

Disaster Management

Knowledge of bathymetry as factor for saving lives onshore is an interesting, but not much investigated aspect of hydrography. Marine disasters can cause hundreds of thousands of casualties on land – think of the 2004 tsunami in South East Asia. The tsunami, generated by a submarine earthquake off the coast of Sumatra, left death and despair in large parts of Indonesia, India, the Maldives, Thailand, Malaysia and Sri Lanka. Dr. Bruce Parker of the Stevens Institute of Technology, USA wrote the article, '[When Bathymetry Determines Who Might Live and Who Might Die](#)', published in this issue of *Hydro International*. Parker, former Chief Scientist of the National Ocean Service (NOS), NOAA, claims that while the importance of bathymetry may be obvious to mariners, ocean modellers and marine geologists, the general public is not aware of the dangers that depths and shape of the sea bottom may hold for those living on the coast. The impact of tsunami waves may differ depending on the depths, canyons and mountains on the sea bottom, as Parker proves with the example of the number of deaths, time of arrival and height of the tsunami waves at different locations along the coast of Sri Lanka, all caused by bathymetry and the shape and state of the seabed along the route of the waves. Of course tsunamis are not the only danger threatening life on the coast. Storm surges and wind waves, caused by hurricanes in combination with extremely high tides, can be just as devastating. As well as using meteorological information on, for instance, micro-climates, to explain, predict and sometimes even prevent disasters, the use of bathymetry to prevent – or at least predict – flood and wave water coming on land destroying houses, forests and lives needs to be on the agenda of all policymakers in governments dealing with the prevention of disasters in coastal areas. Plans for infrastructural projects, ports and harbours, but also residential areas along the coast should include the measurement of the possible impact of the specific bathymetry of the nearby ocean. In geomatics as a whole, disaster management has grown into a complete and mature subfield over the past years, with many universities in Asia having full-fledged educational programmes. For example, these programmes focus on real-time mapping – satellite imagery, hyper-spectral or Lidar - when it comes to disaster response on land; identifying areas and victims in need of help in the case of earthquakes; and on geospatial information systems with all possible data to enable citizens to flee along the right routes, to ensure that ambulances, police and fire brigades know how to get to certain disaster locations as quickly as possible in the case of disaster prevention. Maybe the article by Bruce Parker in this *Hydro International* will help a little in adding bathymetry as a source of knowledge in the prevention of marine disasters coming ashore in the years to come.