

# THE IMPORTANCE OF SEDIMENT

**What is it**

- suspended load, saltation load, bedload

**What ecological impacts does it have**

- freshwater
- coastal

# MOTUEKA ICM - WHAT DID WE DO

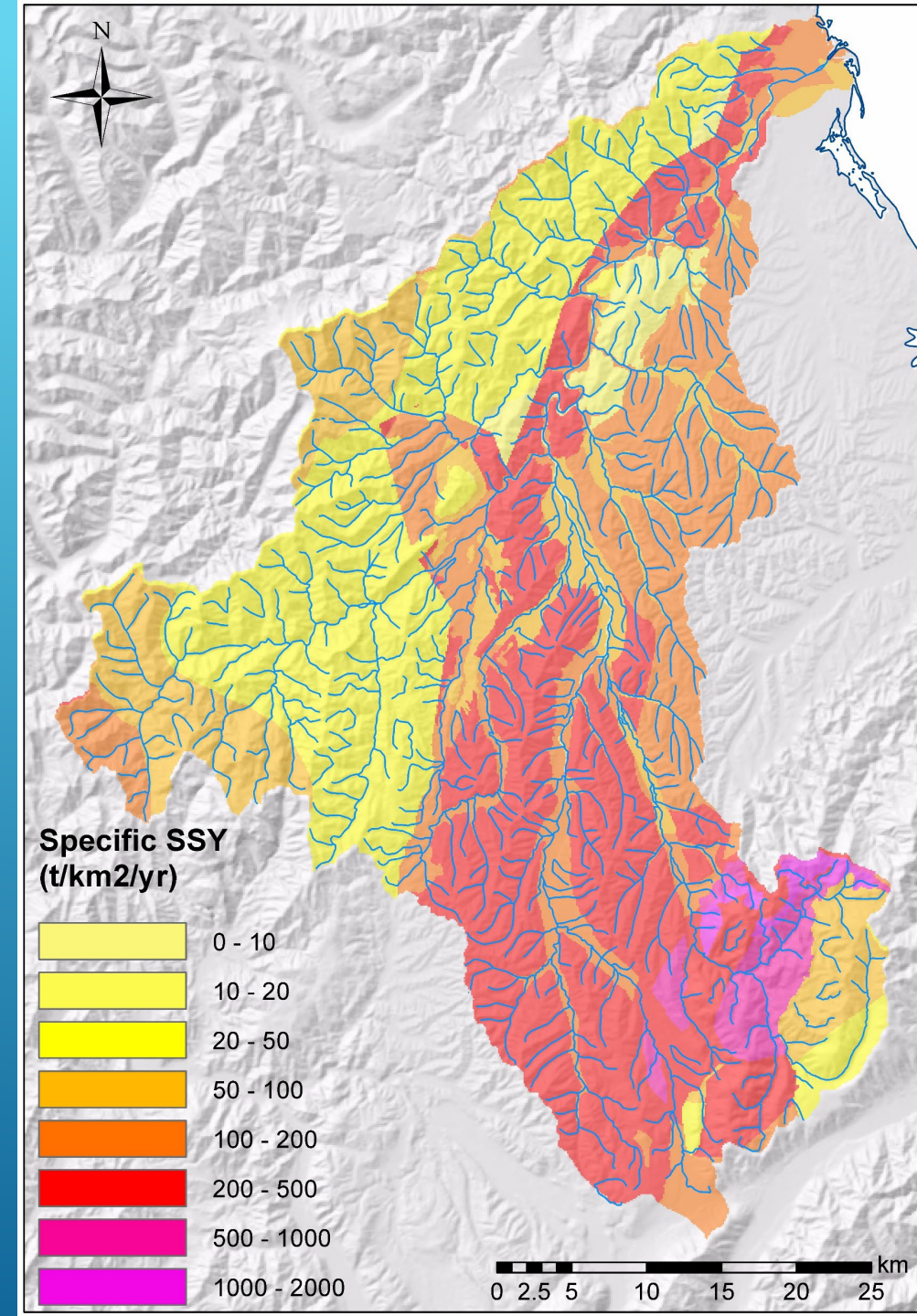
- **Measured suspended load at 7 sites for 7 years**
- **Measured spatial and temporal pattern of deposited sediment at 30 sites for 6 yrs**
- **Used long-term cross section data and short-term GPS surveys to assess changes in channel form/bedload**
- **Tracked sediment into the coastal zone**
- **Assessed ecological effects (trout, scallops)**

# MOTUEKA ICM

## WHAT DID WE FIND OUT – SUSPENDED LOAD

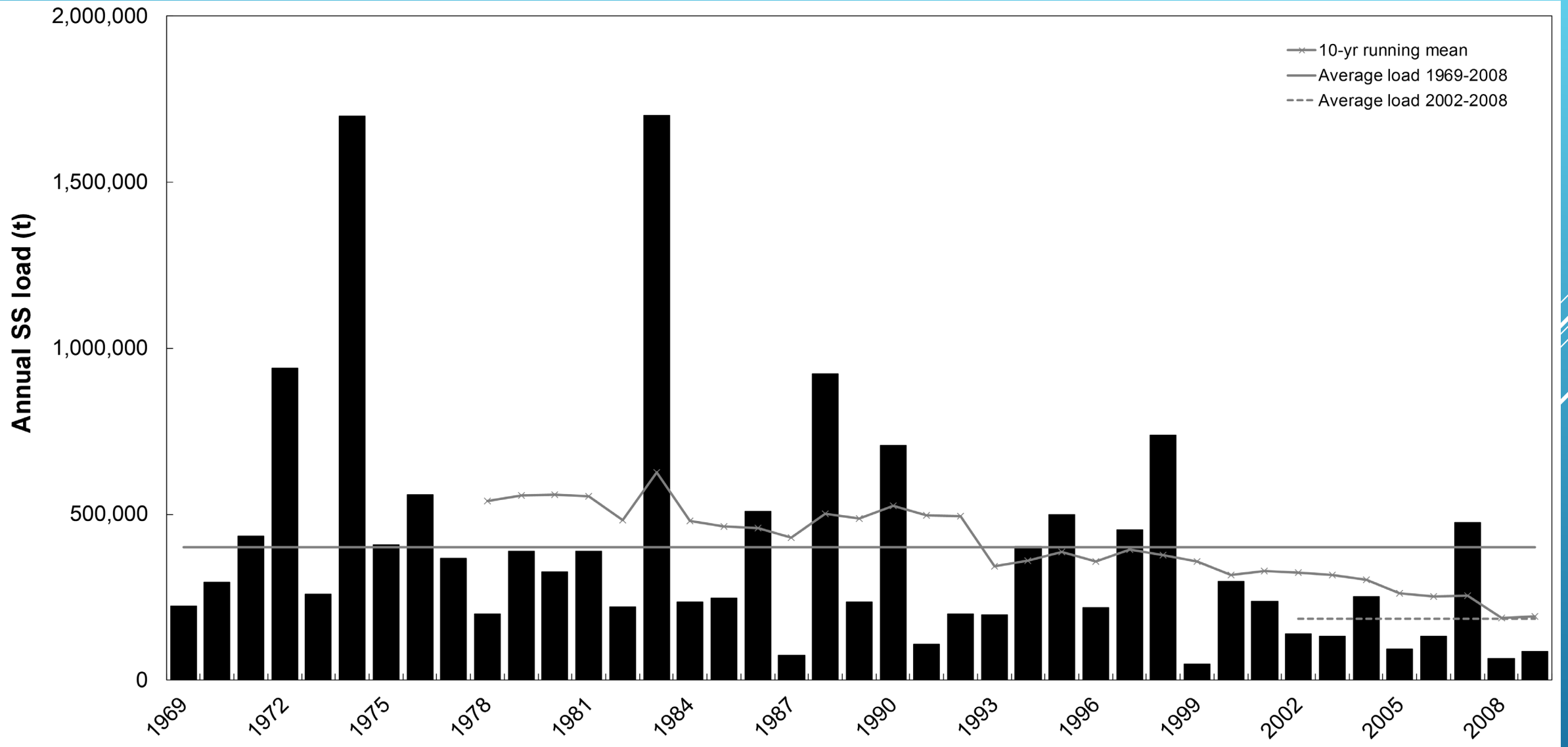
- Sediment yield low by NZ standards
- Dominant influences on sediment yield

rainfall (annual or storm), rock type, slope, land cover/management
- Large storms dominate sediment load and can cause extensive medium-term increases in sediment load
- Forest harvesting causes a short-term, localised increase in sediment load
- Annual sediment load to Tasman Bay highly variable



# MOTUEKA ICM

## WHAT DID WE FIND OUT – SUSPENDED LOAD



# MOTUEKA ICM

## WHAT DID WE FIND OUT – DEPOSITED SEDIMENT

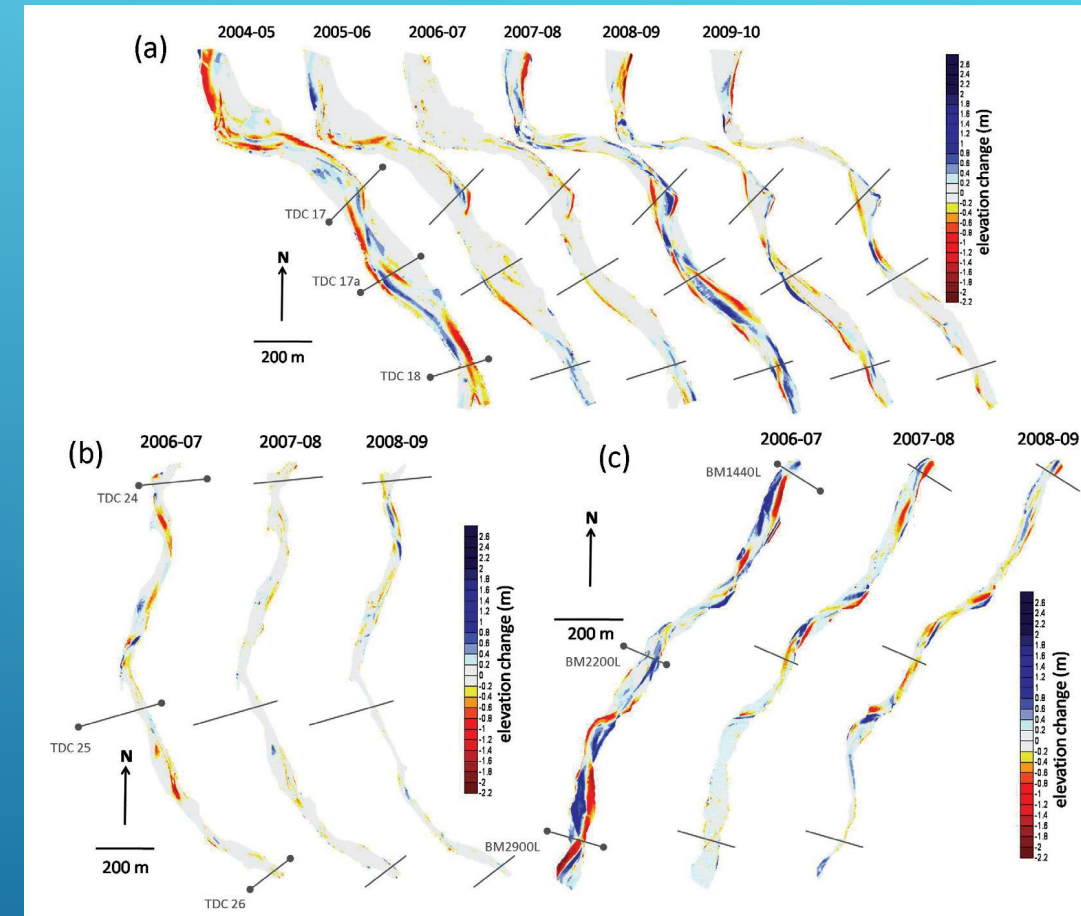
- **DS abundance low at most sites, apart from small tributaries on SPG**
- **Most sites had no change in DS abundance over time**
- **Large floods or forest harvesting caused small short-term effects on DS abundance at some sites**
- **Little relationship between DS abundance and trout abundance**



# MOTUEKA ICM

## WHAT DID WE FIND OUT – BEDLOAD

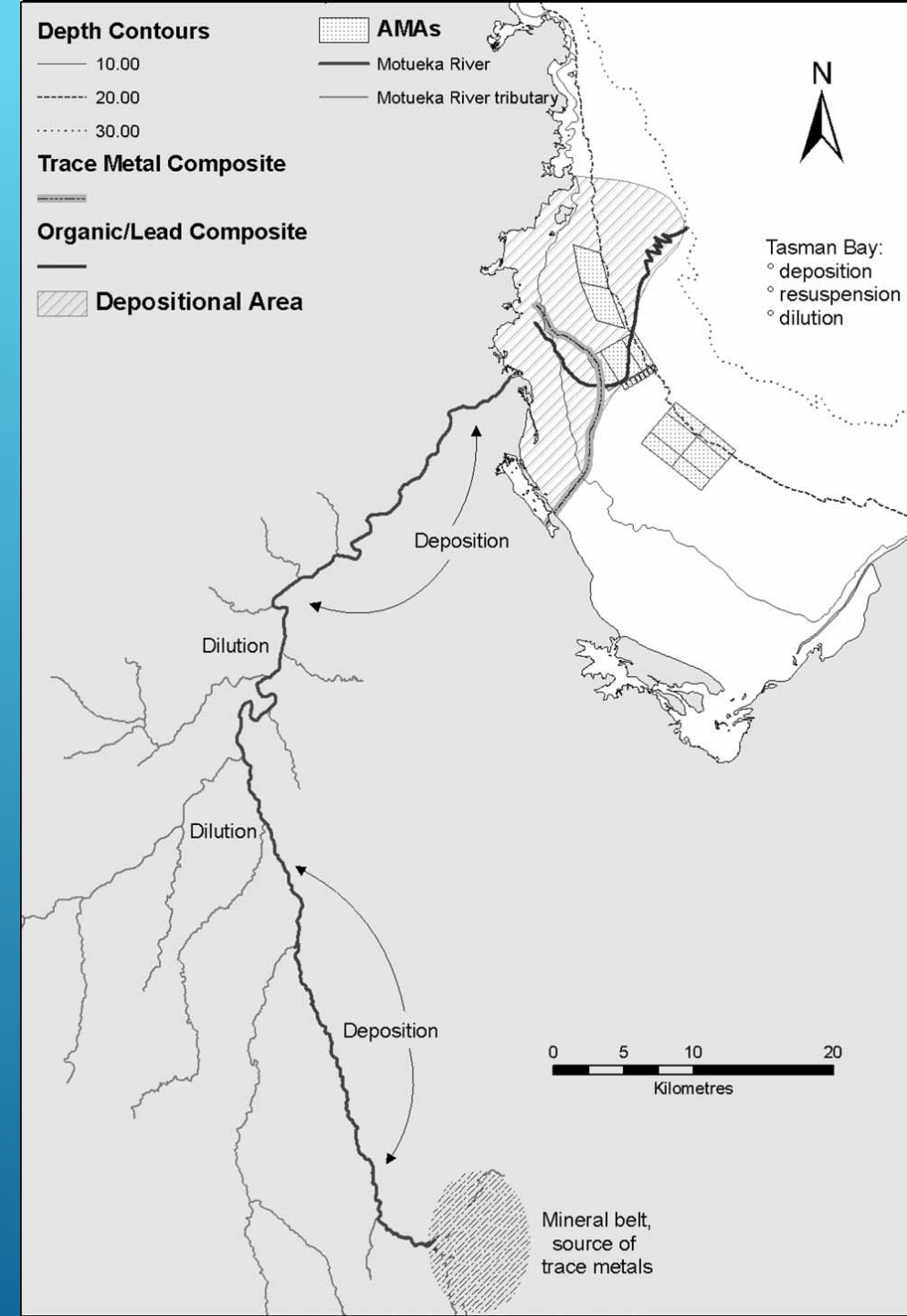
- In lower Motueka and Tapawera areas active channel has been narrowed by historic river works
- GPS surveys show complex spatial and temporal patterns of erosion and deposition
- Both GPS surveys and cross section data suggest overall channel degradation
- Link with gravel extraction?



# MOTUEKA ICM

## WHAT DID WE FIND OUT – COASTAL ZONE

- The “catchment” includes the coastal zone
- Zone of influence expands and contracts with flow, tides, winds
- Extends >5 km off-shore and an area of 180 km<sup>2</sup> in big floods
- Scallop fishery declined at a time when annual sediment load was low



# MOTUEKA ICM

<https://icm.landcareresearch.co.nz/>

