

Patterns in macrozooplankton and micronekton biomass distribution across four north Atlantic ocean basins

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A broad size spectrum of plankton and fish abundance and biomass were investigated based on data collected during the early summer of 2013, from a cruise covering the central parts of four north Atlantic basins, the Norwegian Sea (NS), Iceland Sea (ICS), Irminger Sea (IRS), and Labrador Sea (LS). Additional data on hydrography, in situ light, nutrients, and primary production were collected at all stations or continuously at 6 m. In this presentation we focus on the basin-scale distribution of macrozooplankton and micronekton. Continuous data from a hull-mounted multi-frequency acoustic system mapped the distribution of larger forms, while mid-water trawl sampling provided data on biomass, taxonomy, and abundance. The catches showed that biomass, taxonomic composition, and diversity varied between the basins, with differences especially pronounced between the eastern (NS and ICS) and western basins (IRS and LS). Crustaceans made up a higher percentage of total biomass in NS and ICS basins, biomass of Coelenterates was ~10 times higher in IRS and LS. Catches and acoustic data also documented that epipelagic fish biomass was higher in the NS and ICS basins during the cruise, while mesopelagic fish biomass was highest in the IRS basin. Acoustic data suggested similar overall horizontal patterns in fish biomass as the trawl catches, but also suggested that crustacean biomass was dominated by high density aggregations in some areas, these aggregations were not caught representatively in the routine trawl hauls. The basin-wise distribution patterns are discussed in relation to latitude, environmental variables, and predator-prey relationships.