Satellite-based Fishing

Fish account for approximately 7% of the World's total food supply, and are one of the major sources of food in developing countries. Around half a billion people gain their livelihoods from harvesting the oceans. Locating and catching the fish is, however, becoming more challenging as fish stocks dwindle and move further offshore, thus increasing the search time, cost and effort.

Many countries have stressed the need for identifying potential fishing zones to help fishermen locate fish stocks and to increase catch per unit effort. Over the past decade, India has developed a system of scientific indicators of potential fishing zones using satellite-derived information on Sea Surface Temperature (NOAA- AVHRR satellite data) and chlorophyll (IRS-P4 ocean-colour data). Oceanographic features such as temperature fronts, meanders, eddies, rings and upwelling areas, that have proven to be prospective sites for fish stock congregation and migration, are identified from the satellite imagery. These oceanographic features can be successfully mapped in near real time and are used to generate Potential Fishing Zone (PFZ) advisories for the Indian fishing community, which includes almost 6 million fishermen catching both pelagic (*e.g.* sardine, mackerel, tuna) and demersal (*e.g.* cod, flat fish, skates, rays) species.

The Indian National Center for Ocean Information Services (INCOIS) disseminates PFZ advisories, in local languages, three times a week to the entire coast line of India by fax, phone, internet, email, electronic display boards, newspaper and radio broadcasts. These advisories indicate the likely availability of fish stocks for the next 2-4 days, and provide detailed directions on how to locate the fish stocks. These advisories have helped to reduce search time by up to 70%, and have significantly increased the catch per unit effort. Generally, the fisheries are artisenal and the fishermen who use the data are sometimes illiterate.

India is thus a prime example of how satellite data can be put to effective use to ensure that the advantages of science and technology percolate down to the common man. See http://www.incois.gov.in/Incois/incois1024/index/index.jsp for further information.