Examining the Knowledge Base and Status of Commercially Exploited Marine Species with the RAM Legacy Stock Assessment Database

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Meta-analyses of stock assessments can provide novel insight into marine population dynamics and the status of fished species, but the world's main stock assessment database (the Myers Stock-Recruitment Database) is now outdated. To facilitate new analyses, we developed a new database, the RAM Legacy Stock Assessment Database, for commercially exploited marine fishes and invertebrates. Time series of total biomass, spawner biomass, recruits, fishing mortality and catch/landings form the core of the database. Assessments were assembled from 21 national and international management agencies for a total of 331 stocks (295 fish stocks representing 46 families and 36 invertebrate stocks representing 12 families), including nine of the world's 10 largest fisheries. Stock assessments were available from 27 large marine ecosystems, the Caspian Sea and four High Seas regions, and include the Atlantic, Pacific, Indian, Arctic and Antarctic Oceans. Most assessments came from the USA, Europe, Canada, New Zealand and Australia. Assessed marine stocks represent a small proportion of harvested fish taxa (16%), and an even smaller proportion of marine fish biodiversity (1%), but provide high-quality data for intensively studied stocks. The database provides new insight into the status of exploited populations: 58% of stocks with reference points (n = 214) were estimated to be below the biomass resulting in maximum sustainable yield (BMSY) and 30% had exploitation levels above the exploitation rate resulting in maximum sustainable yield (UMSY). We anticipate that the database will facilitate new research in population dynamics and fishery management, and we encourage further data contributions from stock assessment scientists.