Forage fish quality: seasonal lipid dynamics of herring (Clupea harengus L.) and sprat (Sprattus sprattus L.) in the Baltic Sea

This study investigates lipid content and fatty acid composition of two important forage fish, sprat (Sprattus sprattus) and herring (Clupea harengus) in the Baltic Sea ecosystem. Seasonal variation in lipids was studied during three periods following the annual reproductive cycle considering potential differences relating to fish size, sex, and reproductive status. The isopod Saduria entomon, being at times an important prey for predatory fish, was included for comparison. In both sprat and herring, lipid content and absolute contents of essential polyunsaturated fatty acids (PUFAs) varied seasonally with high levels towards the end of the annual zooplankton production cycle, succeeded by a decline. Lipid content and fatty acid composition differed significantly between sprat and herring. Sprat lipid content was higher than herring, increasing with fish size and characterized by large proportions of monounsaturated fatty acids. Herring lipid content was related to the reproductive cycle and proportions of PUFAs were high compared with sprat. Levels of essential PUFAs were high in S. entomon compared with clupeids rendering it a valuable alternative prey species in the Baltic Sea ecosystem. The lipid dynamics of forage fish and benthos, combined with changes in availability and abundance, will affect growth and reproduction of their predators.
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 2.32
Web of Science (2011): Impact factor 2.007
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Web of Science (2010): Impact factor 1.808
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Web of Science (2008): Indexed yes
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Web of Science (2005): Indexed yes
Web of Science (2004): Indexed yes
Web of Science (2003): Indexed yes
Web of Science (2002): Indexed yes
Web of Science (2001): Indexed yes
Web of Science (2000): Indexed yes
Original language: English
DOIs:
10.1093/icesjms/fs1106
Research output: Research - peer-review › Journal article – Annual report year: 2013