Conclusion

While there are potentially hundreds of thousands of possible combinations of possible feature types, in reality there is a much smaller subset of valid code combinations, and even fewer of these that may actually exist in the database. The VVT approach is a good database design because it reflects the logic of the coding standard; it compresses the data representation to only deal with valid combinations; it supports quality assurance (QA), editing, and queries; and it supports multi-scale multi-purpose GIS use.

References

Arctur, D. and Zeiler, M., 2004. Chapter 9: Cartography and the Base Map, in *Designing Geodatabases: Case Studies in GIS Data Modeling*, available: http://support.esri.com/index.cfm?fa=downloads.dataModels.filteredGateway&dmid=3, accessed 6 May 2004.

Frye, C., 2003. The 24:000-Scale Topographic Base Map Data Model. *Cartography and Geographic Information Science* 30(2):163-168.

MacDonald, A., 2003. Feature Coding Standards and Geodatabase Design, An ESRI Technical Paper, available: http://downloads.esri.com/support/whitepapers/ao_/Feature Coding Standards and Geodatabase Design.pdf, accessed 6 May 2004.

Environmental Systems Research Institute (ESRI), 2004. Introduction to Database and Map Production with PLTS, training manual for class offered January 2004.

Digital Geographic Information Exchange Standard, 1999. DIGEST Overview, available: http://www.digest.org/Overview2.htm, accessed 6 May 2004.

U.S. Geological Survey, 1995. National Mapping Program Technical Instructions: Part 3: Attribute Coding: Standards for Digital Line Graphs, available: http://www.geodata.gis.state.oh.us/dlg/standards/3DLG0797.pdf, accessed 6 May 2004.
available: http://support.esri.com/index.cfm?fa=downloads.dataModels.filteredGateway&dmid=3., accessed 6 May 2004.

reviews

The Salton Sea Atlas

By The Redlands Institute, Redlands, CA: ESRI Press, 2003. Hardbound (ISBN 1-58948-043-0), $79.95. 127 pp., index, bibliography.

Reviewed by Judith A. Tyner, Ph.D.
Department of Geography
California State University, Long Beach

To those outside of California the Salton Sea is not a familiar place, so why one would want to spend nearly $80 on an atlas about a shallow lake in the middle of the desert?

The Salton Sea is the largest lake in California, covering 376 square miles with a surface elevation of minus 227 feet and a maximum depth of 51 feet. It was formed when the Colorado River flooded in 1905 and 1906 and breached an irrigation diversion dam. While not as familiar as Lake Tahoe, it is a significant recreational area of great ecological importance rich in flora and fauna. These are the basic facts. Over the years, there have been arguments stating that the Sea is an endangered ecosystem or an artificial body of water destined to dry up and, therefore, not worth saving. This atlas provides probably the most complete information about the Salton Sea.

The Salton Sea Atlas was a monumental undertaking, 4 years in preparation, with a team of dozens of geographers, biologists, limnologists, GIS specialists, illustrators, and cartographers. It is divided into two main sections with five subsections plus an index and bibliography. The main sections are the descriptive text and the maps. The subsections include introductory materials that explain the project, use of GIS and the processes involved in creating the atlas. "Physical Geography" describes landforms, hydrology climates (both modern and paleo), and biomes. "Cultural History" treats the human occupance of the area. "Limnology/The Sea Today" focuses specifically on the Salton Sea; "Ecology" deals with life in the sea divided into birds, animals, and fish; and "Future of the Salton Sea" briefly notes the problems. The final section consists of 39 pages of maps totaling 98 individual maps.

Text is not set solid in the usual way, but is often in the form of blocks or boxes interspersed with striking graphics. The pages of this section are a blend of high tech GIS, satellite imagery, and artwork. There are numerous paintings of plants, animals, birds, fish, and reptiles. Using paintings rather than photographs of flora and fauna eliminates the sterile look that one finds with some computer-generated works, and certainly is a major factor in the overall attractiveness of the work.

The maps cover every mappable aspect of the area. Although many focus on the Sea itself, there are some, such as earthquake epicenters that deal with Southern California, while others, such as climate and political districts, show

all of California. Especially interesting is a series of maps showing the Sea's sediment contaminants and the map of earthquake epicenters. The latter uses proportional circles for quakes over 5.5 on the Richter Scale and dots for 5.5 and below. The resulting dot map is a dramatic explanation of why California is called "earthquake country."

It would have been useful if the maps had included more explanatory text. For example, the map of Public Lands shows numerous areas with distinct "checkerboard" patterns, especially around Palm Springs. A reader might assume that these alternating squares are symbols for areas of shared ownership whereas the squares actually represent a pattern of alternating square miles of Indian reservation land. A brief explanation and history would be useful.

Many smaller scale maps refer to "Southern California," but do not extend as far as Los Angeles, which is usually considered a part of Southern California. Since Los Angeles is generally not relevant to the subject of the atlas, I am not troubled by its exclusion, but the authors could perhaps have chosen a different name for the area shown.

There are profiles of various portions of the lake and the authors point out the usefulness of profiles as decision-making tools. However, these tools would be more useful if the vertical exaggeration was indicated. A rough calculation showed that the vertical exaggeration of these profiles was 40 times. If the user is not familiar with profiles, as the authors seem to assume, then some explanation is necessary.

The climate maps use data from the period 1961 through 1990. While another 10 years of data probably would not change the averages to a significant degree, I do wonder why data through 2000 were not used. There are some maps that compare 1999 and 2000, so the data would seem to be available. These complaints, however, are minor and do not detract from the overall interest and usefulness of the atlas.

My one major complaint concerns the page layouts. Most subsections consist of two-page spreads, often focused on the Sea. The introduction describes how the plates were designed and the sketches show that they were visualized as single pages. Unfortunately, this resulted in the page gutter cutting through the central object. Thus, the gutter obscures many of the representations of the Salton Sea. Whether the designers weren't aware of how the plates would be bound, or forgot to take that into account, the result is some frustration for the user and mars an otherwise exceptional work.

The atlas is an excellent reference and a spectacular "coffee-table" book that has as its stated objective "to make information available to decision makers, regulatory agencies, environmental organizations, stakeholders, and the concerned public..." This it certainly does, but there is an unstated subtext that becomes clear in the introductory material. The atlas is a showcase for GIS; early pages explain what GIS is, how GIS is used, and its importance in decision making. One two-page spread details the processes that were involved in creating the atlas from data gathering through storyboarding and plate design. The creators clearly wanted to show how GIS can be used for such projects. And that is why it is of interest to readers of *Cartographic Perspectives* and worth the $80—it serves as an excellent model and example of what can be accomplished when GIS, cartography, and art are combined.

Cholera, Chloroform, and the Science of Medicine: A Life of John Snow

By Vinten-Johansen, P., Brody, H., Paneth, N., Rachman, S., and M. Rip. NY and London: Oxford University Press. 2003.
ISBN 0-19-513544-X

Reviewed by Tom Koch (http://koch-works.com) is adjunct professor of geography at the University of British Columbia, Vancouver, Canada. His book, Cartographies of Disease and Health: Mapping the Relation between Disease and Health, is scheduled for publication in 2006.

Vinten-Johansen and his colleagues' study of John Snow, his life, and work presents a curious challenge to medical cartographers and geographers. It is the best study of Snow's work, including his maps, to date. It is comprehensive, rigorous, and intellectually complete. It also sees Snow's iconic maps as largely irrelevant to Snow's work and concludes more generally that medical mapping is a sloppy and largely irrelevant partner to the rigorous consideration of disease incidence.

The high quality of this 437-page tome makes the charge serious. The authors are serious dudes whose research is generally impeccable. And, heaven knows, the challenge is offered boldly. Here are the authors in their consideration of Snow's cartographic legacy, and especially the legacy of his Broad Street study:

"This mythical Snow seems an attractive figure to those GIS Aficionados who see themselves as standing up for the public health in the face of the jeering throng and as rushing out into the real world to save real lives while the stodgy, plodding scientists fussily demand more evidence before they are willing to act. Maintenance of this Snow myth also has survival for GIS. Advocates of disease map-