

Overview of Delta Environmental Water Quality Issues

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**California Bay-Delta Public Advisory Committee
Water Quality Subcommittee
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Environmental Water Quality

```
graph TD; A[Environmental Water Quality] --> B[Physical]; A --> C[Chemical]; B --> B1[Temperature]; B --> B2[Salinity]; B --> B3[Turbidity]; B --> B4[Dissolved Oxygen]; B --> B5[pH]; C --> C1[Nutrients]; C --> C2[Organic carbon]; C --> C3[Toxics]; C --> C4[Metals];
```

Physical

Temperature

Salinity

Turbidity

Dissolved Oxygen

pH

Chemical

Nutrients

Organic carbon

Toxics

Metals

Environmental Water Quality

```
graph TD; Root[Environmental Water Quality] --- Physical[Physical]; Root --- Chemical[Chemical]; Root --- Flow[Flow Transport Dilution]; Root --- Habitat[Habitat structure]; Physical --- Temp[Temperature]; Physical --- Sal[Salinity]; Physical --- Turb[Turbidity]; Physical --- DO[Dissolved Oxygen]; Physical --- pH[pH]; Chemical --- Nutrients[Nutrients]; Chemical --- OC[Organic carbon]; Chemical --- Toxics[Toxics]; Chemical --- Metals[Metals];
```

**Flow
Transport
Dilution**

**Habitat
structure**

Physical

Temperature

Salinity

Turbidity

Dissolved Oxygen

pH

Chemical

Nutrients

Organic carbon

Toxics

Metals

Environmental Water Quality

Physical

Temperature

Salinity

Turbidity

Dissolved Oxygen

pH

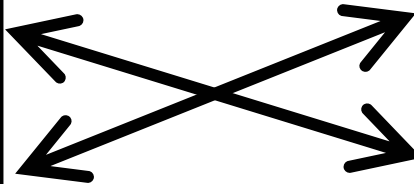
Chemical

Nutrients

Organic carbon

Toxics

Metals



Environmental Water Quality

Physical

Temperature

Salinity

Turbidity

Dissolved Oxygen

pH

Chemical

Nutrients

Organic carbon

Toxics

Metals

Primary production

Water Quality Effects



Organism



Ecosystem



Human Uses

Water Quality Effects

Organism

Ecosystem

Human Uses

Distribution

Tolerance v Preference

Examples:

Temperature

Salinity

Dissolved oxygen

Water Quality Effects



Organism



Ecosystem



Human Uses

Distribution

Sub-lethal effects

- Endocrine disruption
- Abnormal development
- Abnormal behavior
- DNA alteration
- Disease susceptibility
- Reduced growth
- Organ damage

Water Quality Effects

```
graph TD; A[Water Quality Effects] --> B[Organism]; A --> C[Ecosystem]; A --> D[Human Uses];
```

Organism

Ecosystem

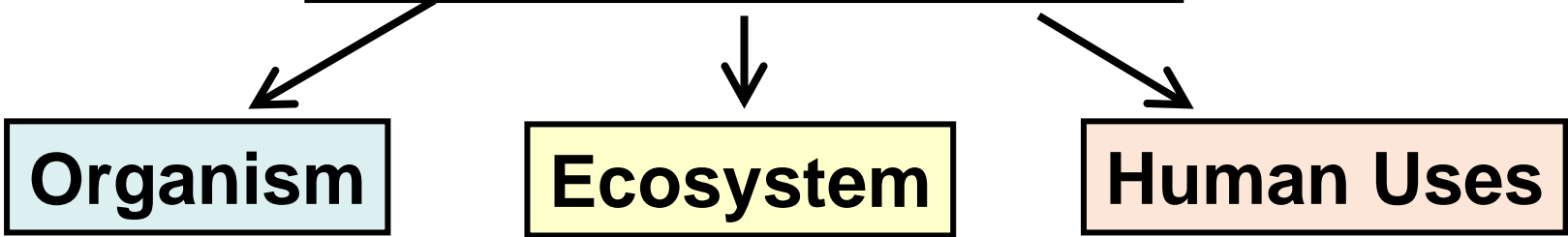
Human Uses

Distribution

Sub-lethal effects

Lethal effects

Water Quality Effects



Distribution

Sub-lethal effects

Lethal effects

Bioaccumulation



Reduced reproductive success
Reduced population size

Water Quality Effects

Organism

Ecosystem

Human Uses

Distribution

Sub-lethal effects

Lethal effects

Bioaccumulation

Ecosystem engineering

Examples:

Nutrients – *Mycrocystis*

Salinity – *Corbula*