

Lifecycle Consequences



Need The majority of tools used to evaluate consequences either produce snapshots in time, or ignore the temporal connection of consequences across time. HEC-FDA is limited in how it evaluates consequences because the damageable assets are immediately reconstructed after each event. HEC-FIA is limited due to how it computes a single event. Through HEC-WAT, HEC-FIA can potentially handle the complexity of this problem, but additional development in HEC-WAT is required. Many things can drive change in consequence estimation, and it is not simply a question of how inventories are built or destroyed across time. Evaluation of how the full range of characteristics of a watershed change is critical to a full estimation of consequences within a lifecycle, and requires the use of FIA in a watershed analysis tool such as HEC-WAT.

Approach The objective of this work plan is to broaden the ability to evaluate consequences accounting for changes across time. A key component to this work is how HEC-FIA computes consequences. This project management plan focused on HEC-FIA for the previous years, and has advanced HEC-FIA so that reconstruction is evaluated for events that repetitively damage structures. However, HEC-FIA needs HEC-WAT to fully achieve the utility of the features added to HEC-FIA; therefore, this project management plan has shifted its objective to focus on broadening the ability for HEC-WAT to evaluate lifecycles, including how consequences are evaluated in a lifecycle

Outcomes

- HEC-FIA 3.1 with reconstruction capabilities
- HEC-WAT 1.0.1 – 1.1 with simplified continuous simulation capabilities
- A design document for the new compute style in HEC-WAT 2.x
- HEC-WAT 2.x with a robust compute that is extensible meet requirements to support lifecycle evaluations.

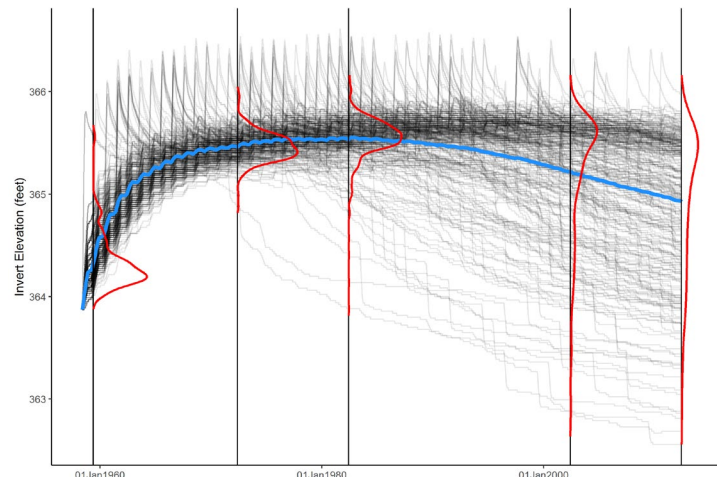


Figure 1 Uncertainty in sedimentation across a lifecycle with WAT and RAS

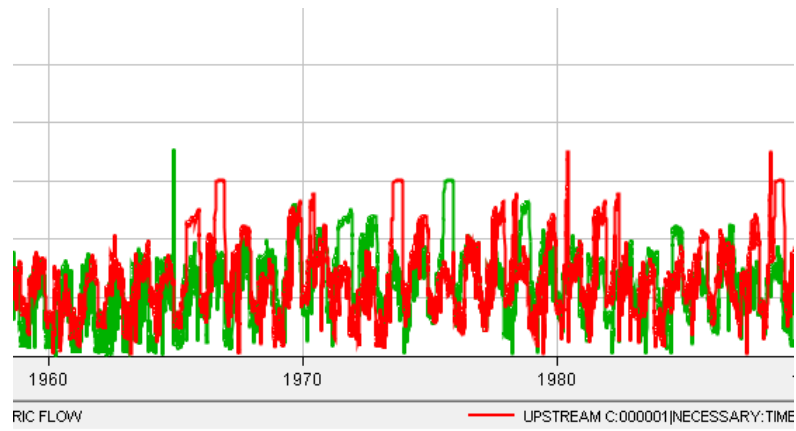


Figure 2 Creation of Continuous Time series to support lifecycle in the Hydrologic Sampler

More Information

For more information on Lifecycle Consequence Estimation, see the following site:

<http://www.hec.usace.army.mil/software/hec-wat/>

or contact william.p.lehman@usace.army.mil