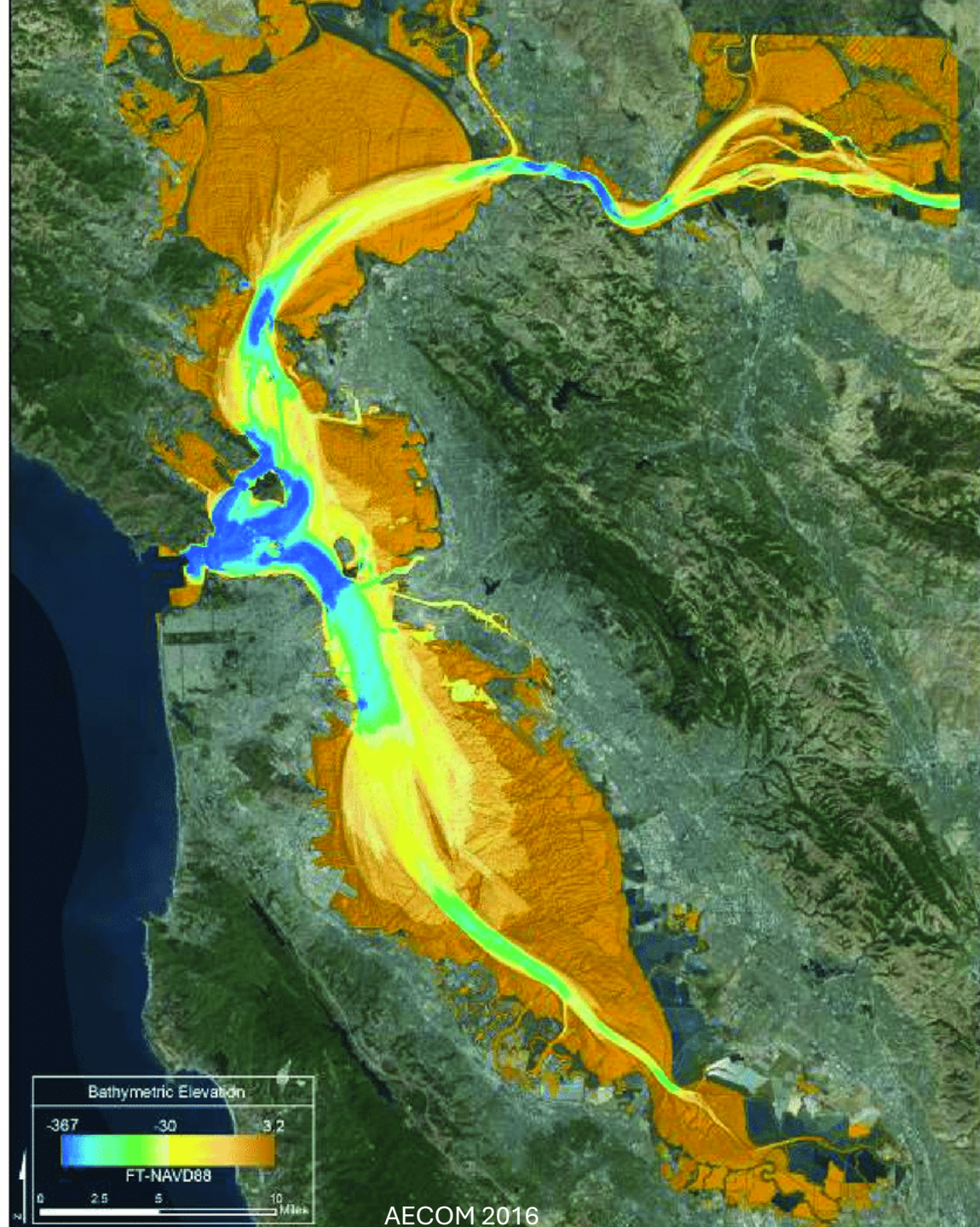


San Francisco Bay & Sediment

Brenda Goeden, Sediment Program Manager
San Francisco Bay Conservation and Development Commission
State of the Estuary Conference
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Making San Francisco Bay Better



AECOM 2016

FLUVIAL TRANSPORT

Sediment originates from nearby hillsides, channel banks, and other sources. Tributaries **transport** sediment from contributing watersheds down to the baylands and Bay, bringing with it, organic carbon and nutrients but also contaminants.

TIDAL & FLUVIAL DEPOSITION

Tributaries and tides **deposit** sediment into adjacent floodplains and flood control channels.

IN-BAY TRANSPORT

Tributaries and tides **transport** sediment into shallow and deep subtidal areas, creating the erodible sediment pool and filling shipping lanes.

BAYLANDS & BAY DEPOSITION

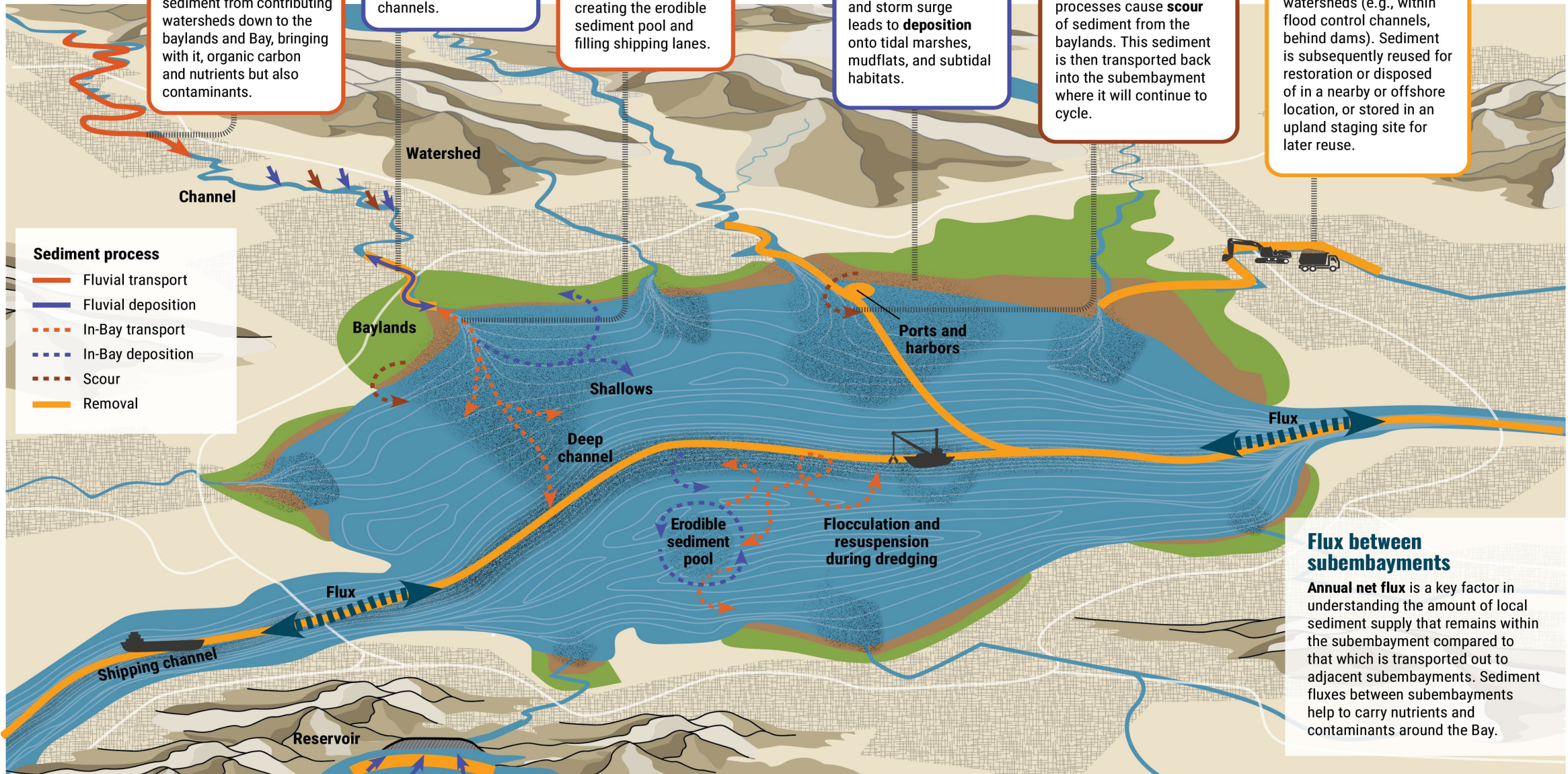
Sediment flocculation and resuspension from tides, wind-waves, fluvial flows, and storm surge leads to **deposition** onto tidal marshes, mudflats, and subtidal habitats.

BAYLANDS & BAY SCOUR

Shoreline and bayland erosion from wind-waves, tides, fluvial flows, storm surge, and other processes cause **scour** of sediment from the baylands. This sediment is then transported back into the subembayment where it will continue to cycle.

REMOVAL

Mechanical **removal** of sediment occurs in the Bay (e.g., navigational dredging, sand mining) and within tributaries and watersheds (e.g., within flood control channels, behind dams). Sediment is subsequently reused for restoration or disposed of in a nearby or offshore location, or stored in an upland staging site for later reuse.

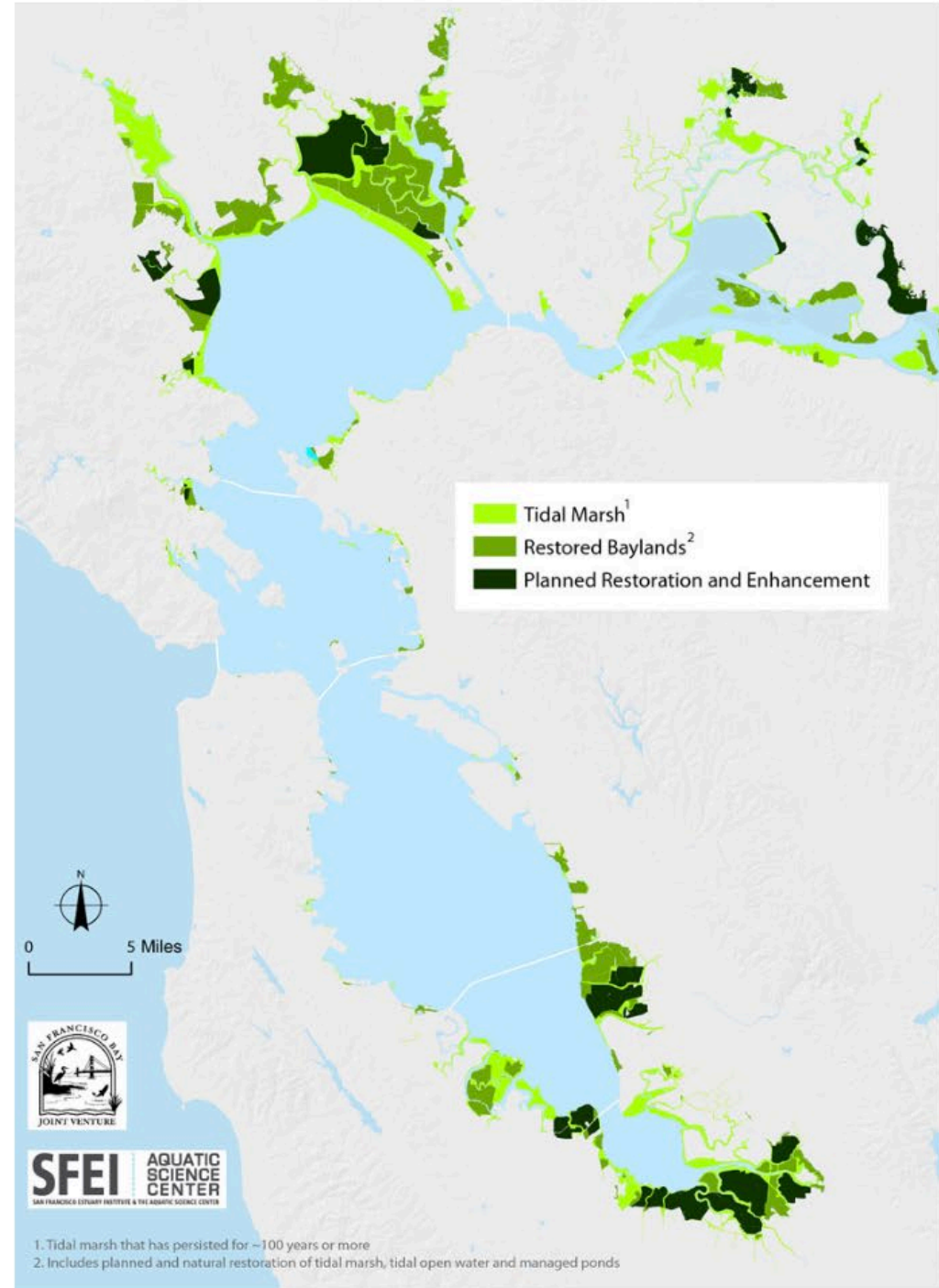


Sediment process

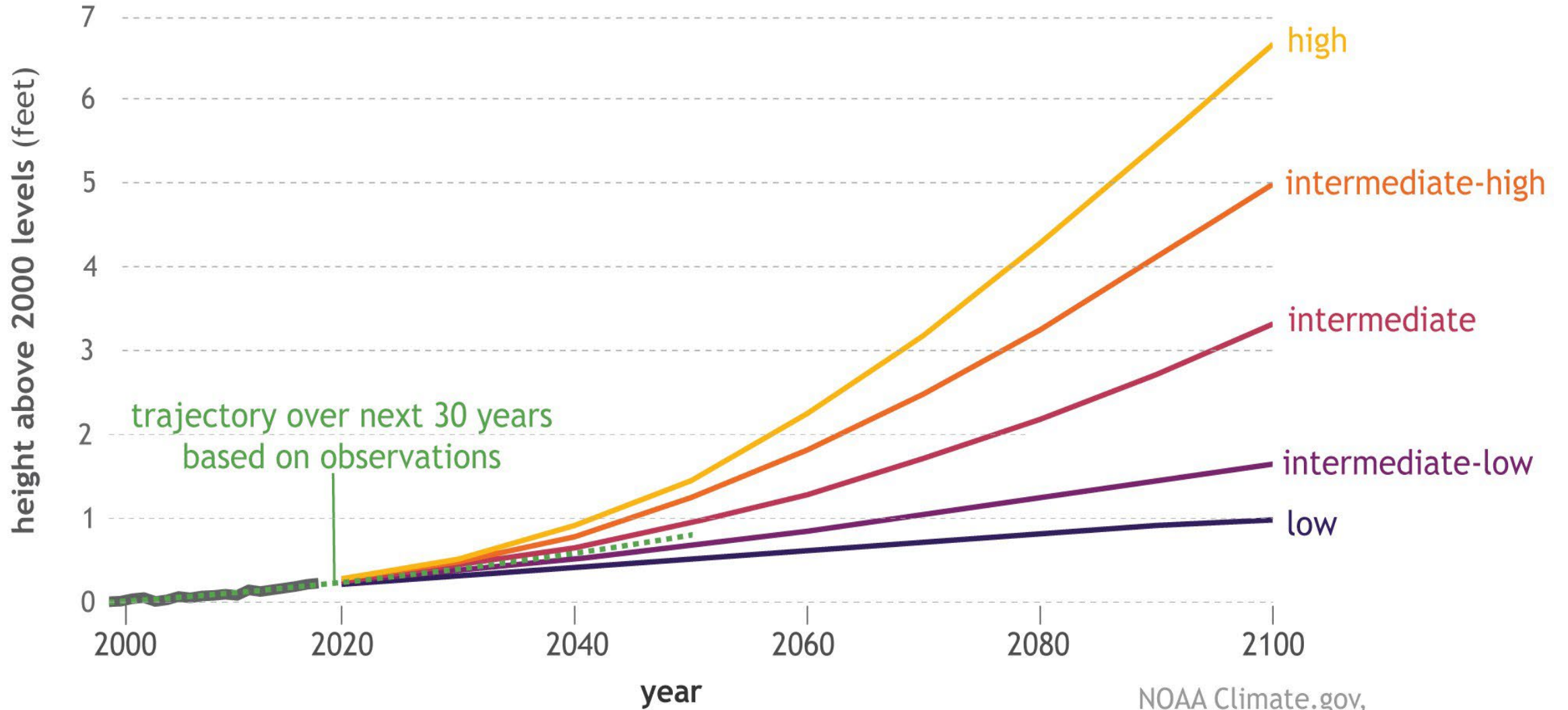
- Fluvial transport
- Fluvial deposition
- - - In-Bay transport
- - - In-Bay deposition
- - - Scour
- Removal

Flux between subembayments

Annual net flux is a key factor in understanding the amount of local sediment supply that remains within the subembayment compared to that which is transported out to adjacent subembayments. Sediment fluxes between subembayments help to carry nutrients and contaminants around the Bay.



Possible pathways for future sea level rise



NOAA Climate.gov,
adapted from Sweet et al., 2022

