

1994/1995 REGULATIONS FOR SEAWEED HARVESTING ON THE WEST COAST OF NORTH AMERICA**

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Introduction

The intertidal and nearshore areas along the west coast of North America are well known for having a rich diversity and high biomass of seaweeds or macrobenthic marine algae. However, in recent years, the rapidly growing human population in the adjacent coastal areas has begun to have a detrimental impact on the marine environment, including the seaweeds. In addition to changes brought about by pollution and siltation from development (Littler and Murray, 1975), there are signs in many areas of an impact on the algal flora brought about by direct human usage (Widdowson, 1971; Zedler, 1978; Duran and Castilla, 1989; Liddle, 1995). The inadvertant trampling by visitors to popular intertidal areas has changed the flora from one of a lush assortment of bladed algae to one of a few rhizome-forming turf plants (Beauchamp and Gowing, 1982; Brosnan and Crumrine, 1994). In some areas, the over-collection of kelp for personal consumption or for commercial use has depleted subtidal beds of *Macrocystis integrifolia*, *M. pyrifera*, and *Nereocystis luetkeana* and impacted populations of intertidal species such as *Alaria marginata* and *Postelsia palmaeformis*. Since seaweeds are well-known to be the primary source of food for nearshore invertebrates (Duggins, Simenstad, & Estes, 1989), and for fish, through the food-chain, the environmental impact caused by their loss can be sizeable and widespread.

In order to prevent further damage to the intertidal and subtidal seaweed populations, regional governments along the west coast of North America have begun to develop regulations for the collection and/or harvest of marine plants. Since the jurisdiction over the biota of the intertidal and near-shore areas where seaweeds occur lies with the states and provinces in both the USA and Canada, regional governments both issue and enforce these regulations, and often they are difficult to find out about. This can be a major handicap for those of us who collect marine algae as a part of our profession. Recently, we were able to obtain copies of the 1994/95 regulations for marine plant collecting in Alaska, British Columbia, Washington, Oregon, California, and Mexico. We then interviewed appropriate government officials in each area to clear up any additional questions we had. We have summarized our findings in the following list. It is organized first by region and then by the 3 major types of plant collecting: 1. Personal Harvest, 2. Scientific Collecting, and 3. Commercial Harvest. For each area, we have included the names, addresses and phone numbers of the government agents most knowledgeable about the subject and the appropriate addresses to write to for licenses.

While every attempt was made to obtain up-to-date information, regulations and closures change constantly. Local authorities and landowners must be contacted before any harvest.

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THE 1994/95 REGULATIONS

CALIFORNIA

(Reference: Rob Collins, Marine Resources Div., CA Dept. Fish and Game, 416 9th St., Rm. 1310, Sacramento, CA 95814; (916) 653-4669)

1. Personal Harvest:

Sport Fishing License required. Must be displayed while collecting.

License fees: \$24.95/year -- resident

\$67.45/year -- non-resident

\$14.70/year -- ocean-only, resident

Applications are available through: CA Dept. Fish & Game, License and Revenue Branch, 3211 "S" St., Sacramento, CA 95816; (916) 227-2237.

Bag-limits/day: 10 pounds wet weight in aggregate

25 pounds wet weight Herring-spawn-on-kelp when in season (Dec. - April)

Species and area limits:

No *Zostera*, *Phyllospadix*, or *Postelsia*

No seaweed taken in Marine Life Refuges, Marine Reserves, Ecological Reserves, National Parks or State Underwater Parks, or in Marine Resources Protection Act Ecological Reserves (the MRPA ecological reserves are for scientific study alone) -- except with special permission of the agency in charge and with a Scientific Collecting Permit.

2. Scientific Collecting:

Scientific Collecting Permit required.

Permit Fees: In-state professionals -- \$38.50/24 months

In-state students -- \$12.75/12 months

Out-of-state professionals and students -- \$128.75/24 months

Applications available through CA Dept. Fish and Game, License and Revenue Branch, 3211 "S" Street, Sacramento, CA 95816; (916) 227-2232.

(Applications are reviewed by in-state scientists.)

Requirements of Permit holders:

A. Nearest Fish and Game office must be notified of date and place before collecting

B. Annual report of species collected, quantity, location, date, and disposition of specimens (museum, etc.) must be filed with the CA Dept. F&G, Wildlife Protection Div.

C. Assistants may help with collections as long as permit holders are present.

3. Commercial Harvest:

Interest is in *Macrocystis pyrifera*, *Macrocystis integrifolia*, *Nereocystis luetkeana*, *Postelsia palmaeformis*, *Gelidium*, *Gracilaria*, and assorted other red and green algae.

License Fees:

A. General Harvest License -- \$100/year (46 given this year)

B. Herring-Spawn-on-Kelp License -- \$100 Comm. Fishing License + a non-transferable Roe-Herring Limited Entry Permit with an option for HSOK.
(10 permits are out in San Francisco Bay)

C. Roe-Herring Permit renewal fees: \$265/yr -- residents, \$1000/yr -- non-residents

1994/1995 Harvesting Regulations

Applications are available through: CA Dept. Fish & Game, 330 Golden Shore, Suite 100, Long Beach, CA 90802

Royalty Fees:

- A. Bed-forming kelp* -- \$1.90/wet ton of kelp harvested
- B. Agar-bearing algae* -- \$17.00/wet ton
- C. Edible algae* -- \$25.00/wet ton
- D. Herring-spawn-on-kelp* -- \$500/wet ton (limited to 3.8 tons/season/license holder)

*Harvest weights are reported monthly

*Bed-forming kelp: 74 beds are available for *Macrocystis* harvest -- 40 are designated for open harvest & 34 are specified for exclusive leasing (of which, 23 are currently taken). Similar limited leasing of *Nereocystis* beds will begin in 1995. Kelp bed leases run for a maximum of 20 years.

Revision of commercial harvest regulations due in late 1995

- 4. **Enforcement:** Fish and Game officers
Cal Tip: 1-800-952-5400 (public reporting)
Court Hearings + Fines
- 5. **Additional Restrictions:**
Macrocystis harvest <4 feet below surface
Agar bearing algae >2 inches from holdfast
No holdfasts may be removed
All removed plants must be taken
- 6. **Future Changes:** A slight increase in all permit and license fees occurs yearly. Royalty fees are adjusted every 5 years.

OREGON

(Reference: Bob Brown, Div. State Lands, 775 Summer Street NE, Salem, Oregon 97310-1337; (503) 378-3805)

- 1. **Personal Harvest:**
Kelp may be collected for personal consumption, but other species are prohibited from collection without a lease from DSL. (This statute is enforced at the discretion of DSL.)
Bag limits: Kelp -- 2,000 pounds/person/year; Other species -- prohibited
Area limits: no restrictions to date (but see #5).
- 2. **Scientific Collecting:** No permits required (but see #5).
- 3. **Commercial Harvest:**
Interest is in *Nereocystis luetkeana*, particularly the southern beds around Port Orford. Some interest in *Postelsia palmaeformis*. *Macrocystis pyrifera* is imported for experimental Herring-spawn-on-kelp studies.
Experimental harvest regulations:

1994/1995 Harvesting Regulations

- A. *Nereocystis* -- Limited experimental harvest of will be allowed over the next 5 years in 4 southern Oregon reef areas.
Lease Fees (One lease will be issued): Application Fee -- \$50.00/year; Bonus Bid -- minimum \$50.00; Aerial Monitoring Fee/year -- paid to the state
Lease Term: 5 years
Additional Restrictions:
Harvest of plants must be from <2 feet below the surface
Harvest can only occur from August 15 - March 1
- B. *Macrocystis* -- The Herring-spawn-on-kelp fishery is at an experimental stage.
Macrocystis pyrifera is imported for these studies. No license fees or regulations have been established.

4. **Enforcement:** OR Div. State Lands officers and state police
5. **Future Changes:** A Territorial Sea Plan, adopted in December of 1994, designates 24 rocky intertidal areas as either Marine Gardens, Habitat Refuges, or Scientific Research Reserves. In most of these areas, kelp and other seaweed collecting will be prohibited without a Scientific Collecting Permit. Application procedures and fees for these permits have not yet been established.

WASHINGTON

(Reference: Tom Mumford, Div. of Aquatic Lands, WA Dept. of Natural Resources, 1111 Washington St. SE, P. O. Box 47027, Olympia, WA 98504-7027; (206) 902-1079)

1. **Personal Harvest:** WDFW Shellfish and Seaweed License is required.

License Fees: \$5.00/year -- residents
\$20.00/year -- non-residents
\$3.00/year -- elderly (70+).
\$5.00/3-consecutive-day -- for anyone

Applications are available through any Licensing Agent for the WA Dept of Fish and Wildlife or by writing: Licensing Division, WA Dept of Fish and Wildlife, P. O. Box 43141, 1111 Washington St. SE, Olympia 98504-3141.

Bag limits/day: maximum 10 pounds wet weight in aggregate

Area limits: Variable. Both public and private tideland owners must be consulted for access and additional harvesting limits and/or closures. (60% of the tidelands are privately owned)

2. **Scientific Collecting:** No permits required.
Personal harvest license requirements and limits apply.

3. **Commercial Harvest:**

Interest is in *Macrocystis integrifolia*, *Nereocystis luetkeana*, *Porphyra* spp., and an assortment of other brown and red seaweeds.

All commercial harvest is prohibited on both public and private tidelands except for *Macrocystis* for Herring-spawn-on-kelp (HSOK) licensees.

HSOK Licenses and Permits required:

Both a Herring Fishing License and a Herring-Spawn-on-Kelp Pounding Permit
HSOK License and Permit approximate costs in 1994:

Herring Fishing License (120 limited entry permits were out)

-- exchange costs ran \$100,000-\$300,000.

HSOK Pounding Permits are auctioned (3 were given in 1994).

-- Closed Pound Permits went for \$35,000

-- Open Pound Experimental Permits were \$600

HSOK Restrictions: *Macrocystis pyrifera* importation from out-of-state will be prohibited after July 1, 1995.

4. Enforcement: Fish and Wildlife officers, police. Charged with misdemeanor and, on private tidelands, also charged with treble the value of the seaweed resource, cost of necessary restoration, and other reasonable costs such as court fees.

BRITISH COLUMBIA

(Reference: Christine Hodgson, Min. of Agriculture, Fisheries, and Food, Access Ctr., 2500 Cliffe Ave., Courtenay, BC V9N 5M6 CANADA; (604) 334-1408)

1. Personal Harvest:

No permits required. Unrestricted if it does not impair the habitat (except for overall area limits - see # 3).

2. Scientific Collecting:

"Letter of Permission" given by Min. of Ag., Fish., and Food is required

No fees or reports required.

3. Commercial Harvest:

Interest is in bed-forming kelps, agar-containing algae, edible species, and in Herring-Spawn-on-Kelp (HSOK).

License Requirements and Fees:

A. Kelp Harvest – requires license -- Can \$110.00

Applications available from: Min. of Ag. Fish. & Food, Access Ctr., 2500 Cliffe Ave., Courtenay, BC V9N 5M6 CA

B. Herring-Spawn-on-Kelp – requires provincial Kelp Harvest License + a federal limited-entry Herring Fishing "J" License

1. "J" licenses currently exchange for \$800,000+

2. annual "J" license fees: \$10 – natives; \$2,000 -- non-natives

Royalty Fees: Can \$10-100.00/metric tonne wet weight

\$10.00 -- most brown algae

\$50.00 -- most cartilaginous red algae

\$100.00 -- most membranous red and green algae

Commercial Harvest Restrictions:

No more than 20% of the standing crop/year of any alga taken

No overlap of harvest areas (except HSOK harvest)

Harvest greater than 1000 tonnes of any species requires an EIS

Nereocystis must be cut no closer than 20 cm to the bulb unless the whole plant is necessary for product (and then only after August 31)

Reviewed by: Dept. of Fisheries and Oceans

Native bands in whose jurisdiction harvest will occur to protect aboriginal rights
Regional Districts

Current licensees: 39 Herring-spawn-on-kelp (*Macrocystis*); 10 *Nereocystis* and edible seaweed

Overall Area Restrictions:

A. No harvest of any kind is allowed in Ecological Reserves, Marine Reserves, Provincial Parks, Federal Parks

B. Harvest allowed in Study Areas (areas that may become Reserves or Parks) only by special permission

4. Enforcement: RCMP, Fisheries Officers, Court Hearings and/or fines.

ALASKA

(Reference: Fritz Funk and Herman Savikko, Commercial Fisheries Management and Development Div., Alaska Dept. of Fish and Game, P. O Box 25526, Juneau, AK 99802-5526; (907) 465-6113)

1. Personal Harvest:

No permitting or restrictions.

Exceptions: Herring-spawn-on-any-seaweed (the subsistence fishery ~March 15 - April 15)
limit for seaweed + spawn is 158 pounds/person/year.

2. Scientific or Educational Collecting:

Fish Resource Permit required -- no cost; must submit annual reports of take

Permits are available through: Commercial Fisheries Management and Development Div., AK
Dept of Fish and Game, PO Box 25526, Juneau, AK 99802-5526

3. Commercial Harvest:

Interest is in *Macrocystis integrifolia* for Herring-spawn-on-kelp in pounds and in *Fucus gardneri*, *Desmarestia* spp., *Laminaria* spp., *Alaria* spp., *Agarum cribrosum*, and a variety of other species that are used for wild-spawning. A smaller interest exists in *Nereocystis leutkeana* which is harvested for its use as a plant growth supplement. Dried *Porphyra* (Black Seaweed) is harvested and sold by barter among native populations.

Permits or licenses are required for all commercial harvest.

Harvesting Permits*:

- A. Aquatic Plant Harvest Permit (e.g. *Nereocystis* and other seaweeds) -- no fees but must submit annual report of take.
- B. Kelp (*Macrocystis*) Harvesting Permit (for Herring-spawn-on-kelp): free, valid 10 days.

*Restrictions:

- Issued for certain areas in SE Alaska only
- Blade number limited and taken from no more than 2 feet below surface
- No removal of holdfasts
- No diving collections
- No kelp with spawn already present
- Must file annual report of daily harvest

Permit applications are available through:

1. Management Field Offices of AK Dept. Fish and Game
2. Commercial Fisheries Management and Development Div., Alaska Dept. of Fish and Game, P. O. Box 25526, Juneau, AK 99802-5526

Herring-Spawn-on-Kelp (HSOK) Licenses:

A. Herring Pound Fishery*

- License Fee: \$100/year – residents; \$300/year -- non-residents
- Additional Requirements: a \$20 Vessel License
- Exceptions: Prince William Sound is Limited-Entry (128 licenses currently exchange for around \$30,000)

*Restrictions: No *Macrocystis* may be brought in from outside Alaska.
(*Macrocystis* harvested in SE Alaska is used for impoundments -- priced at about \$2.00/pound)

Reporting: through Fish Tickets to buyers for spawn

B. Herring Wild-Spawn Fishery

License Fee: \$50/year – residents; \$150/year -- non-residents

Restrictions:

1. *Laminaria* spp. and *Agarum cribrosum* must be cut >4 inches above the stipe
2. *Desmarestia* spp. and *Fucus* should be selectively cut for heavy spawn areas
3. SCUBA collections are permitted

Reporting: through Fish Tickets to buyers for spawn

All licenses are available through: Alaska Commercial Fisheries Entry Commission,
8800 Glacier Hwy. #109, Juneau, AK 99801; (907) 789-6150.

Seasonality: collection is only allowed during Openings announced through emergency order in each of 10 management field offices

Royalty: none

- 4. Enforcement:** Dept of Fish and Game officers and state police
Alaska Fish & Wildlife Safeguard: 1-800-478-3377 (public reporting)

MEXICO

(Reference: Rafael Riosmena-Rodriguez, Autonomous Univ. of Baja California Sur, Dept. of Marine Biology, La Paz, Baja California Sur, MX; Riosmena@Calafia.uabcs.mx)

1. **Personal Harvest:**

- No license required.
- No bag limits.
- No species or area limits.

2. **Scientific Collecting:**

Permits are required for non-residents.

- Permit Fee: residents -- none required
- non-residents -- around US \$410 or MX \$2,533.

Permit Requirements:

- A. Collaboration and support of a Mexican scientist
- B. A full research proposal submitted to the appropriate agency (reviewed by MX state agencies and scientists -- requiring approximately 1 year)
- C. Report of harvest species, quantity, and location
- D. Supporting letters from Mexican and US institutions of investigators
- E. Export permit

3. **Commercial Harvest:**

Interest is primarily in *Macrocystis pyrifera*, *Gelidium robustum*, *Gracilaria pacifica*, and *Gigartina canaliculata*

Licenses required for all forms of commercial harvest*

License Fees: Residents – free; Non-residents -- around US \$ 1,000/year

Licenses must be obtained from two state agencies:

1. SEDESOL -- the Dept of the Environment. Write to:
 - Biol. Javier de la Maza E.
 - Director General de Aprovechamiento Ecol.
 - Instituto Nacional de Ecologia
 - SEMARNAP
 - Rio Elba 10, Piso 10. Col Cuauhtemoc
 - Mexico 06500 D.F. MEXICO
2. SEPESCA -- the Dept of Fisheries.

Taxes on Harvest: Around 30% of profit

*Limitations: A sustainable yield study is needed for new harvest areas

4. **Enforcement:** Mexican police