

Japanese Eelgrass

Permit Development

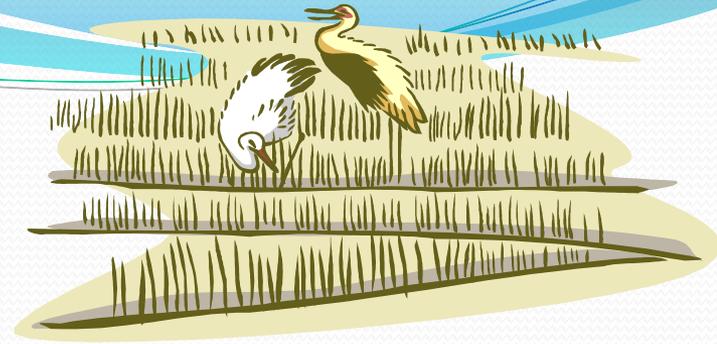
Photo – Dr. Kim Patten, WSU

Shellfish growers asked Ecology to develop a permit to allow them to use an aquatic herbicide to remove Japanese eelgrass on commercial shellfish beds.



{ Photo – Dr. Kim Patten, WSU }

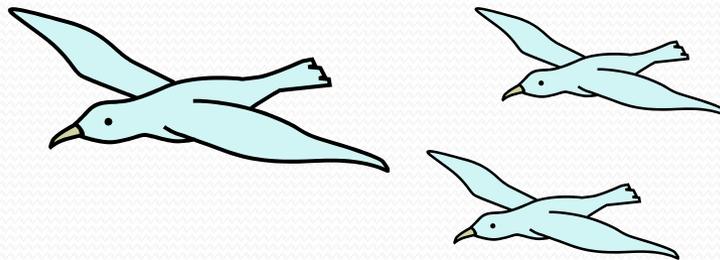
Eelgrass



- Eelgrasses are flowering plants that form highly productive and beneficial beds in marine/estuarine environments.
- There are two eelgrasses in Washington:
 - Native eelgrass *Zostera marina*
 - Introduced eelgrass *Zostera japonica*
- Both eelgrass species have been protected and highly valued in Washington.
 - Partnership has a goal of increasing eelgrass area in Puget Sound by 20% by 2020.

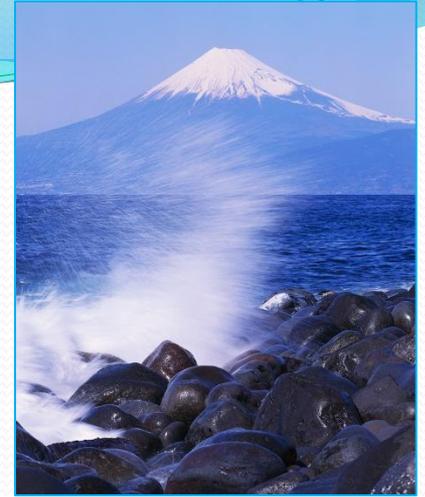
Japanese eelgrass

- Regulatory status of Japanese eelgrass in Washington has changed in the last year.
 - WDFW changed its Priority Species and Habitat designation from *Zostera* spp. to *Zostera marina*.
 - The State Noxious Weed Control Board listed Japanese eelgrass as a Class C noxious weed on commercial shellfish beds only (no legal requirement to control it).



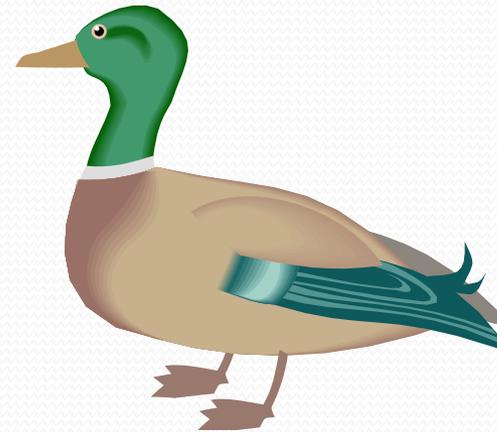
Japanese eelgrass

- Introduced from Asia.
 - Possibly in the 1930's.
 - Probably by the shellfish industry on oyster seed.
- Now spreading along the West Coast (BC to Humboldt Bay California).
- Regulated differently in different states:
 - Class A noxious weed in California.
 - Now Class C noxious weed in Washington, but only on commercial shellfish beds.



Japanese eelgrass

- Good qualities:
 - Food for migratory waterfowl.
 - Provides similar habitat value as native eelgrass.
- Less good qualities:
 - It vegetates formerly bare tide flats (maybe good, but may not be).
 - It may compete against native eelgrass.
- Scientific uncertainly about its role in Washington.



Native Eelgrass



Japanese Eelgrass



Photo copyright 2006 – Mary Jo, Adams



Native Eelgrass

Japanese Eelgrass

Photo – Noxious Weed Control Board

The Problem

- Commercial shellfish growers state that Japanese eelgrass is creating problems with shellfish culture (particularly Manila clams) especially in Willapa Bay.
- They report reduced clam density and quality, and difficulty harvesting.
- Growers have abandoned clam beds (Taylor walked away from a 1000-acre bed in Willapa).
- People have been laid off due to loss of shellfish beds.



Growers' Solution

- Growers want to treat beds with an aquatic herbicide called imazamox to remove Japanese eelgrass.
- They have been experimenting using test plots in Willapa Bay for a number of years.
- They have evidence that they can selectively remove Japanese eelgrass on their beds with minimal effect on native eelgrass.



Test plot

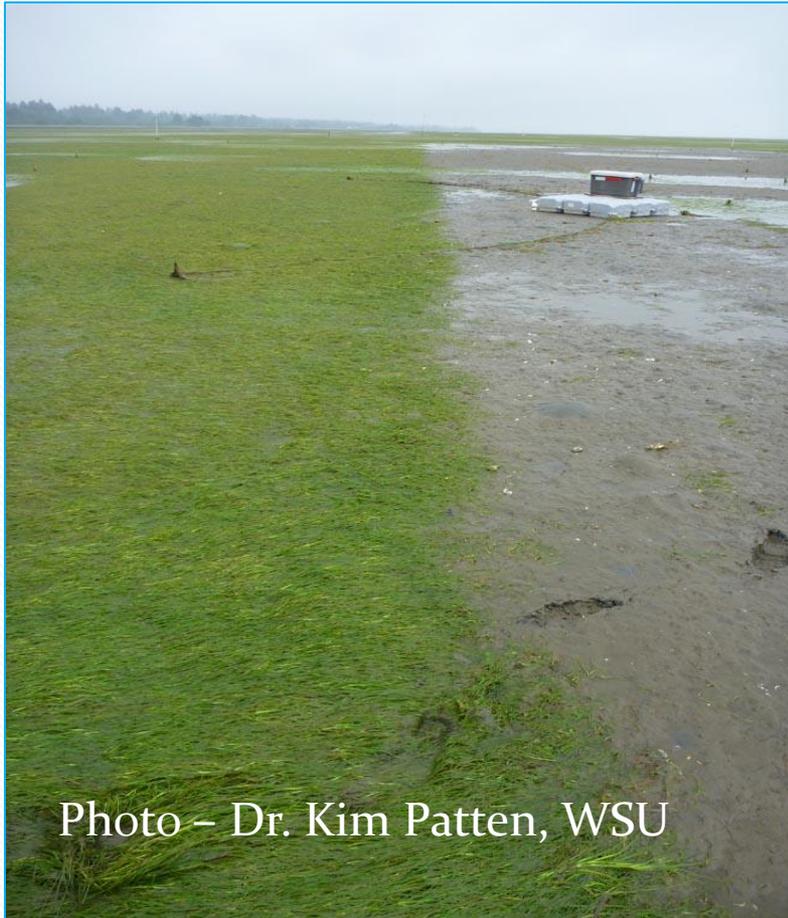


Photo – Dr. Kim Patten, WSU

- Plants treated as they are exposed on the tide flat.
- Native eelgrass tends to lie lower on the tide flats.

What is imazamox ?

- Aquatic herbicide registered by EPA for marine use. It is reduced risk herbicide.
- Acts on a biochemical pathway present in plants, but not in animals.
- Very non-toxic to animals and not expected to bioaccumulate.
- Biggest issue – impacts to native eelgrass beds.

Permit

- Ecology asked to develop a new NPDES permit for Washington shellfish farmers.
- Ecology asked the public their opinion.
 - Concerns about non-target impacts to eelgrass.
 - Concerns about more chemical use in sensitive ecosystems.
 - Concerns about waterfowl food and fish habitat.
- Resource agencies and others asked Ecology to go slowly – limit this first permit.
- Director gave permission to proceed with permit development.

Permit

- Ecology will limit this permit to Willapa Bay clam beds (excludes geoduck culture) – 5-year general permit.
- Require growers to issue an EIS to accompany draft permit issuance.

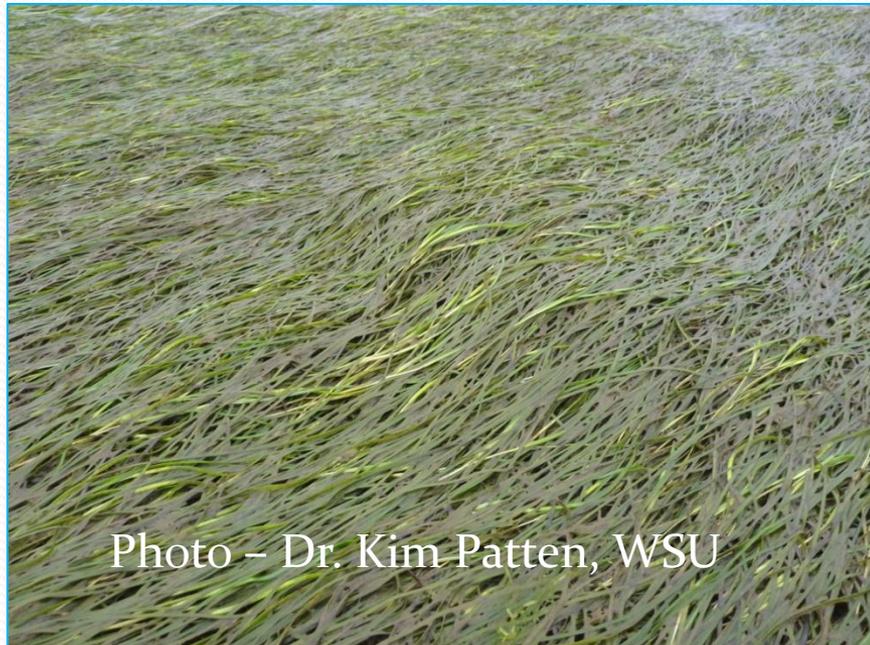


Photo – Dr. Kim Patten, WSU

Preliminary treatment decisions

- Treatment season – April 1- June 30.
- Limited to 500 acres per treatment season.
- Minimum 1 hour dry time before flood tide.
- When within 10 m of native eelgrass beds, Permittees must maintain a 10 m buffer on downslope treatment edge.
- Must employ IPM principles.

Monitoring

Ecology wants answers to the following:

1. Residual concentrations of imazamox in first flush tidal water.
2. Concentration and degradation of imazamox in sediment inside and outside treated beds.
3. Effects of imazamox on nearby or adjacent native eelgrass beds.

Monitoring

- Ecology is working with scientists to design rigorous monitoring program.
- Ecology's permit manager will need to oversee the monitoring.
- Ecology and the Permittees will review the data each year. Monitoring program will be adaptive.
- Ecology may increase buffer distances or terminate the permit if it deems non-target impacts are too severe.

Timeline

- Ecology hopes to issue the draft permit by October 1.
- This will depend on the growers having their EIS ready at that time.
- Final permit issued by Feb 1. Effective in early March.
- Ecology does expect appeals.



Questions?

