

Pesticides and Water Quality in Oregon

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ODA - Pesticides
Water Quality Program

- Interagency Pesticide Water Quality Team
  - Composition
  - Role
  - Process
- Summary / Challenges

Four Oregon State Agencies with Direct Pesticide-related Water Quality Responsibilities

Department of Environmental Quality (DEQ)
Federal Clean Water Act (CWA) & ORS 468B.035-468B.555

Oregon Health Authority (OHA)
Safe Drinking Water Act (SDWA)

Forestry (ODF)
Administer the Forest Practices Act (FPA) & Forest Practice Rules

Agriculture (ODA)
- Pesticides Division
- Natural Resources Division

Agriculture (ODA)
Water Quality Responsibilities

Pesticides Division

Oregon Pesticide Control Act (ORS 634; OAR 603-057):

- Protect people & the environment while maintaining pesticide availability
- Regulate the registration, distribution, sale & use of pesticides in Oregon

EPA delegation of FIFRA authority to ODA (Cooperative Agreement)

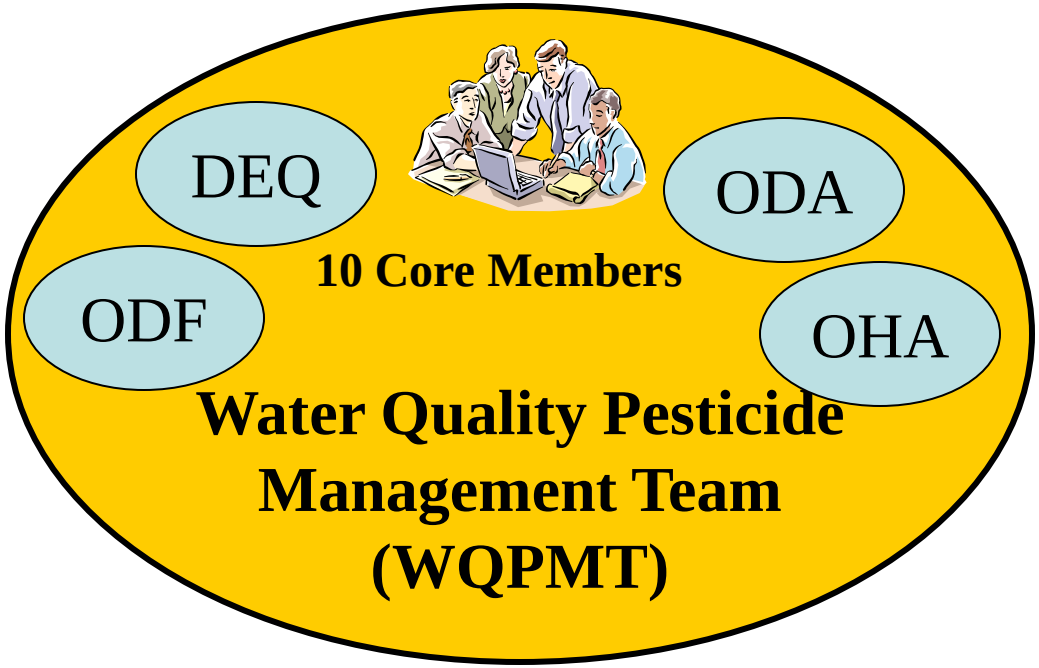
- Develop a *Pesticide Management Plan* ***(PMP)*** to protect waters of the State from the possible adverse effects of pesticides.

Natural Resources Division (NRD)

Agricultural Water Quality Management Act (ORS 568.900-933)

- Ag Water Quality Program (AgWQ) : Develop AgWQM Area Plans & Rules
- prevent & control water pollution from Ag activities & soil erosion
- **Historically have not addressed pesticides in water.**

2007 - Collaborative Interagency Approach



Operate under a Memorandum of Understanding (2009)

TEAM'S ROLE and SCOPE

Coordinate & facilitate resources/activities to…

- **prevent & reduce currently registered pesticides in…**
- **surface and groundwater resulting from…**
- **both Ag and non-Ag uses**

OR Water Quality Pesticide Management Team

Our Focus…4 Key Questions

1. Which pesticides have the biggest impact/risk?

- Select & Prioritize "Pesticides of Interest"

2. Which watersheds are most vulnerable?

3. What does monitoring tell us?

- Numerical Water quality "benchmark" concentrations or standards
- Decision-making tools

4. How to optimize & coordinate resources?

- Monitoring programs
- Implementation of agency responses…
  - *Continuum:* Outreach ⟶ Enforcement
- Communication: Share information & collaborate with stakeholders

1. Which pesticides have the biggest impact/risk?

57 EPA-designated Pesticides of Interest (POI)
EPA-ODA Cooperative Agreement

Senate Bill 737
16 current use P3 pesticides

DEQ Toxics Reduction Strategy
14 pesticides on Priority Focus List

WQPMT
68 Pesticides
(57 + 11 added)

Prioritize:

- **Use patterns, toxicity, environmental persistence, monitoring results, other states, etc.**

2. Which watersheds are most vulnerable?

Five (5) Water Basins account for 90% of non-fumigant pesticide use in Oregon

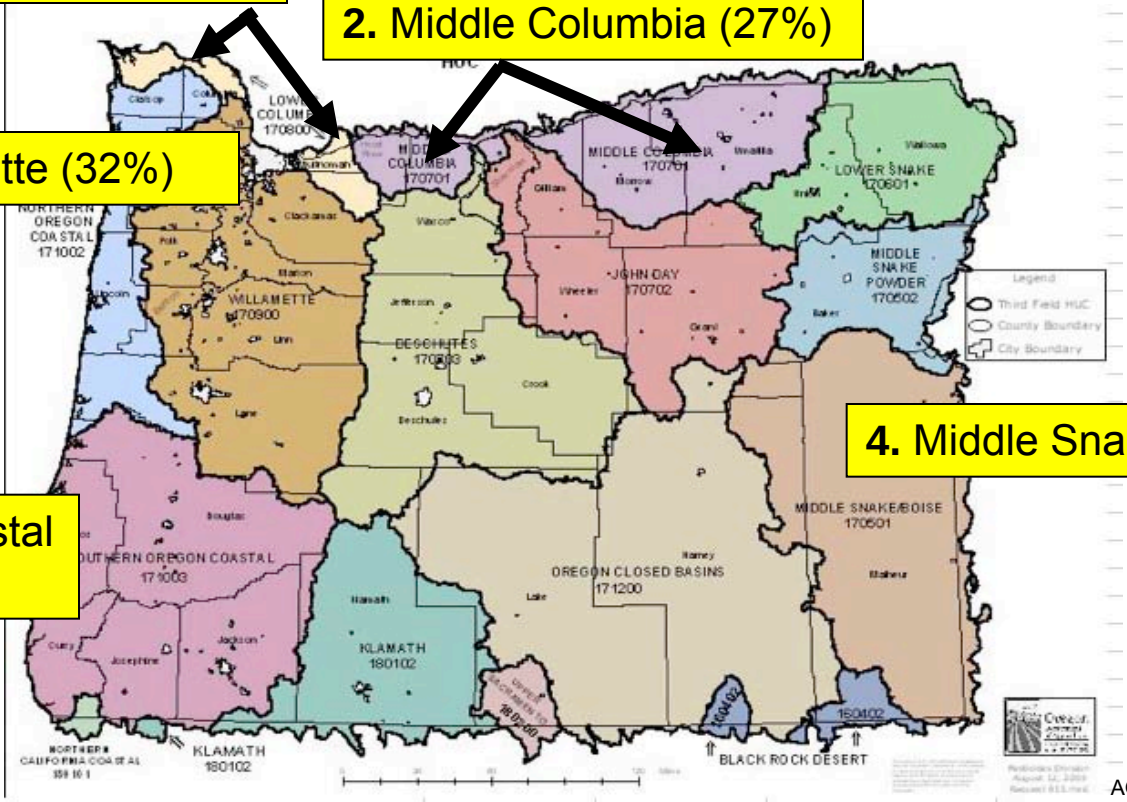
13.7 million lbs of non-fumigant total

(2008 PURS includes commercial-urban but not homeowner use)

5. Lower Columbia (5%)

2. Middle Columbia (27%)

1. Willamette (32%)

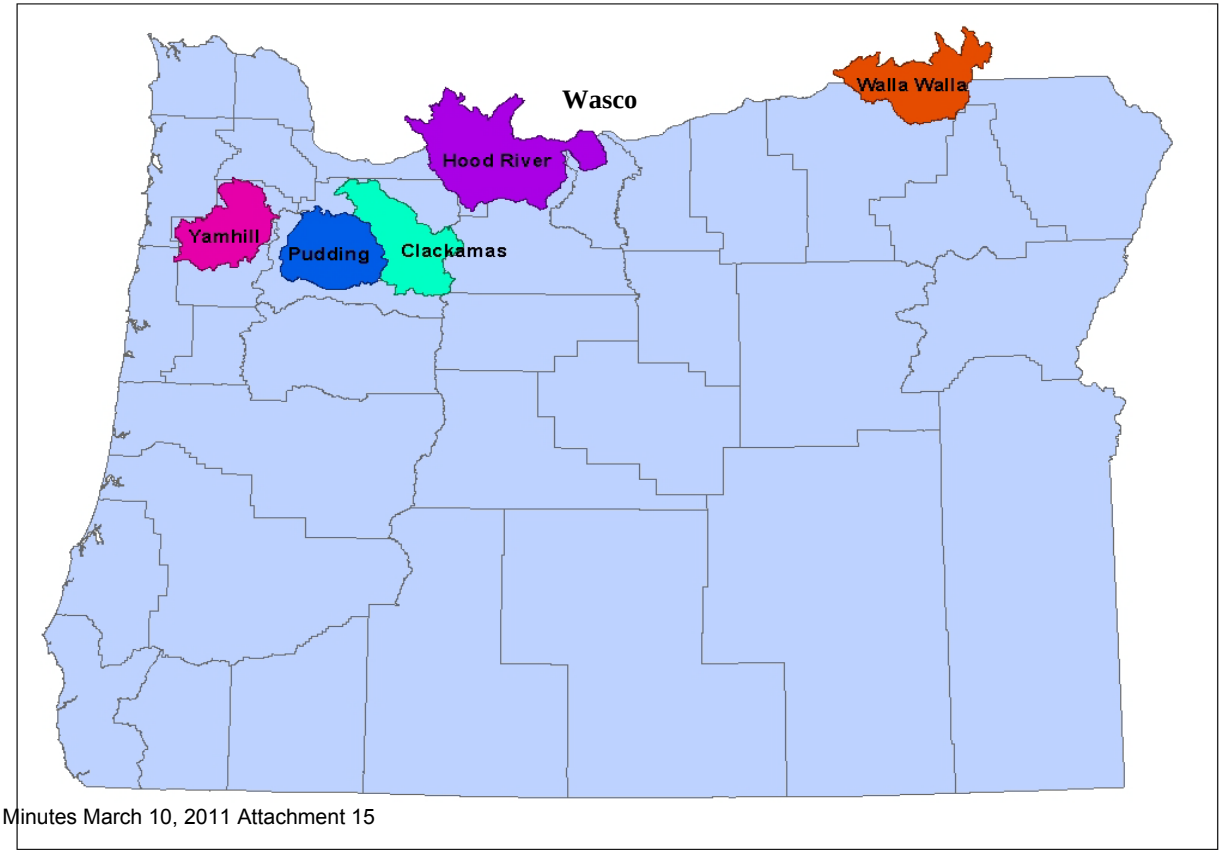


4. Middle Snake/Boise (3%)

3. S. Oregon Coastal (23%)

2. Which watersheds? (where to focus monitoring)

- **6 DEQ Pesticide Stewardship Partnerships (PSPs)**
- **Samples from early spring to late June 2009**
- **100 pesticides analyzed in 2009**



Most Commonly Detected Pesticides in Oregon Waters

(2009 detection frequency range over 5 PSP sub-basins)

Herbicides: ***most below "benchmarks" but high number of detections***

- ***Diuron (Karmex) – 96% max. detection frequency***
- ***Simazine (Princep) – 95% max.***
- ***Metolachlor (Dual Magnum) – 75% max***
- ***Atrazine (Aatrex) – 65% max.***
- ***Pendamethalin (Prowl) – 45% max.***
- ***Hexazinone (Velpar) – 35% max.***

Insecticides: ***fewer detections, but tend to be more toxic to aquatics***

- ***Carbaryl (Sevin); Imidacloprid (Admire); Ethoprop (Mocap)***
- ***Azinphosmethyl (Guthion); Chlorpyrifos (Lorsban)***

Fungicides: ***Propiconazole (Tilt); Pyraclastrobin (Headline)***

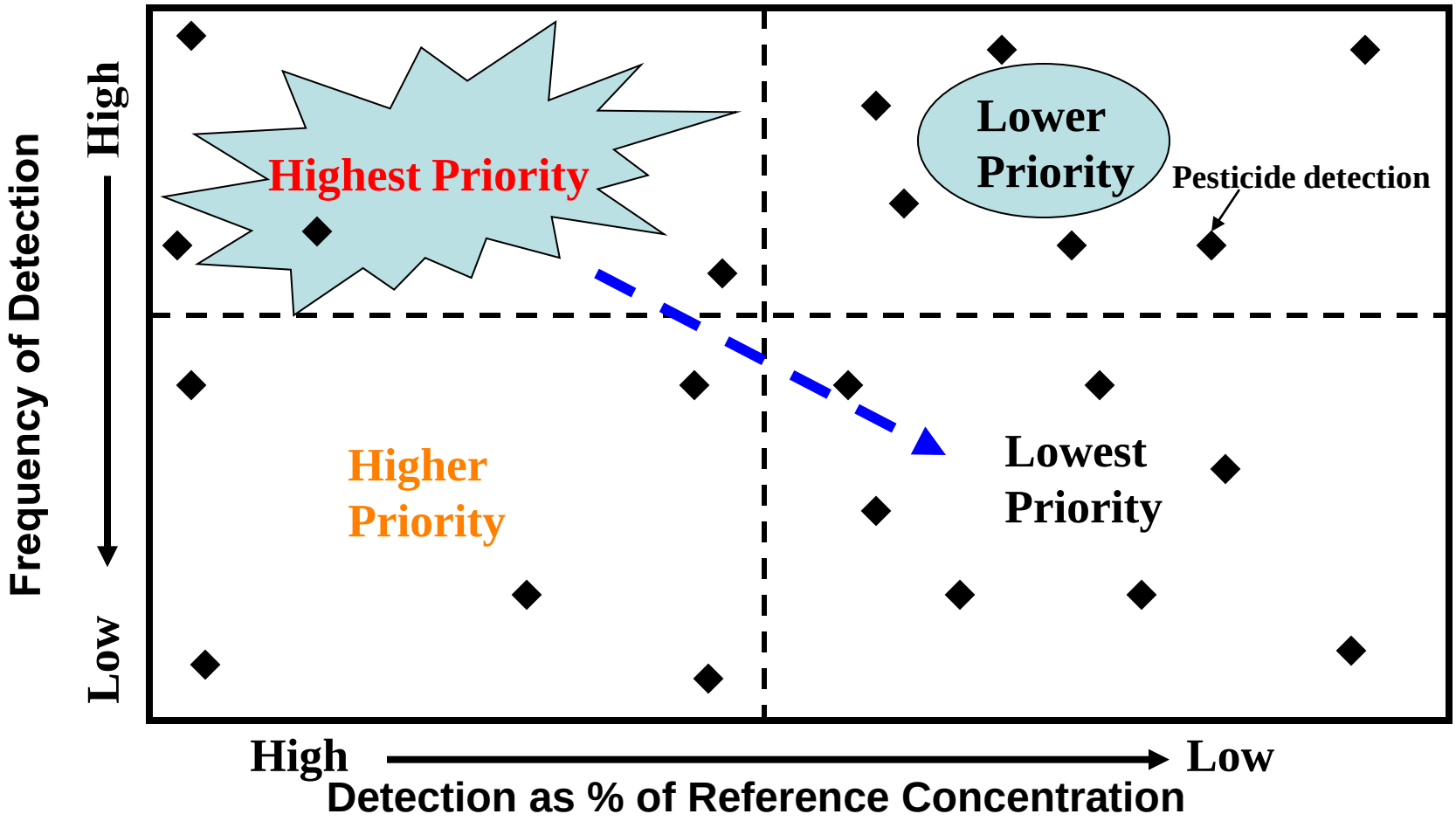
- **Forest environments not extensively monitored**
- **Products registered for forest use include: 2,4-D, Chlorothalonil, Carbaryl, Glyphosate, Hexazinone, Imazapyr, Sulfometuron Methyl, Triclopyr.**

2009 DEQ PSP Monitoring Program

A number of samples contained mixtures of pesticides

No. of Pesticides in Sample	Clackamas	Hood River	Pudding	Walla Walla	Yamhill
1	11	23	0	21	11
2 to 3	14	15	5	17	18
4 to 5	10	2	8	8	20
6 to 7	6	0	5	0	7
8 to 9	1	0	8	0	0
≥ 10	0	0	12	0	0

Assessment of Monitoring Data under the Pesticide Management Plan
1. Concentration relative to established standards or benchmarks and
2. Frequency of Detection



4. Optimize resources available to reduce/prevent pesticides in water?

Agency WQ Response Options

(Based on Agency Authorities)

Response Options (continuum): Outreach → Enforcement

ODA	DEQ	DHS	ODF
• Outreach • Registration – Labeling – Training & Certif. • Use restrictions •AgWQM Area Plans & Rules • Enforcement	• Outreach – PSPs – GWMAs – Monitoring • BMPs • TMDLS • Enforcement	• Outreach • Safe Drinking Water Act • Enforcement	• Education • BMPs • Forest Practices Rules

Interagency Coordination ← →

Stakeholder Involvement

First emphasis is on <u>Voluntary</u> *PREVENTION & REDUCTION*

- **Awareness (of issues & options)**
- **Good Use Practices (labels, application equipment, IPM, etc.) & BMPs**

Summary

Pesticides are commonly detected in Oregon streams

- Most at low concentrations, below aquatic life benchmarks
- Small group were repeatedly detected
  - only 15 of the 100 analyzed in 2009 were frequently detected
- Many samples contain mixtures of pesticides

Interagency Team collaboration on pesticides in water

- ODA - Pesticides Division is the lead facilitating agency
- Response activities based on each agency's authorities
- Team approach is an effective way to:
  - Communicate issues
  - Evaluate, prioritize & coordinate activities / resources

Some Key Challenges

- **The chronic presence of a pesticide (high detection frequency) that does not exceed a water quality standard or established benchmark**
  - **Most pesticides do not have water quality standards.**
  - **Communication of this issue to stakeholders to implement voluntary mitigation measures**

- **How to address mixtures of pesticides**

- **How to leverage stretched resources to:**
  - **Conduct consistent monitoring (across sites, seasons & years)**
  - **Expand monitoring (urban pesticide use; ground water, etc.)**
  - **Conduct basin vulnerability assessments**
  - **Conduct outreach and education efforts**

-Thank You -
Questions

Oregon Department of Agriculture

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www.oregon.gov/ODA/PEST/