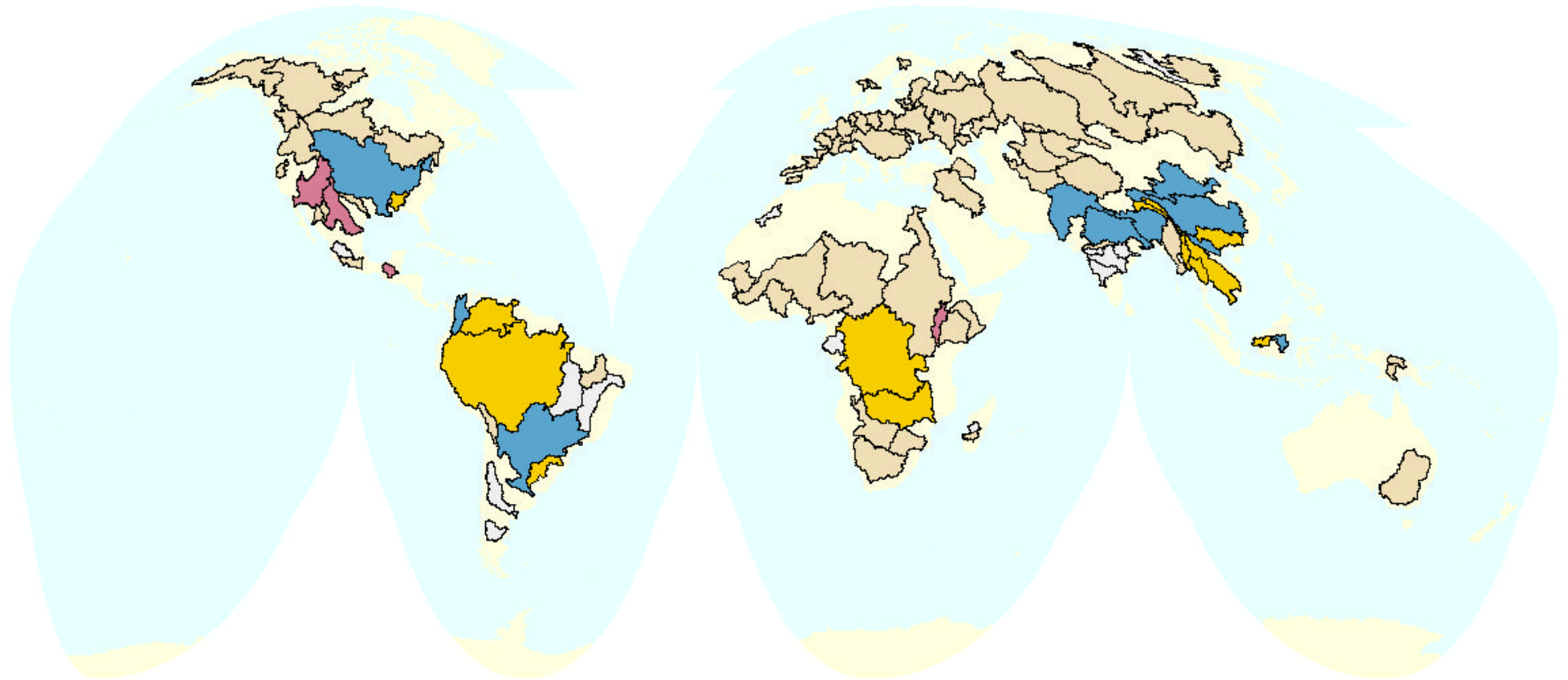


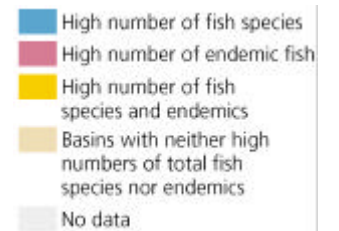
Species Richness and Endemism by River Basin



Map Projection: Interrupted Goode's Homolosine

Citation: World Resources Institute - PAGE, 2000

Notes:



Map Description:

This map presents fish species richness and endemism by watershed for selected major watersheds of the world. The selected watersheds represent large basins that cross national borders and some smaller watersheds of regional significance. In all, these basins cover approximately 55 percent of the world's land area (excluding Antarctica). Of the 108 watersheds analyzed, 27 have particularly high fish species richness. Of these, 56 percent are in the tropics, particularly Central Africa, mainland Southeast Asia, and South America, even though only about a third of all watersheds analyzed are tropical. High fish diversity is also found in central North America and in several basins in China and India. The pattern of unique species, or endemism, shows strong similarities to the pattern of species richness, particularly in Central Africa, South America, and Southeast Asia. In temperate regions, the Colorado, Rio Grande, and Alabama basins in North America stand out (for their size) as having large numbers of endemic fish.

Analytical Overview:

Data on fish species, including number of endemics, were compiled by the World Conservation Monitoring Centre (WCMC). Additional total fish species numbers were added from Maurice Kottelat and Tony Whitten, *Freshwater Biodiversity in Asia with Special Reference to Fish*, World Bank Technical Paper 343, 1996; unpublished data provided by Thierry Oberdorff, Muséum National d'Histoire Naturelle, Lab. D'Ichtyologie Général et Appliquée, Paris, and Maurice Kottelat (personal communication). Data were referenced to major rivers or basins. Because there are several potential sources of error in the species richness and endemics values, these numbers should be taken as general indicators of fish diversity and not actual measures. Sources of error include: the amount of research done in a particular basin; species extinctions; and introductions of non-native species. Some rivers, for examples, have been highly sampled and most species present identified, while others, particularly in the tropics, have not yet been thoroughly studied and may contain many not-yet-identified species. Because of the correlation between basin size and species richness, basins were grouped by size into in three categories: large (more than 1,500,000 square kilometers), medium (between 400,000 and 1,499,999 square kilometers) and small (less 400,000 square kilometers). Cutoff points were obtained by selecting the highest two-thirds within each basin-size category. Basins with high fish species richness were, for large basins, those with more than 230 fish species; for medium basins, those with more than 143 species; and for small basins, those with more than 112 species. For endemic fish species, the cutoff points were basins with more than 166 species (large basins), 29 species (medium basins), and 15 species (small basins).

Source:

1. Revenga, C., S. Murray, J. Abramowitz, and A. Hammond. 1998, *Watersheds of the World: Ecological Value and Vulnerability*. Washington, DC:World Resources Institute and Worldwatch Institute. pp.