



Figure 6.12 Zooplankton anomaly time series, 1979–2001, for the southern Vancouver Island continental margin region (latitude 48–49°N). Species groups for averaging and/or comparison are (a) 'boreal shelf' copepods, (b) 'southern' copepods, (c) 'subarctic oceanic' copepods, (d) chaetognaths (*Sagitta* spp. vs. *E. hamata*), (e) euphausiids (*Euphausia pacifica* and *T. spinifera*), and (f) thecosomatous pteropods (*L. helicina* and *Clio pyramidata*). Bar graphs are the annual zooplankton anomalies, averaged over the entire southern Vancouver Island region (anomalies in shelf and offshore regions are highly correlated). See Mackas *et al.* (2001, 2004) for calculation and year averaging methods. SVI anomalies include samples from all seasons, however about two-thirds of data are from spring and summer (April–September). Circles show years with no anomaly estimates due to low sample numbers or gear bias. Lines show regression fits of the anomalies to ocean climate indices; solid lines are the 'predicted' anomalies for a 'learning set' of years (1985–98) used to estimate the regressions; dashed lines show 'predictions' for the remaining years (1979–84 and 1999–2001). Note the strong inverse correlation of the 'southern' versus the 'boreal shelf' and 'subarctic' copepod groups, and the rapid change in sign of the anomalies 1998/9. (Reprinted from Mackas *et al.* 2004 with kind permission from Elsevier).