biodiversity loss in some systems. According to a correlative analysis, introduced species, rather than habitat change, are the principal cause of population decreases and extinctions in California freshwater fishes (Light and Marchetti, 2007). Studies of India's urban and urbanizing pondscape have concentrated on metropolitan areas of South India and have pointed to the degradation of ponds through land reclamation (encroachments and planned housing schemes, government buildings, parks, etc), unintended and deliberate disruptions of inflow and drainage networks, and the pollution of ponds by solid and liquid waste (including human waste) (Ramachandraiah and Prasad, 2004; Mariganti, 2011; Sundaresan, 2011). These physical transformations have been interrelated with social changes, including reduced dependence on ponds and the marginalization of their traditional users (D'Souza and Nagendra, 2011).

Previous research mostly focused on limnology, water quality evaluation, weed generation in lakes, environmental changes, and other aspects of the study area's lakes and ponds. According to Zimmer et al. (2020), the number and size of ponds has decreased over the past 50 years due to land reclamations; many ponds and their tributaries have also become polluted with wastewater and clogged with solid waste. Since the early 2000s, however, there have been initiatives to revitalize these water bodies like pond restoration initiatives in large Indian cities such as Bengaluru (D'Souza and Nagendra, 2011; Sundaresan, 2011; Nagendra and Ostrom, 2014), Hyderabad (Mariganti, 2011), Madurai (Sundaresan et al., 2017) and

Kolkata (Bose, 2015). In these cities, efforts to restore urban water bodies have often been founded on an environmental imaginary that is concerned with nature conservation, urban aesthetics and recreation; the resulting new forms of enclosure of ponds have further excluded the lower classes and their livelihoods and domestic activities (D'Souza and Nagendra, 2011; Bose, 2015). Throughout the world, freshwater environments are experiencing serious threats to both biodiversity and ecosystem stability (Suski and Cooke 2006), and many strategies have been proposed to solve this crisis (Williams et al. 1989; Warren and Burr 1994; Cowx 2002; Suski and Cooke 2006). Stress induced by human-driven environmental degradation such as urbanization, dam development, water abstraction for irrigation and power generation, and pollution. throughout the last few decades has significant severe effects on freshwater fish genetic diversity, particularly in rivers and lakes (Sarkar et al., 2008).

The primary source of water in Gujarat is surface water. The state includes 185 river basins, and the available water quota is 55608 million cubic meters, 38100 million cubic meters of which are surface water, accounting for only 2% of the country's total surface water quota. Furthermore, the available surface water quota is not appropriately apportioned. Gujarat, Saurashtra, and Kutch have 89%, 9%, and 2% water resources, respectively, whereas their overall geographical area is 45%, 31%, and 24%. As per the inventory report by ISRO (2011), Gujarat has the highest number of Wetlands, i.e. 17. 65%. As a maritime state on India's west coast, it has one of the richest fishing zones in the country, with a diverse range of marine and interior aquatic fisheries. A large number of people of Gujarat State are dependent on the Narmada canal network in modern times for domestic, agricultural, and industrial purposes (Sinha 2018).

The favourable climate and environmental conditions of the state support booming fish production through aquaculture (Kalamkar, et al., 2016; Banyal et al., 2019). The actual number of fish species in India is still not precisely worked out because of taxonomic confusions due to lack of exploration and synonyms (Hoagland, 1996). Gujarat's fish variety accounts for around 23.85% of all Indian fish species. Inland Fish Production during 2016-17 was 1.17 lakh million tonnes as stated in a report by Fisheries Department of Gujarat. According to (Sen & Banerjee, 2000) the Inland fish fauna of Gujarat is represented by 119 species whereas, Devi and Indra, (2012) has given an account of 120 freshwater species. In this context Dholakia (2004) has given an account of 96 freshwater fishes from the state of Gujarat. Cyprinidae have a large distribution Africa, Northern America, Southern Central America to Guatemala, Asia and Europe (Sarma et al., 2017). Besides, our knowledge regarding freshwater

fishes of the Gujarat state is enhanced by the work done by (Goswami & Mankodi, 2010) and (Gohil & Mankodi, 2013) on Nyari-II reservoir and Mahi River where authors have found 15 & 26 species of fishes respectively. The fish species from the seasonal wetlands of Kachchh were explored mainly by Singh et al., (1999) and identified 22 species of fishes from Little Rann of Kachchh (LRK) (Banyal et al., 2019).

The previous studies from the study area, inhabiting fresh water have been conducted to list some. Jayangauder (1980) studied the hydrobiological aspects of Ajwa reservoir which is the source of water supply to the city of Vadodara. Harish Kumar and Gajaria (1996) studied the aquatic environment of Lingda fish feed farm located near Anand city. Gajaria and Mali (2000) studied the eco physiology of aquatic environment of village fish pond in Gujarat. Gajaria and Mali (2003) studied the village fish culture pond aquatic environment and its algal vegetation. Parikh and Mankodi in 2011 and 2012, studied the Water quality assessment of Harni Pond the Limnology of Sama Pond in Vadodara city. Soni and Thomas, (2013) studied the Surface water quality assessment and conservation measures of two pond ecosystems of central Gujarat. Tailor and Mankodi (2013), did comparative study of two Urban ponds of Vadodara city with special reference to their chemical parameters. Parikh, Unadkat and Nagar (2015), studied the Aquatics weeds in two ponds of Vadodara. Gupta et al., (2020) assessed the water quality parameters of Lentic and lotic waterbodies in Narmada canal Command Area in Saurashtra region of Gujarat. Zimmer et al., (2020) studied the Urban Political Ecology of the Pondscape in a Small City in Gujarat.

Fish infections typically pass from one to another. This occurs when one fish carries a viral illness that spreads throughout the freshwater system. Fish can also be contaminated with various viruses and parasites. The most common fresh water fish diseases Dropsy, swim Bladder disease, Gill rot disease, Black spot disease, worm infection, etc (Sen and Mandal, 2018). Unlike bacterial and parasitic infections, only a few fungal species are known to be harmful to fish. Fungal spores are commonly found in fish culture water under normal conditions and do not cause fish disease. Healthy fish have a protective mucus layer that protects them from fungal spores. The protective mucus is degraded in a poor aquatic environment due to low water quality, rough handling, fighting, or physical injury, resulting in an epidemic of fungal diseases (Opiyo et al., 2020). Fungal infections are second to bacterial diseases of economic importance and are generally restricted from chronic to steady losses (Ramaiah, 2006).

Fungal infections are second to bacterial diseases of economic importance and are generally restricted from chronic to steady losses (Ramaiah, 2006). The most common fungal diseases of fish are Saprolegniasis, a disease caused by *Achlya*, Branchiomycosis, Epizootic Ulcerative Syndrome (EUS), and *Ichthyophoniasis* (Choudhury et al., 2014). The common parasites of fish cause a substantial economic loss in fish culture system in India. The world's approximate 20% of freshwater fish is already extinct due to parasitic influence (Moyle and Leidy, 1992). Fish like any other vertebrates are suffering from parasitism (Azza, 1990), ectoparasite infestation not only result from direct harm to fish, but also from disfigurement which renders fish grown for food and ornamental fish unsuitable for sale, thus impose a big loss to fish industry (Piasecki et al., 2004). Fish parasites multiply quickly in poor water quality parameter, harming fish and often resulting in significant morbidity and fish comes under the stress condition. There are chances of disease outbreak in stress conditions. Parasitic crustaceans of the Branchiura subclasses are invariably ectoparasites on fish and have a direct life cycle. Parasitic stages are typically blood feeders on the host's gills, fins, and skin, and a large number can have major pathogenic effects (Lester and Hayward, 2006).

Argulus is one of the major Ectoparasites encountered in freshwater fishes after *Lernaea*. Isopods are considered as a large ectoparasitic crustacean group on marine fish, diverse and occur on fish worldwide. Isopoda is an order (group) of crustaceans that includes woodlice, sea slaters and their relatives (Sheikh *et al.,* 2022). Isopods exist in the sea, freshwater, or on land, and the majority are little greyish or whitish organisms with hard, segmented exoskeletons. They have two pairs of antennae, seven pairs of jointed limbs on the thorax, and five pairs of branching appendages on the abdomen that aid in respiration. Females brood their young in a pouch under their thorax Rhode, (2005). According to Kabata (1970), the quantity of isopods infesting fish is projected to increase, and many isopod species are awaiting discovery, particularly in tropical and subtropical locations. Cymothoid isopods cause major issues for host fish. They nourished on blood and macerated tissues; numerous species settled in the buccal cavity of fish, while others resided in gill chambers or on the body surface, including the fins. Kabata, (1970); Woo, (2006) and Ravichandran et al., (2007). Little is known about the marine isopods in Egypt except those recorded by Hassan, (2001); Eissa, (2002); Ali and Abo-esa (2007); Abd El Aall and E1 Ashram (2011) and Eman et al (2014), because the species concepts are weakly established in the literature (Rania and Rehab, 2015; Dash et. al., 2015).

Most of the studies from India are carried out on the East Coast, to mention some:

Rameshkumar and Ravichandran (2010) gave a new host record for *N. phaeopleura* parasite. Rameshkumar and Ravichandran (2010) recorded two isopod species, *C. indica* and *A. typus* on freshwater fish *O. mossambica* in the Vellar estuary. Rameshkumar et al., (2011) studied the Cymothoidae (Crustacea, Isopoda) from Indian fishes. Rameshkumar and Ravichandran (2013) studied the histopathological changes in skins and gills of the infected host fishes, as well as the effect of the parasitic isopod, *C. boscii* a buccal cavity parasite of the marine fish (Rameshkumar and Ravichandran, 2013). Rameshkumar et al., (2013) studied an isopod parasitizing the edible fish *P. niger* in the Parangipettai coast of India. Rameshkumar et al., (2013) studied new occurrences of Isopods from freshwater fishes.