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Autore	Lucas Martyn C
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 2.4 Piloting, orientation and navigation  
 2.4.1 Landmarks and surface topography; 2.4.2 Celestial cues; 2.4.3 Currents; 2.4.4 Electric and magnetic fields; 2.4.5 Olfaction and gustation; 2.4.6 Other cues; 2.4.7 Homing, memory and imprinting; 3 Types of Migration; 3.1 Introduction; 3.2 Migrations at the seasonal and ontogenetic scale; 3.2.1 Feeding migrations; 3.2.2 Refuge-seeking migrations; 3.2.3 Spawning migrations; 3.2.4 Post-displacement movements, recolonisation and exploratory migration; 3.3 Diel horizontal and vertical migrations; 4 Effects of Climate on Patterns of Migratory Behaviour  
 4.1 Introduction  
 4.2 Arctic and subarctic regions; 4.3 Temperate regions; 4.4 Tropical regions; 4.4.1 Introduction; 4.4.2 Setting the scene: what makes tropical freshwater systems similar or different to those of temperate areas ?; 4.4.3 Influences of predation pressure on fish migrations; 4.4.4 Influence of dissolved oxygen on fish migrations; 4.4.5 Other environmental factors shaping habitat use and seasonal migrations; 4.4.6 Life history, breeding systems and migration patterns of tropical fish; 4.4.7 Conclusion; 5 Taxonomic Analysis of Migration in Freshwater Fishes; 5.1 Introduction  
 5.2 Lampreys (Petromyzontidae); 5.3 Sharks and rays (Elasmobranchii); 5.4 Sturgeons (Acipenseridae); 5.5 Paddlefishes (Polyodontidae); 5.6 Gars (Lepisosteidae) and bowfins (Amiidae); 5.7 Bonytongues, mooneyes, featherfin knifefishes, elephant fishes (Osteoglossiformes); 5.8 Tenpounders and tarpons (Elopiformes); 5.9 Freshwater eels (Anguillidae); 5.10 Anchovies, shads, herrings and menhaden (Clupeiformes); 5.11 Milkfish (Chanidae); 5.12 Carps and minnows (Cyprinidae); 5.13 Suckers (Catostomidae); 5.14 Loaches (Cobitidae) and river loaches (Balitoridae); 5.15 Characins (Characiformes) 5.16 Catfishes (Siluriformes)

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## Sommario/riassunto

Recent studies have increasingly demonstrated the widespread existence of spatio-temporal variations in the abundance and distribution of species of freshwater fishes, previously assumed not to move between habitats. These movements are often on a seasonal or ontogenetic basis, for spawning, feeding and refuge, and in many cases are fundamental for the successful completion of lifecycles. This important book provides a single source for a range of previously widely dispersed information on these movements of fish in fresh waters, covering potamodromous fishes as well as the more familiar dia

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