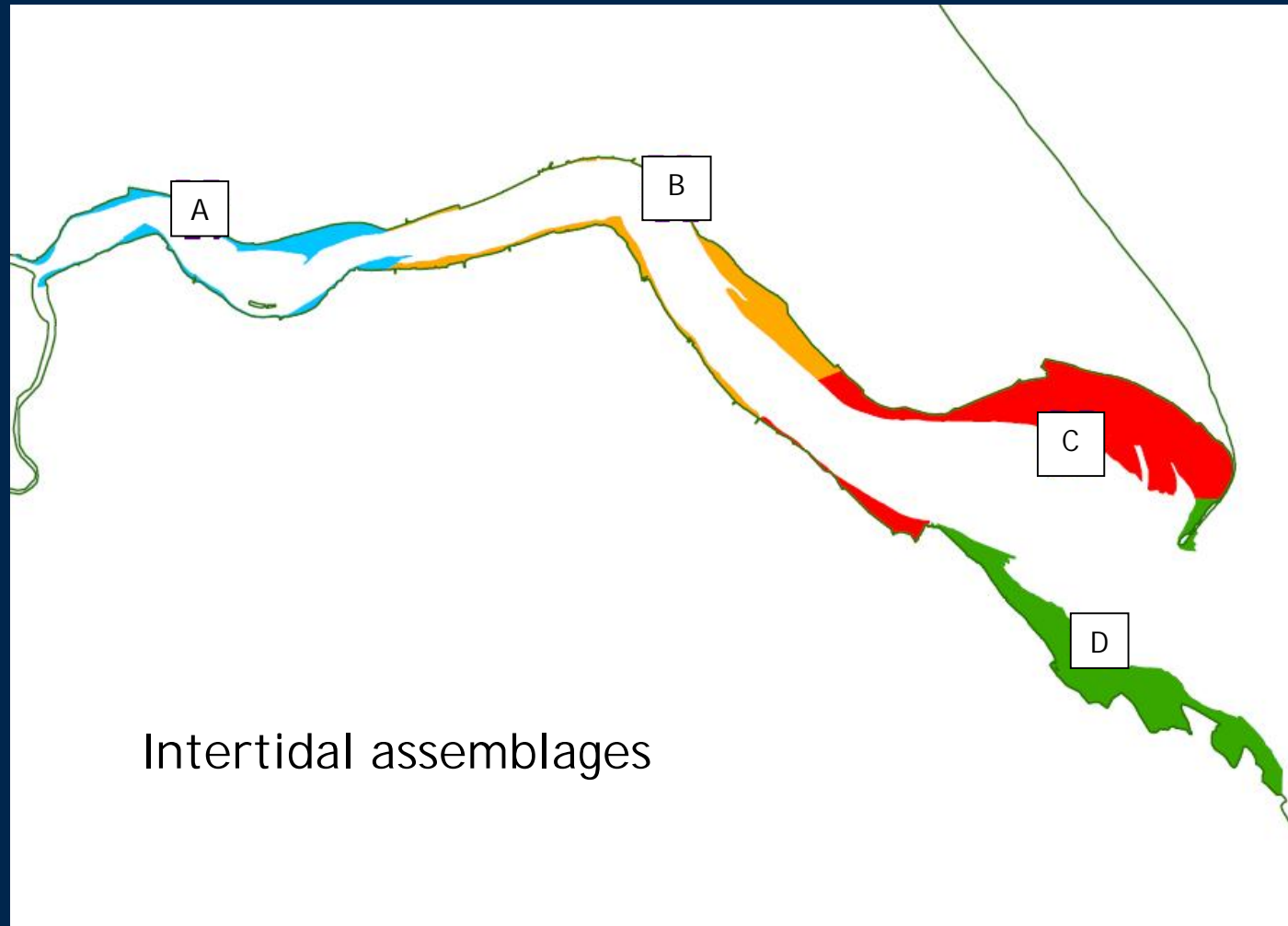


Invertebrates

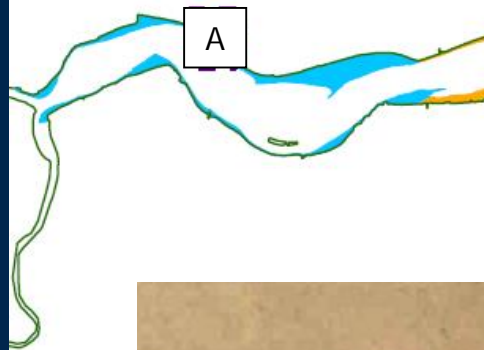
- Historic data reviews
 - Environment Agency routine sampling
 - Research initiatives
 - Developments
- Determine spatial and temporal trends
 - Species composition changes along environmental gradients
 - Series of patches
 - Relatively stable through time

Invertebrates



Invertebrates

Inner Estuary



Corophium volutator

Source: <http://www.medinavalleycentre.org.uk>

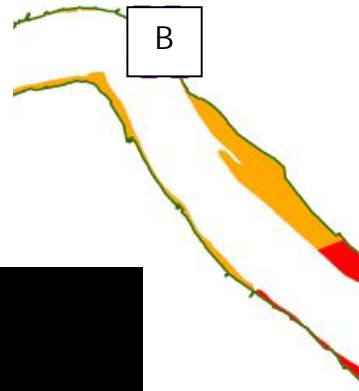


Hediste diversicolor

Source: <http://www-user.uni-bremen.de/~geogr/Internet99/dehm/image6KI.JPG>

Invertebrates

Middle Estuary



Macoma balthica



Abra tenuis

Source: <http://www.idscaro.net/>



Streblospio shrubsolii

Source: <http://dompepe.es/imagenes/streblospio.jpg>

Invertebrates

Outer Estuary



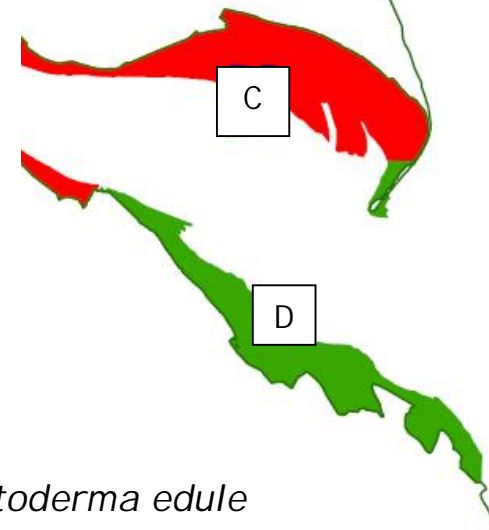
Pygospio elegans

Source: <http://www.eol.org/pages/483>



Hydrobia ulvae

Source: www.elrincondelmalacologo.com



Cerastoderma edule

Source: <http://elrinconmarinos-nogasteropodos.iespana.es>

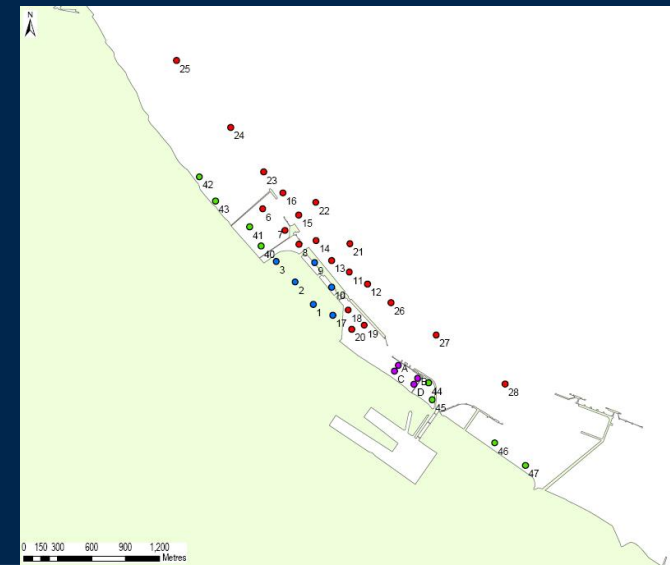
Monitoring Examples

- ABP monitoring examples
 - Humber International Terminal (HIT)
 - Immingham Outer Harbour
 - Dredge disposal sites
 - Welwick/ Chowder Ness/ Doigs Creek
- Intertidal and subtidal monitoring

Invertebrates

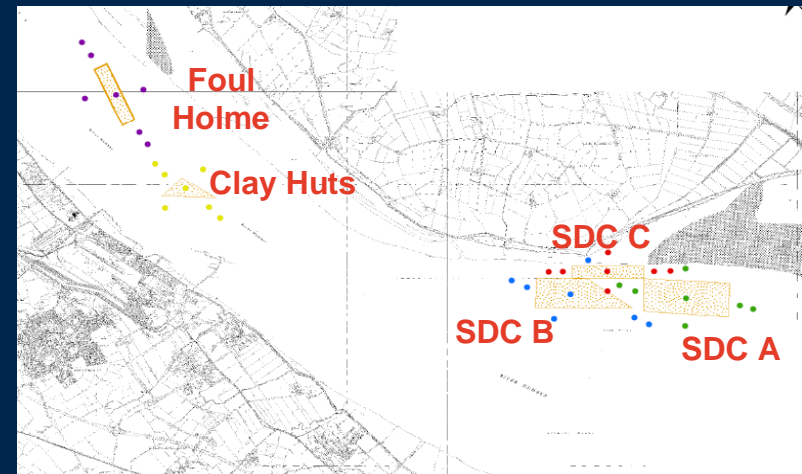
HIT/ IOH results 1996 - 2007

- Species composition, abundance and biomass largely unchanged since 1996
- Consistent long term trends
- Sediment and biological characteristics within natural variability
- No trends associated with developments



Invertebrates

- Dredge disposal sites
 - Highly dynamic environment/ ongoing activities
 - 2004 (pre disposal) few species observed, relatively low abundance and biomass
 - 2005 post placement, abundance & biomass reduced at all sampling stations.
 - 2008 recovery observed, remained species poor
 - Trends observed in locations with and without deposition



Invertebrates

Compensation schemes

- Welwick, Chowder Ness
 - Similar trends observed at controls and those immediately in front of the site
 - No. of target species observed at the site
 - Similar species, lower diversity and abundance
- Doigs Creek
 - Creek comparable to reference conditions
- Natural variability

