

# Donald D. MacDonald

MacDonald Environmental Sciences Ltd

San Diego Coastkeeper  
Environmental Health Coalition

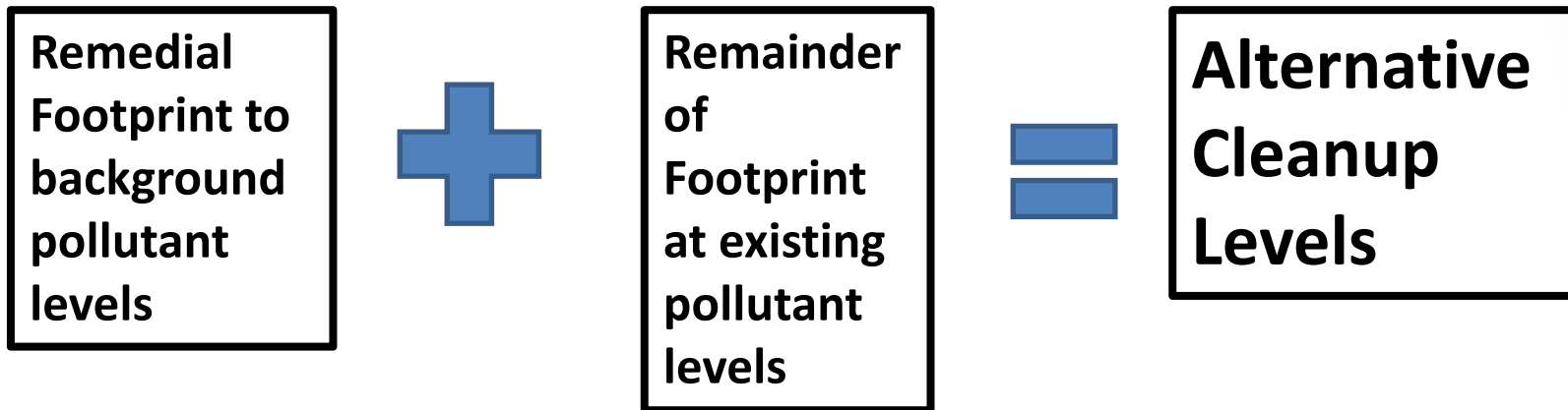
# Qualifications

- Principal of MacDonald Environmental Sciences Ltd. Since 1989. Clients include federal, state, provincial, and tribal government agencies, academic institutions, non-governmental organizations, and industry
- Canadian Director of the Sustainable Fisheries Foundation
- Registered Professional Biologist
- British Columbia College of Applied Biology Member
- Certified Fisheries Practitioner
- Bachelor of Science in Zoology (1981; UBC)
- Worked at Environment Canada (1982 to 1989; Technical Planning Coordinator/ Physical Scientist)
- Authored over 300 primary journal articles, book chapters, and technical reports on environmental assessment and management; Edited several books
- Designed, conducted, and/or provided technical oversight on numerous ecological risk assessments and/or natural resources damage assessments at sediment-contaminated sites in North America, including:
  1. Calcasieu Estuary, LA: RI/FS (2000-2002)
  2. Calcasieu Estuary, LA: NRDA (2002-Present)
  3. Calcasieu Estuary, LA: Citgo Oil Spill (2006-Present)
  4. Tri-State Mining District, KS, OK, MO-RI (2006-2011)
  5. Tri-State Mining District, KS, OK, MO: NRDA (2009-2011)
  6. Upper Columbia River, WA: RI (2005-Present)
  7. Upper Columbia River, WA: NRDA (2002 Present)
  8. Indiana Harbor, IN: NRDA (1998-2007)
  9. Quathiaski Cove, BC: RI/FS (2005-2011)
  10. Quinsam Coal site: RI (2011)
  11. Passaic River-Newark Bay Complex, NJ: NRDA (2006-Present)
  12. Hudson River, NY: NRDA (1999-Present)
  13. Bloomington PCB site, IN: (2005-2007)
  14. Piles Creek, NJ: NRDA (2009-Present)
  15. Cornell-Dubilier site, NJ (2008-Present)
  16. Vermont Asbestos site, VT: NRDA (2008-2009)
  17. Anniston PCB site, AL: NRDA (2005-Present)
  18. Anniston PCB site, AL: RI/FS (2005-Present)
  19. Sauget site, IL: NRDA (2006-2008)
  20. Crofton site, BC: RI (2005-Present)
  21. Hanford Reach site, WA (2011)
  22. Portland Harbor site, OR: RI/FS (2007-Present)
- Designed and/or implemented environmental monitoring programs (i.e., for water, sediment, and/or biota) for numerous sites, including:
  1. Fraser River and Estuary, BC
  2. Columbia River, BC
  3. Flathead River, BC
  4. Similkameen River, BC
  5. Thompson River, BC
  6. Kootenay River, BC
  7. Strait of Juan de Fuca, BC
  8. Slave River, NWT
  9. Liard River, NWT
  10. Peel River, NWT
  11. Presque Isle Bay, PA
  12. Delaware River, PA, DE
  13. Tampa Bay, FL

**Achieving the alternative cleanup levels.**

**Issue #1: 120% of background**

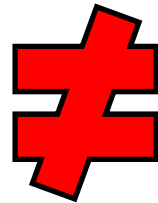
*Dredging is deemed “successful” even if post-dredging pollutant levels are higher than background levels.*



# Achieving the alternative cleanup levels

## Issue #2:

ALTERNATIVE CLEANUP  
LEVELS

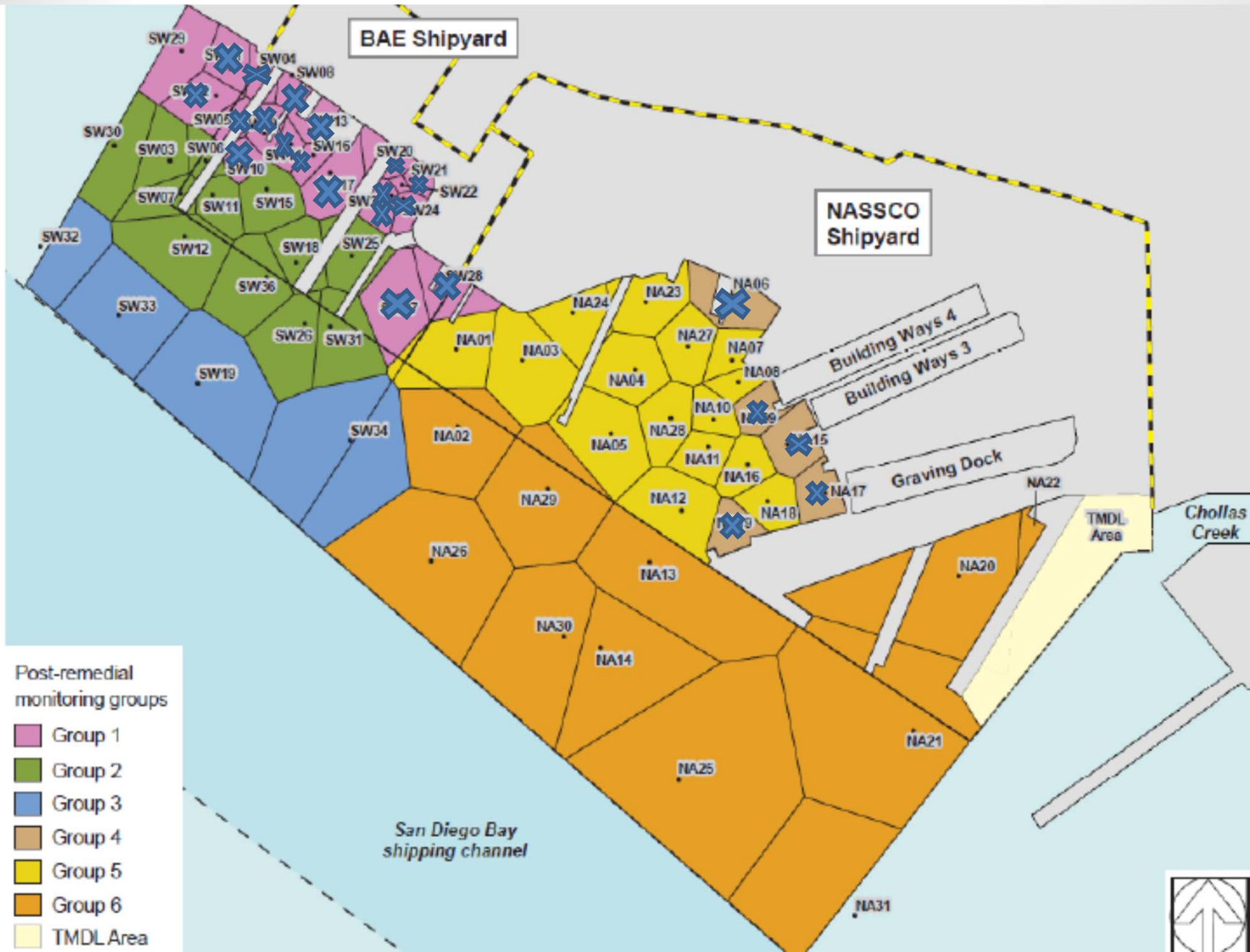


REMEDIAL  
GOAL

Primary Pollutants	Background Levels	Existing Levels	Alternative Cleanup Levels	Trigger Concentrations
Copper	121 mg/kg	187 mg/kg	159 mg/kg	185 mg/kg
Mercury	0.57 mg/kg	<b>0.75 mg/kg</b>	0.68 mg/kg	<b>0.78 mg/kg</b>
HPAHS	663 µg/kg	3,509 µg/kg	2,451 µg/kg	3,208 µg/kg
PCBs	84 µg/kg	308 µg/kg	194 µg/kg	253 µg/kg
Tributyltin	22 µg/kg	162 µg/kg	110 µg/kg	156 µg/kg

**Achieving the alternative cleanup levels.**

**Issue #3: Sampling to gauge “success”**



Post-remedial monitoring groups

- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6
- TMDL Area





## POST-REMEDY COC CONCENTRATIONS

PCBs	194 µg/kg	Mercury	0.68 mg/kg	Zinc	221 mg/kg
TBT	110 µg/kg	Silver	0.89 mg/kg	Chromium	49.60 mg/kg
HPAHs <sup>4</sup>	2,451 µg/kg	Nickel	13.07 mg/kg	Cadmium	0.20 mg/kg
Copper	159 mg/kg	Lead	66 mg/kg	Arsenic	8.67 mg/kg

# Ensuring a successful cleanup

- Alternative Cleanup Levels = Remedial Goal = Trigger Concentration
- Post-dredge monitoring: no compositing, data from each polygon
- To ensure dredging achieves cleanup levels
  - Above background levels → Redredging **OR**
  - Add more polygons to the footprint:  
NA22, NA01, NA04, NA07, NA16  
SW06, SW18, SW29

