

The System Simulation Model can be used to see the impact of different activities on coastal ecosystems, including seagrass
Photo: G Sheehan



THE TOOL: System Simulation Model

WHAT KIND OF TOOL IS IT?

The tool is a technical simulation model of the coastal zone built using Stock and Flow modelling software (Stella Architect).

WHAT ARE THE DIFFERENT PARTS TO IT?

The *System Simulation Model* consists of a downloadable file that can be opened in Stella Architect software, and an Excel spreadsheet containing data for the model, and a user guide.

WHAT DOES IT DO?

The *System Simulation Model* quantifies interactions between activities on land (such as farming and urban development), activities on water (such as fishing), coastal ecosystems (such as coral reefs and mangroves) and coastal resources (such as fish). It allows the user to simulate the behaviour of the coastal system over time.

HOW DOES IT WORK?

The *System Simulation Model* runs in Stella Architect. The user can create an interface to run scenarios and produce graphs for any variable within the model. It can be used for policy evaluation. For instance, it might be used to assess the impact of land use zoning policies on fish habitat and fish catch, or the impact of fishing management policies (such as a cap on boat numbers) on fish catch and fish price.

WHEN IS IT USED?

The *System Simulation Model* is intended for technical users, such as governments and universities. It can be used for policy evaluation. For instance, it might be used to assess the impact of land use zoning policies on fish habitat and fish catch, or the impact of fishing management policies (such as a cap on boat numbers) on fish catch and fish price.

IN WHAT FORMAT IS IT AVAILABLE?

The *System Simulation Model* consists of a Stella Architect file, an Excel spreadsheet and a PDF of a user guide.

WHO IS THE TARGET END-USER?

- Government departments involved in system simulation for coastal resource management
- Educational institutions conducting research on coastal systems or teaching courses in coastal systems or system dynamics

WHAT USER SKILLS ARE REQUIRED?

An understanding of Stella Architect is required to use the *System Simulation Model*. If users seek to modify the tool, an understanding of system dynamics modelling is required.

WHERE DO YOU ACCESS THE TOOL?

The *System Simulation Model* can be downloaded from the CCRES website (www.ccre.net).

WHAT IS THE COST OF USING THE TOOL?

The *System Simulation Model* is available free of charge, under the user agreement and terms and conditions on CCRES website (www.ccre.net/terms), however users must hold a licence for Stella Architect — visit (www.iseesystems.com).

IS TECHNICAL TRAINING OR SUPPORT REQUIRED?

Users may require technical training in systems dynamic modelling and Stella Architect. If users want to modify the *System Simulation Model*, training in systems dynamic modelling is required.

