



BOOK REVIEW

Atlante della laguna: Venezia tra terra e mare. 2006. Edited by Stefano Guerzoni and Davide Tagliapietra. 242 pp plus CD. Published by Marsilio Editori, Marittima—Fabbricato 205, 30135 Venezia, Italy. 58 Euros (about \$75.40).

Review of this volume brings back good memories. The exercise reminds me of gentle rainy Sunday afternoons long before television and computers when, lying on a rug in the living room, I would peruse pictures of mysterious places in the *Larousse*, *Britannica* and atlases. Years have passed and I have visited many a site, yet I still enjoy this form of day-dreaming and fantasizing. In this case, I welcomed the opportunity to examine an atlas that focuses on Venice, a jewel of a city set in its lagoon in the Mediterranean's northern Adriatic Sea. This recent work is instructive and warrants the attention of readers of *Journal of Coastal Research*.

The compendium is beautifully illustrated with 103 maps, graphs, and associated data in color that detail a host of environmental and ecological parameters. It serves as a very good example of how to document and graphically depict physical and biological factors that affect a low-lying, highly vulnerable city that is precariously situated. Its setting is a highly anthropologically modified wetland positioned between land and the open sea. While this is by no means the first extensive database focusing on Venice, I would suggest that *Atlante della laguna* is the most comprehensive and well illustrated one. The database is derived from long-term study conducted under the auspices of numerous organizations (41 are listed) and more than 100 workers from different disciplines. Samples and measurements were taken at very closely-spaced survey stations throughout the Venice lagoon, on the islands in it, along the mainland, and on coastal barriers. The atlas comprises five thematic sections. In each, a full-page explanatory description is accompanied by, on the facing page, by a graphic depiction of data either as a single large chart or a series of time-lapse maps. Recent changes are identified on maps compiled for three periods: 1930–1955, 1955–1970, and 1970–2000. With the attached English translation of the atlas and captions in both Italian and English, the maps are readily understood.

The first and most extensive section, titled *Geosfera*, depicts seasonal variations: water temperature, wind, wave height, and depth; grain size and composition of surficial sediment; and recent bathymetric changes. Also shown are types of substrate (continental, fluvial, marine, etc.) and on-shore soil and sediment types. The graphics detail tide, wind driven current, and seasonal salinity variations in the lagoon. Among the components in the water column are phosphorous, nitrogen, and seasonal and long-term changes of chlorophyll. The composition and depth of groundwater in the surrounding land areas are denoted. Details on the water courses and

their discharge on the adjacent coastal land surface are presented, as are effects of specific flood events such as the one documented on 7 November 1999.

The second thematic section, *Biosfera*, details distribution and abundance of algae, zoo- and phytoplankton, and sea grass species successions. These are evaluated through seasonal and annual cycles in the lagoon. Distribution, abundance and diversity of benthic invertebrates, such as foraminifera and worms, are shown; the vertebrates highlighted are fish species and juveniles, amphibians, reptiles, and birds (including breeding sites, nests and colonies). Vegetal communities define diverse habitat types in the lagoon and on nearby land and coastal barriers.

Effects of human influence are documented in *Antroposfera*. This section includes data on heavy metals, PCBs, and IPAs in the lagoon, canals, and Venice island, as well as in the industrial and municipal centers of Marghera and Mestre on land. Their distributions help define provenance and dispersal of anthropogenic materials from coastal areas positioned north and northwest of the lagoon. In addition to emphasizing the considerable importance of industrial input, maps depict other land use classes such as pastures, woodlands, and fluvial waterways on the adjacent land mass. Also recorded are effects of anthropogenic activity such as dredging and navigation that have led to saltmarsh margin erosion.

Two final sections provide additional environmental attributes and syntheses. The lagoon is subdivided into dominant geographic zones, natural biotopes and landscape units, and some maps illustrate land use on the adjacent land margin and areas now transformed within the lagoon proper. A focus on Venice canals and lagoon floor show sectors restricted to shipping and those that are either authorized for, or off-limits to, fishing. Charts also indicate reserves established for fish farms, saltmarsh growth, and bird conservation. Even factors such as boat speed limits in navigational areas, primarily canals and dredged lagoon floor, are shown. In view of existing problems of erosion by boat wave wash, it is surprising to find sectors of high speeds (to 20 km/h) around parts of Venice island.

The atlas is enhanced by an introductory section accompanied by excellent satellite imagery, a glossary of technical terms, and bibliographic references for each of the five sections. The attached CD presents all of the plates in the atlas and makes it possible to zoom in greater detail and print the maps in high-resolution.

Venice is a city subject to numerous problems, among them pollution, subsidence, and destructive high-water surges. Surely, this compendium will be valuable for those charged with its protection and that of its lagoon. As someone working on ancient coastal cities now already submerged well beneath

the waves in the Mediterranean, I would inevitably be attracted to such an atlas. As one's mind tends to proceed along a Lyellian path, modern examples such as those in the *Atlante della laguna* that show short-term changes can serve to better comprehend the past. An example that is particularly illustrative is the information that sheds insight on short-term bathymetric changes recorded in the recent past. The atlas also helps distinguish effects of natural events from

those induced by humans. But for whatever other applications the reader may require, I can recommend this well-produced document.

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