THE SKIMMER ON MARINE ECOSYSTEMS AND MANAGEMENT

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The EBM Toolbox: The state of conservation planning tools: Looking back and ahead with Patrick Crist of PlanIt Forward

Editor's note: The EBM Tools Network got started in 2005-2006 under the leadership of Patrick Crist, then the director of conservation planning and ecosystem management at NatureServe. Over the past 14 years, the Network has grown to over 11,000 coastal and marine conservation and management practitioners worldwide, and is now run by OCTO, which also publishes this newsletter. For this issue of the Skimmer, we catch up with Crist, now principal at the consultancy PlanIt Forward, to see how conservation planning tools have changed over this time.

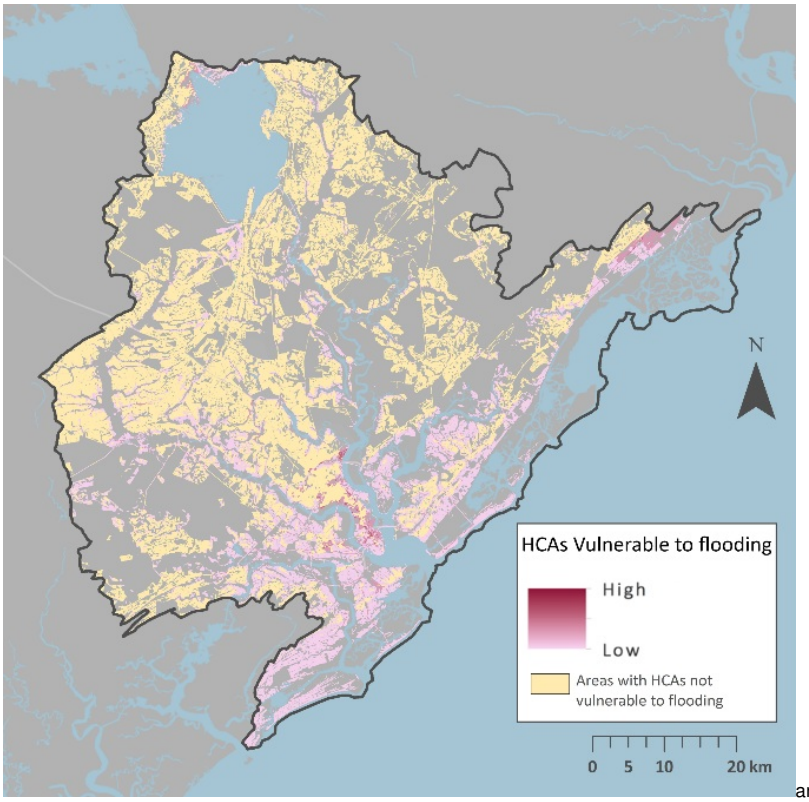
Skimmer: What changes have you seen in the use of conservation planning tools since the EBM Tools Network got started in 2005-2006? Are more conservation projects and groups using them? If so, why do you think this change has occurred?

Crist: It is really hard to quantify the use of tools – I haven't seen any polling or studies on this although it would be really informative. Given that most conservation software is free, it is hard to tease apart casual downloads from actual application. For example, when the NatureServe Vista decision support system became free, there were about 2000 downloads worldwide almost immediately and there have typically been a few hundred every year since then. Periodic polling of the registrants, however, suggests single-digit percentages of actual use.

My sense, however, is that in the last 14 years, use of conservation software tools has become much more commonplace in academia and larger conservation organizations and agencies. I think that using GIS is now the norm for these organizations, as it is in other sectors (e.g., transportation) that rely on spatial information. More specialized conservation software is still primarily in the domain of "experts" within organizations, however, rather than broadly used throughout organizations. I've also observed that very specialized tools such as Marxan, connectivity modeling tools, and species distribution modeling tools have seen much more widespread use than general conservation planning software (i.e., software that provides a variety of tools covering processes ranging from vulnerability assessment to planning and adaptive management). I think the reason for this is that experts within organizations like to use these specialized tools to do a single or a few select very hard tasks and would rather assemble a suite of tools to their liking for an overall planning process rather than use multi-function planning software.

Skimmer: Where do you think the conservation planning tool field needs to head in the future in terms of functionality, usage, etc.?

Crist: For the past 14 years, the Coastal-Marine EBM Tools Network has been advocating for widespread use of tools by all those involved in conservation pl



anning and decision making. I consider it progress that most larger conservation organizations have acquired the expertise to feed good scientific and stakeholder information into their planning processes using tools. However, one of the objectives of creating multi-function planning tools such as NatureServe Vista was to insert conservation capacity into other sectors such as land use and infrastructure planning that also have large impacts on biodiversity and ecosystem services. There is still a limited amount of technical expertise in most organizations to do advanced spatial planning so enabling non-technical experts such as planners and managers to do some of this work themselves is also an important goal. Organizations like Esri, the Conservation Measures Partnership, Conservation Biology Institute, and NatureServe are pushing that envelope with easier-to-use online tools with relatively low hardware and expertise requirements, but it is taking a very long time to change the paradigm from “expert tool user” to the “planner/manager tool user”. One positive observable trend is the commonality of GIS education in most planning, resource management, and conservation curricula at universities. As more GIS-trained practitioners emerge from these programs, capacity for using tools will increase.

Outside of simple capacity needs, there are clear trends and progress in the use of data – both “large data” derived from remote sensing, and dynamic data. Climate change impacts and concerns for the future are driving the need for data collected at broad scales and advanced modeling. Users, particularly resource managers, also want remote sensing data that is updated frequently so they can detect changes in real time or close to it. Other forms of data (e.g., from drones, remote cameras and microphones, and ecosystem-level DNA collection) are making their way from research to decision making, and we need to develop tools to readily integrate them into decision support.

Skimmer: Can you tell us a bit about your new venture PlanIt Forward?

Crist: PlanIt Forward is focused on integrating the needs of people with the need for nature preservation and restoration. To accomplish this, we create expert teams to address complex problems. PlanIt Forward is based near Boulder, Colorado (US), which is inland, but my long history with the Coastal-Marine EBM Tools Network takes me into coastal regions for many of my projects. We are just beginning a project with Duke University and agencies in six US states to conduct coastal vulnerability assessments and blue-carbon restoration/adaptation from North Carolina to New York. Other projects include nature-based climate adaptation work in the San Francisco Bay region, watershed planning in Australia, and developing frameworks for managed retreat under sea level rise to inform practitioners globally. While some work has been done on the socioeconomic and political aspects of managed retreat, we are collaborating with the ARC Center for Coral Reef Conservation to tackle the ecological context of retreat planning. We look forward to presenting this work in a future EBM Tools webinar!

Figure of coastal vulnerability assessments and blue-carbon restoration/adaptation results courtesy of Patrick Crist,PlanIt Forward

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