



Kalade koelmualade olukord

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Miks on kala vähe?

1. Looduslikud tegurid

- ABIOOTILISED: temperatuur, soolsus, sademed (jõgede veetase) jt
- BIOOTILISED: looduslike vaenlaste arvukus (kormoranid, hülged, muud kalatoidulised linnud ja loomad) jm

2. Inimtekkelised (antropogeensed)

- kalapüük
- eutrofeerumine jm

Kuhu kalad koevad

- 1. Veekihti (kilu, tursk jt)
- **2. Veekogu põhjale**
(kividele, taimedele, liivale jne)
(osa ehitavad selleks “pesi”, osa ka
valvab pesi)
- 3. Kaugelearenenud lõimetishoole
(emakala, meri- ja madunõel)

Piisava järelkasvu saamiseks on vajalik

- - piisav arv suguküpsed kalu
- - sobivad sigimistingimused (norm seisukorras koelmud, mis tagavad kudemise ja loodete normaalse arengu)
- - sobivad keskkonnatingimused koorunud vastsete ja maimude ellujäämiseks (varje, toit, temperatuur...)

Kuidas tagada piisav järelkasv?

- 1. Loodusliku sigimise toetamine
 - - koelmualade melioreerimine (setete, taimede eemaldamine; võsa niitmine; veetaseme reguleerimine;...)
 - - juurdepääsu tagamine koelmualadele (jõesuudmete avamine, tammid jõgedel, vanajõgede suudmete avamine)
 - - tehiskoelmud
- 2. Taastootmine kalakasvatustes, asustamine

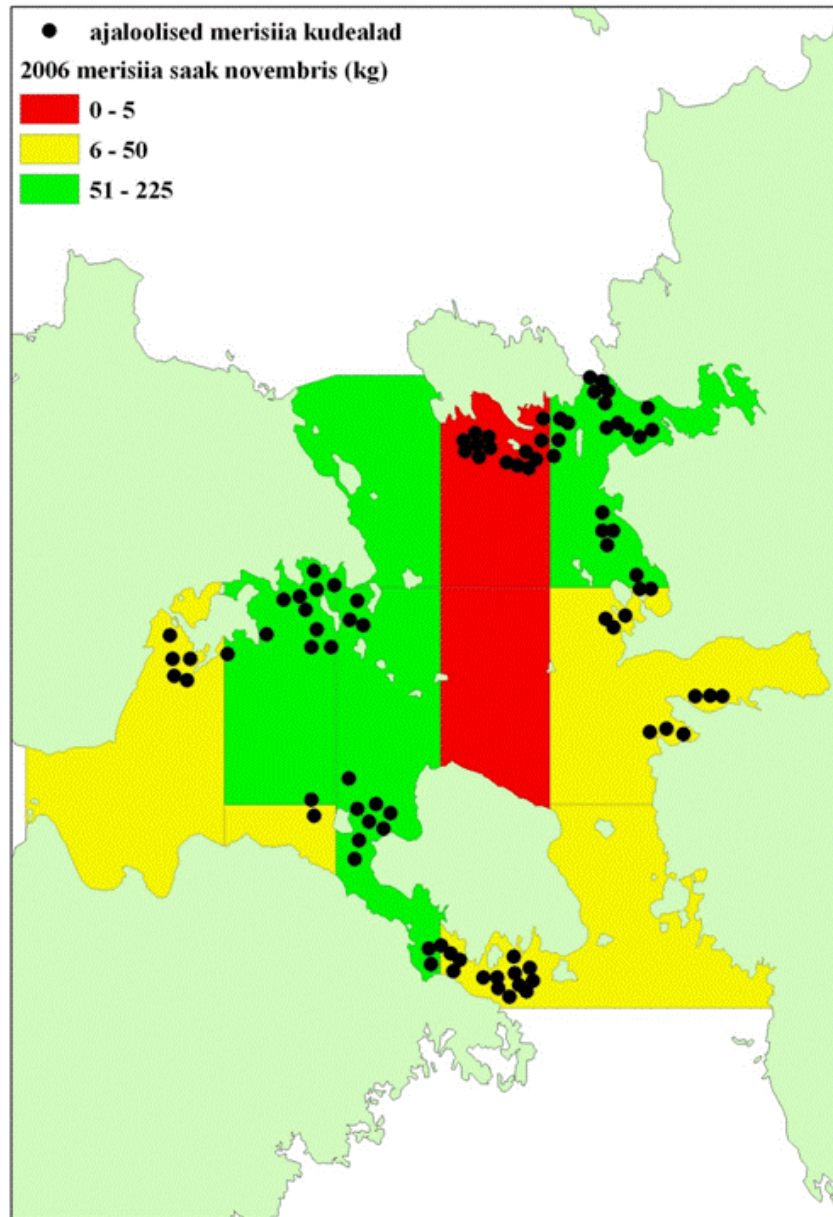
Koelmualade seisund

Enne muude meetmete rakendamist tuleb selgitada, kas koelmute seisund tagab loodusliku sigimise.

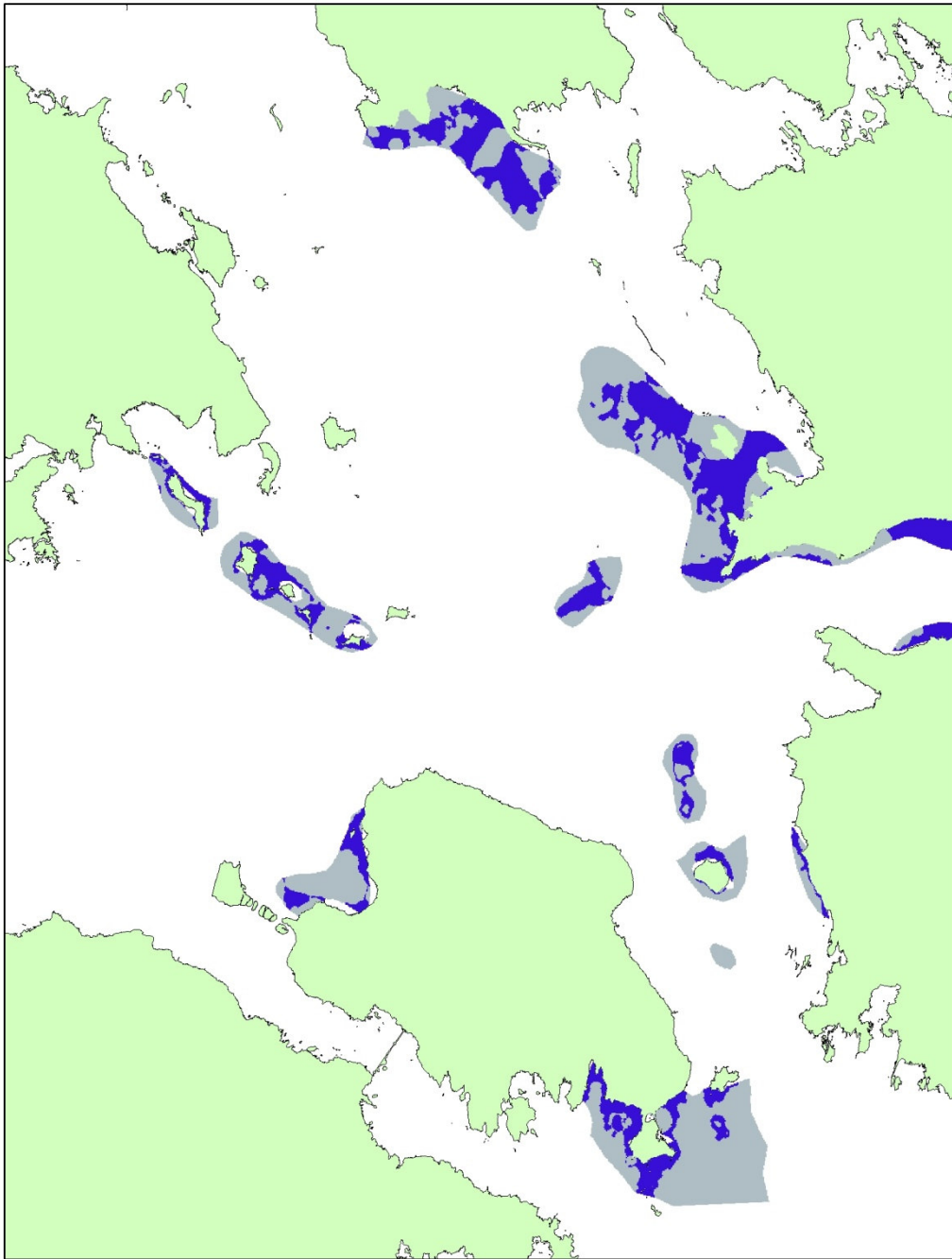
Sageli kulukas, ent igal juhul odavam (positiivse tulemuse saamiseks) kui huupi toimetamine

Koelmualade seisundi hindamine: Sukeldumised

- Kudemissubstraadi olemasolu, seisund
- Koetud “marja” kindlakstegemine ja proovide kogumine loodete arengu normaalsuse selgitamiseks
- Näide: merisiia koelmud Väinameres



Merisiia kudealad
Väinamere regioonis.
Punktidega on tähistatud
ajaloolised
1960–1970ndate merisiia
kudealad (Erm jt., 1970).
Värvidega on näidatud
2006. aasta novembris
kudealadelt püütud
merisiig (kg). Punane värv
tähistab kudekarja
puudumist, kollane
kudekarja vähest
esinemist ning roheline
värv kudekarja olemasolu.



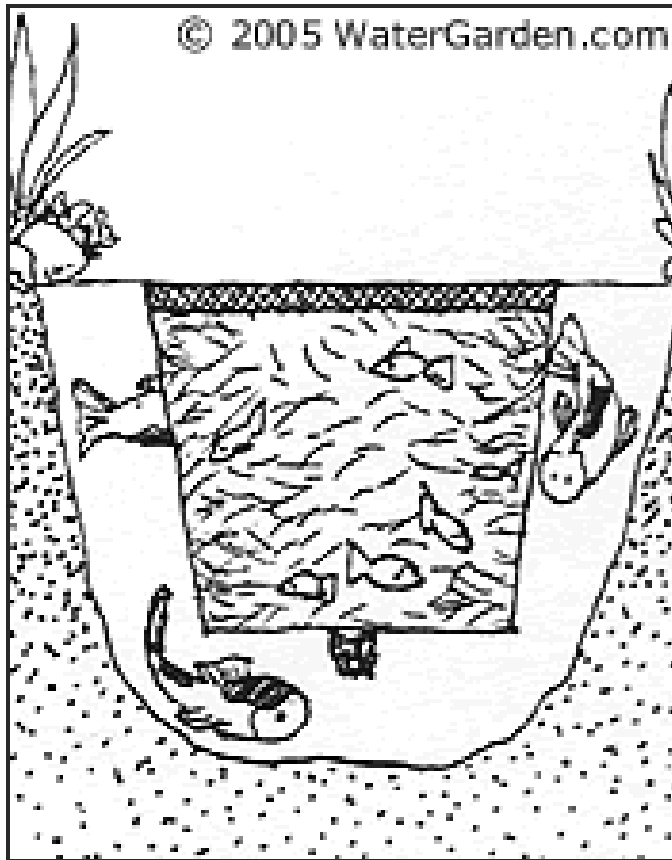
Merisiiale
kudemiseks sobivate
meresetete ja
sügavusega
piirkonnad
Väinamere regioonis.
Sobiva settega alad
on tähistatud halli ja
sinise värviga.
Sinisele värvile
vastab nii meresette
kui ka sügavuse
poolest sobivad
merisiia kudealad.

Muud meetodid koelmute seisundi (kasutamise) hindamiseks

- **Vastsete (larvide) traalimine** (räim)
- **Visuaalne vaatlus** (Sindi tammi alune; jõesuudmed, vanajõgede suudmed, jõeluhad...)
- **Kudepesade loendamine** (lõhe, meriforell)
- **Kunstkoelmud** (koha)

Tehiskoelmud

- Kudemissubstraat
- Koorunud vastsete varjepaigad



Only \$79.99 ea.

Fish Spawning Basket

18 inches Deep

18 inches in Diameter

Provides a place for fish eggs away from adult fish, fry can also hide inside. While raising fish from eggs may be fun, remember that an overpopulated pond leads to problems.

How It Works:

Place the Spawning Basket into the pond water. The top ring will cause the unit to float while the basket extends downward and can be anchored if desired. As the fish lay their eggs many will attach to the exterior of the basket. Within a couple of days you should turn the basket inside out and place back in the pond. The eggs will hatch within the security of the spawning basket where they cannot be eaten by the adult fish

Tehiskoelmute ja –varjete tüübid

1. Katted (varjed)

- looduslikud: uputatud puud, kaldalt vette langetatud puud
- tehismaterjalist: plastik
- rehvid
- puitkonstruktsioonid

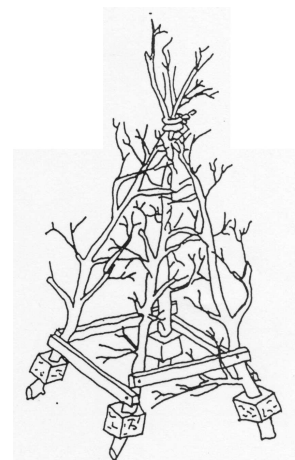
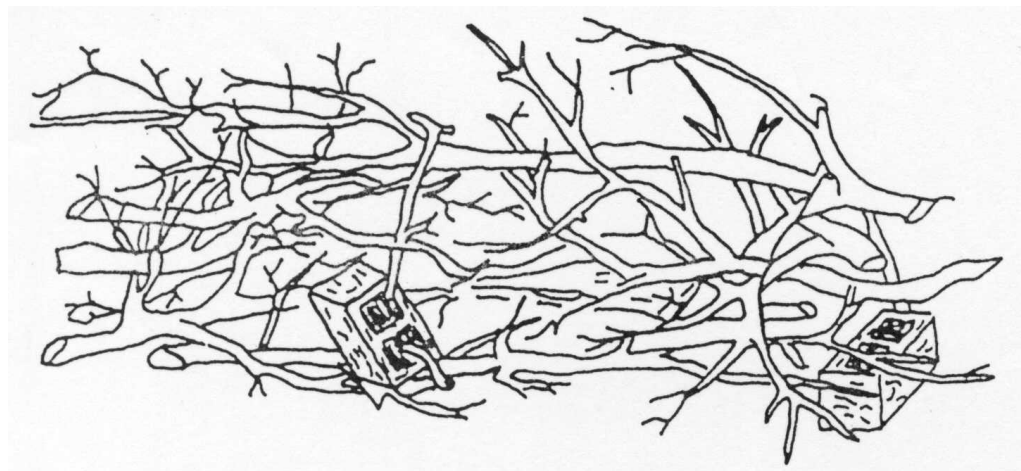
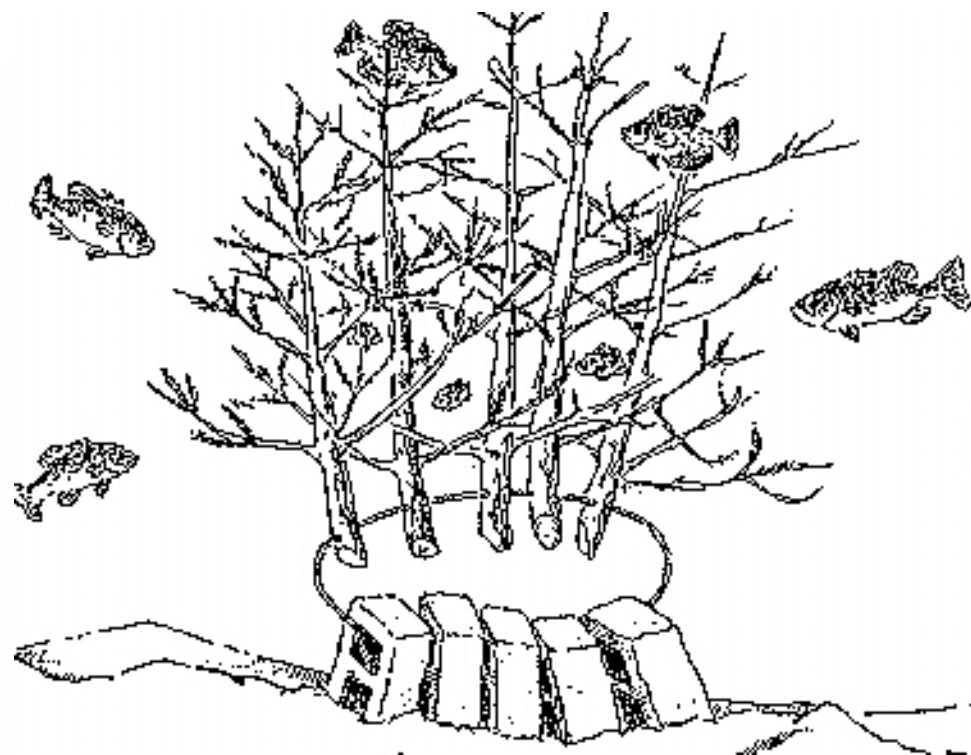
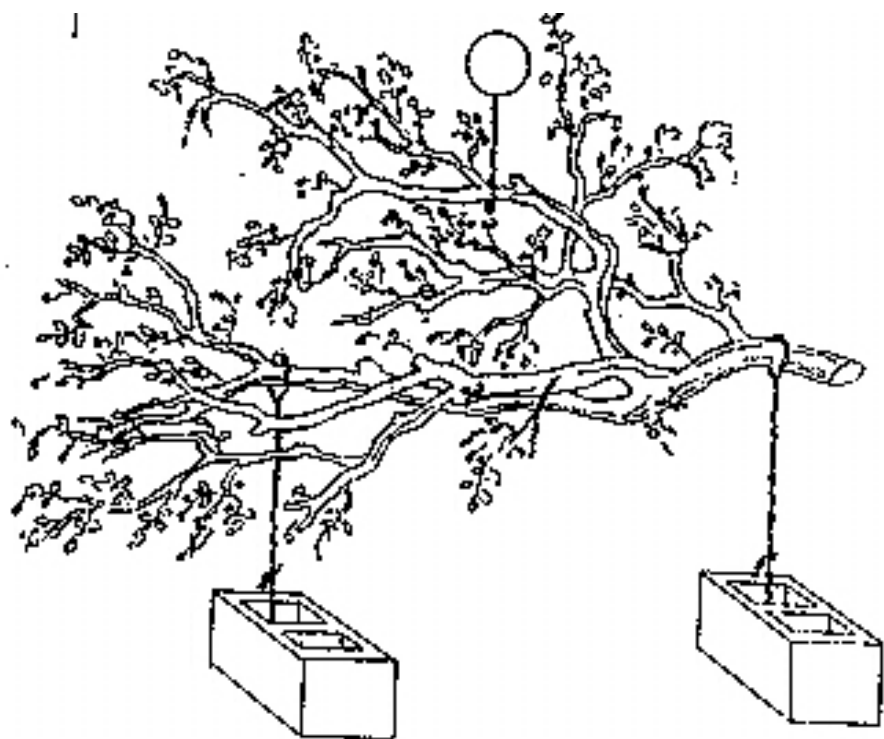
2. Kallast stabiliseerivad struktuurid: lainemurdjad

3. Kudemissubstaad

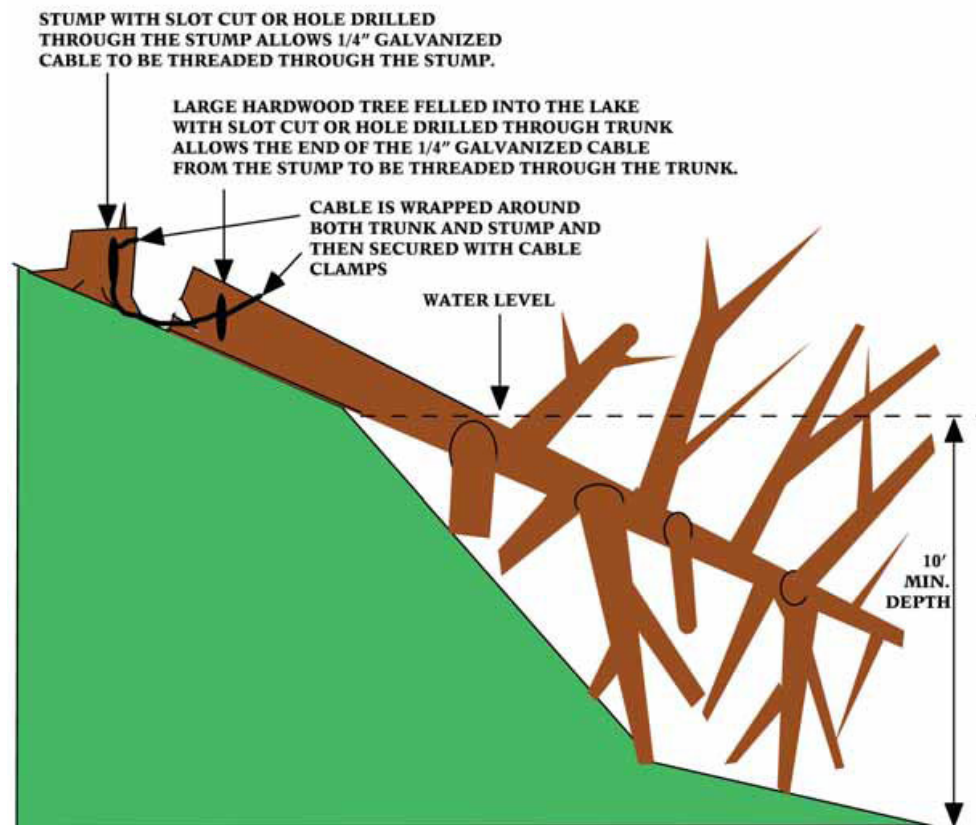
- looduslik: liiv, kruus, kivid
- tehismaterjal: torud/tünnid, pingid, kastid jm

Vette uputatud puud-põõsad

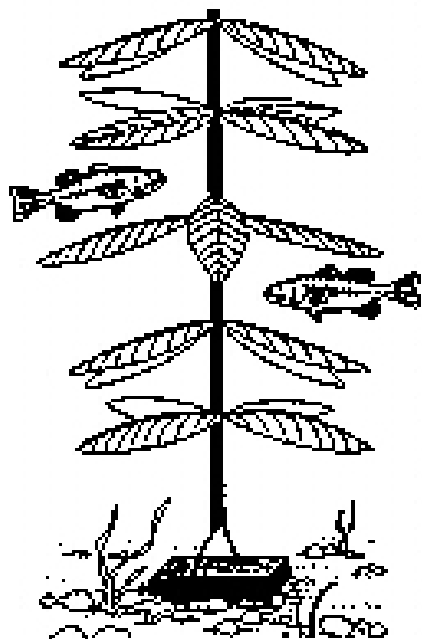
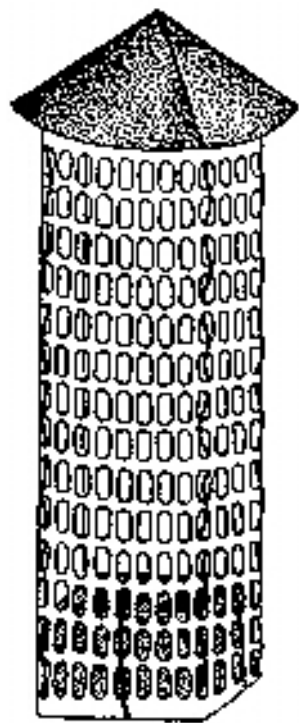
A variety of tree types are used by state agencies depending on availability. These include: ash, cedar, citrus, cottonwood, elm, fir, hickory, juniper, locust, lodgepole, manzanita, mesquite, persimmon, pine, and willow. Some common configurations are pictured below (a-suspended horizontal placement; b-suspended vertical bundle; c-horizontal bundle; d-tepee or pyramid type).



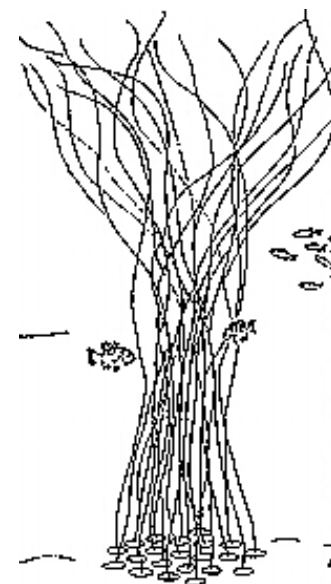
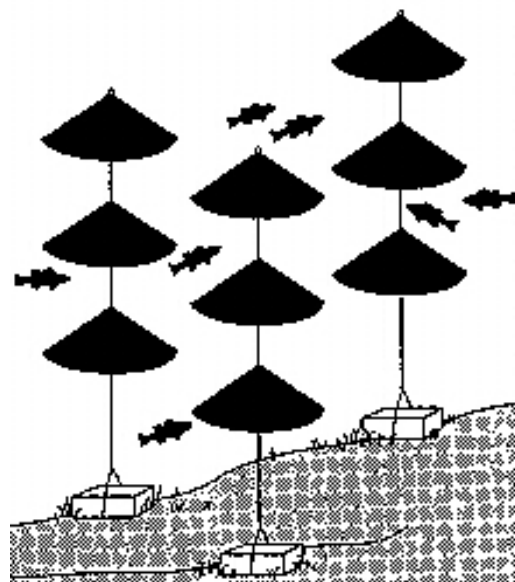
**PENNSYLVANIA STYLE
FELLED SHORELINE TREE**
STANDARD DRAWING



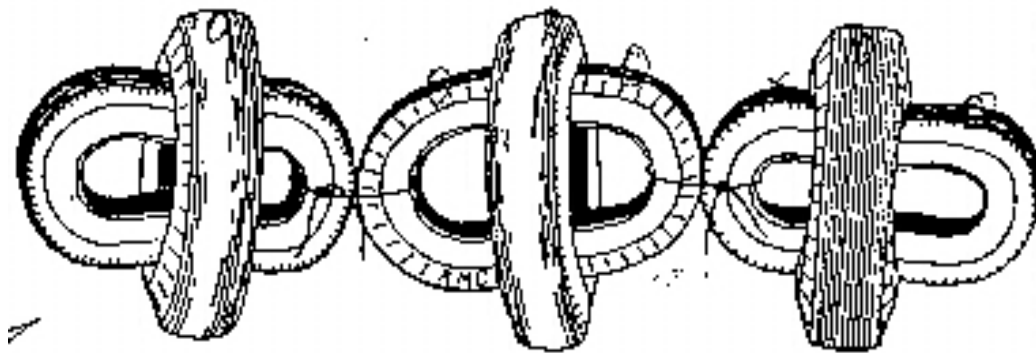
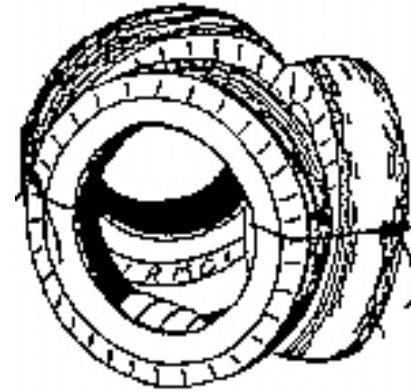
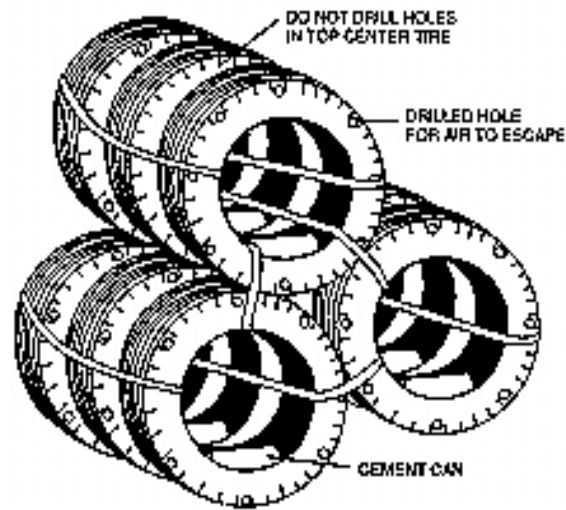
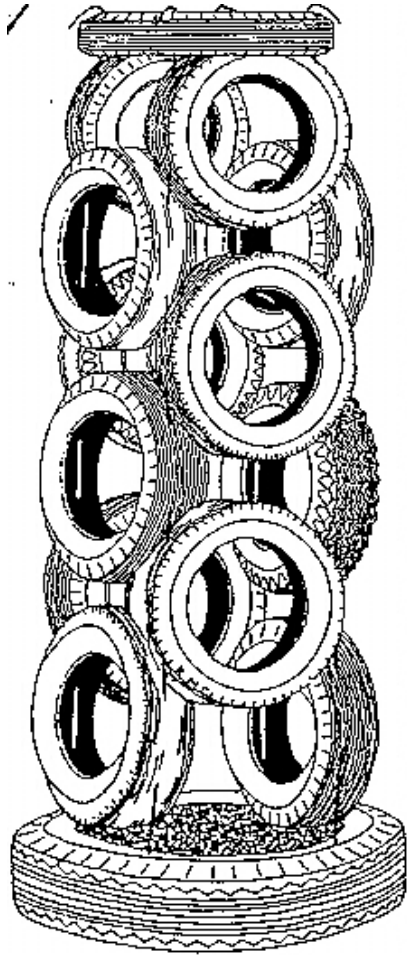
MATERIALS:
1 - LARGE SHORELINE HARDWOOD TREE (OAK)
20' - 1/4" GALVANIZED CABLE OR WIRE ROPE
2 - 1/4" CABLE CLAMPS (PINNED ONCE ATTACHED)



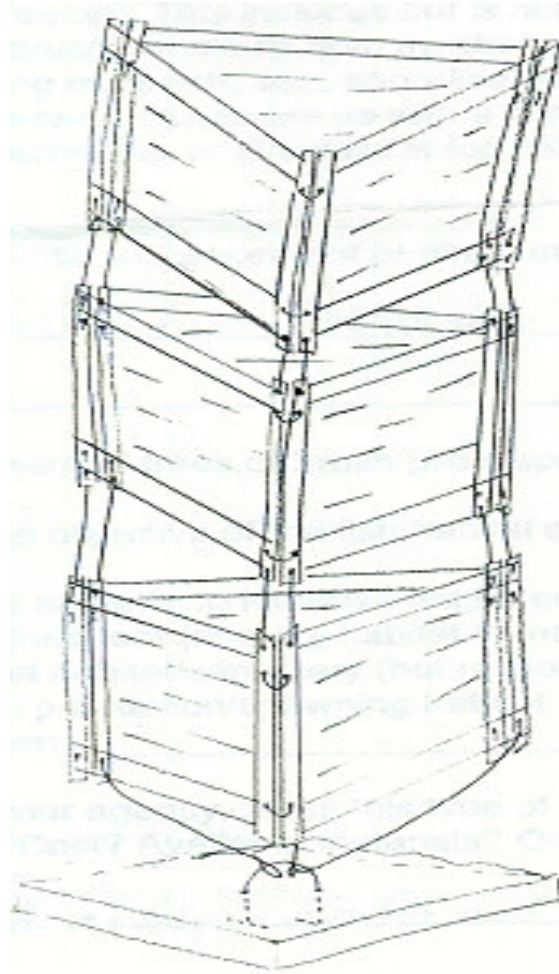
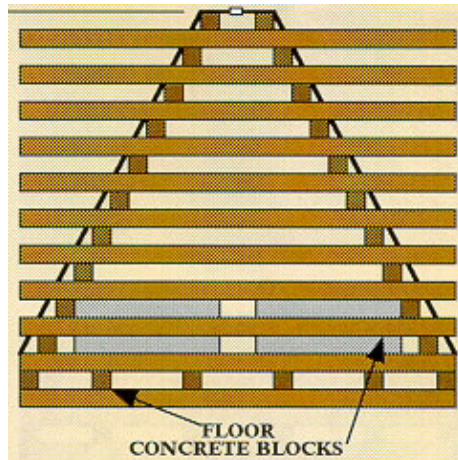
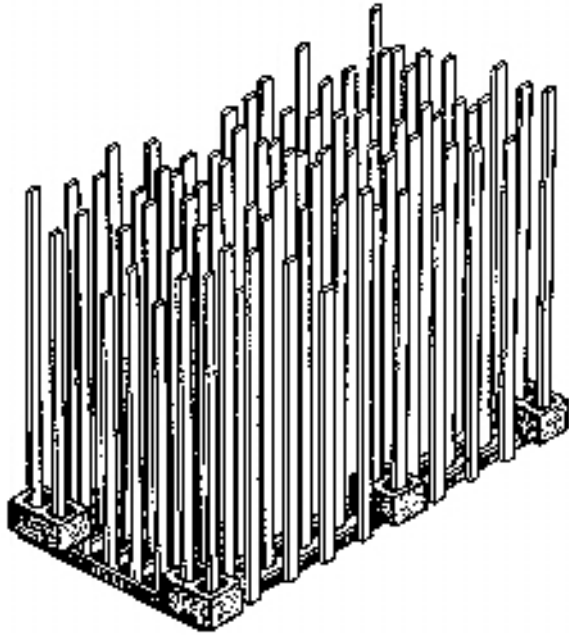
C



Rehvid

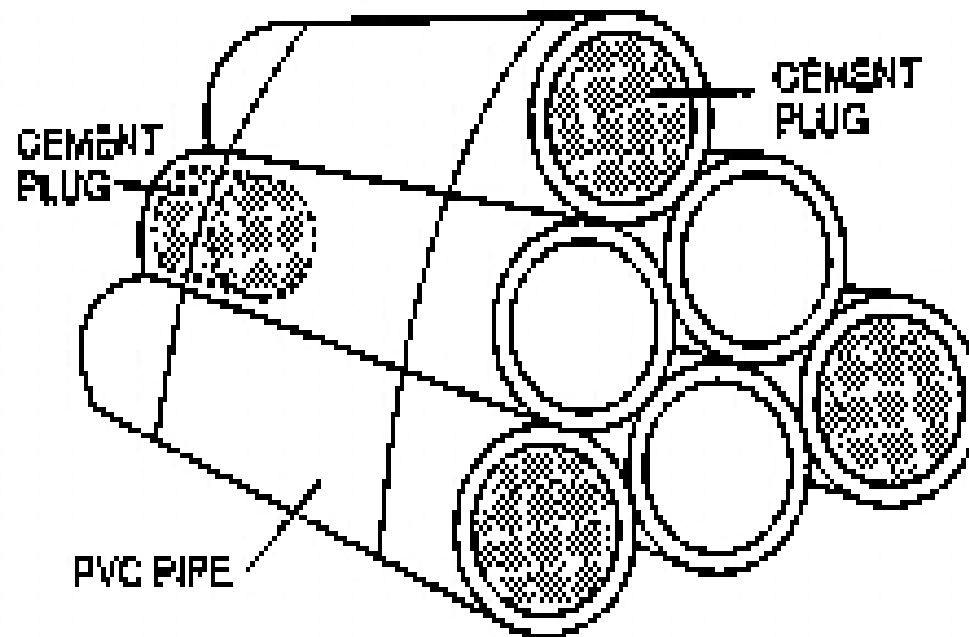


Puitstruktuurid

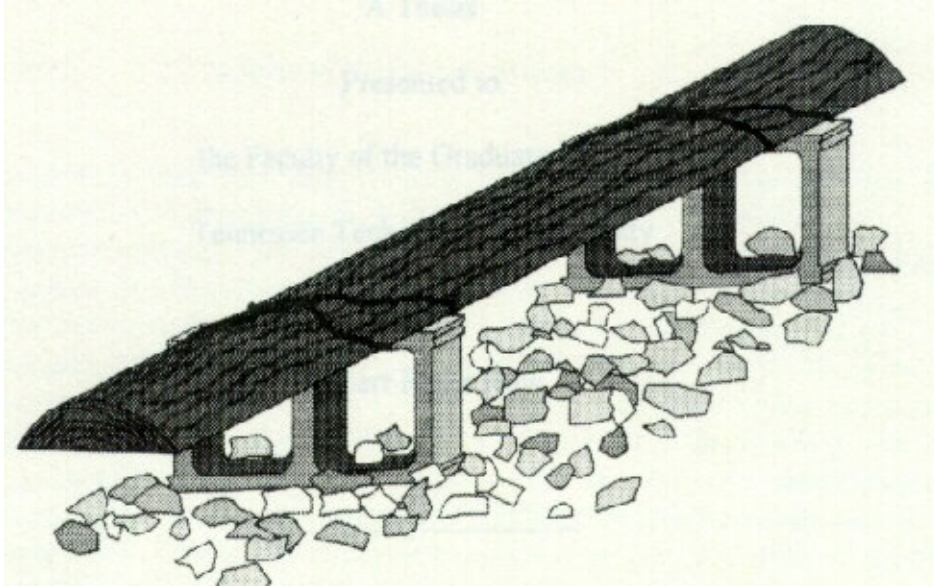


Pipes and Barrels

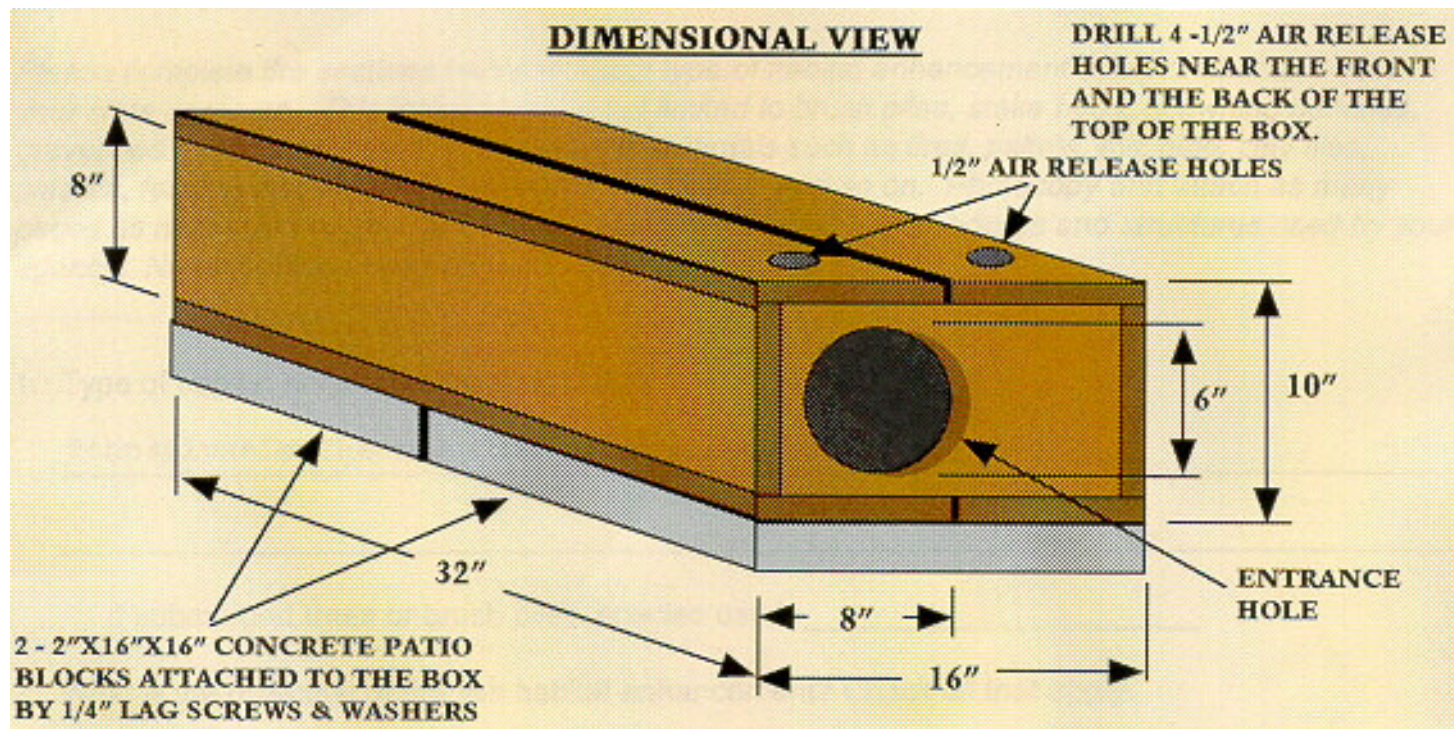
CONSTRUCTION OF PYRAMID UNIT



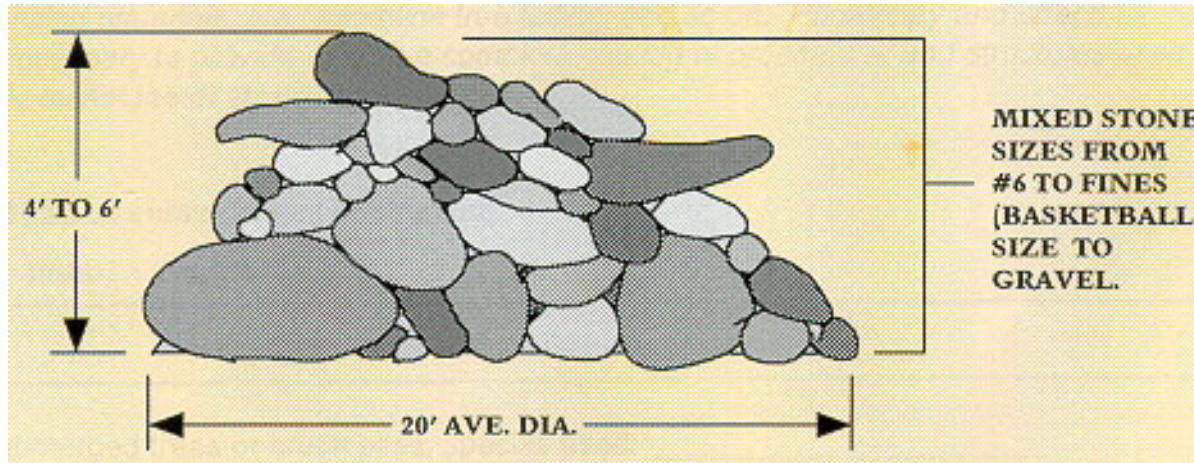
Kudemispingid



Kudemiskarbid



Kudemissubstraadi paigutamine



Muud



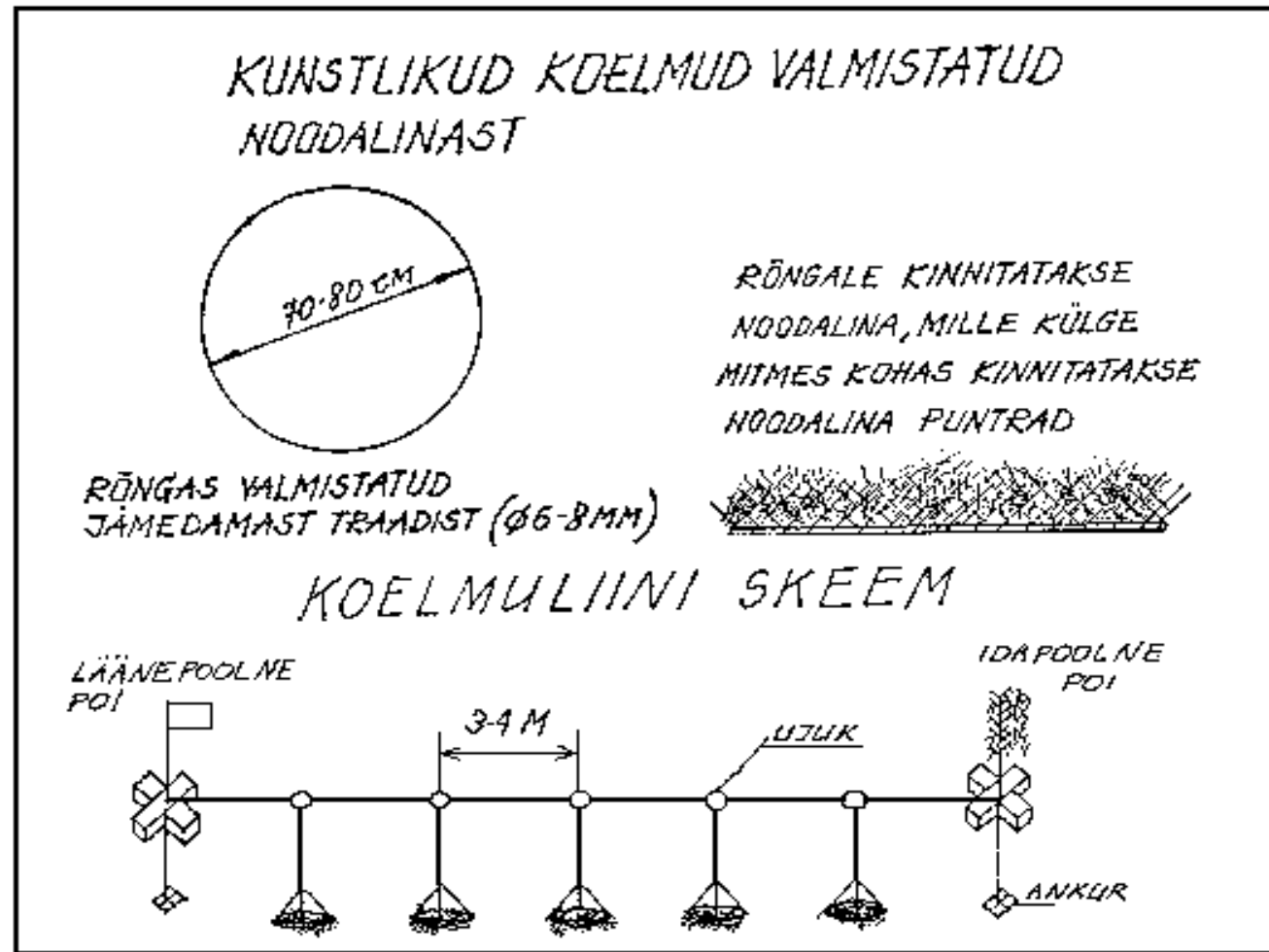
A removable folding net structure that can be placed at any location or depth and removed when/if desired. The structure was chosen because it is reusable and has a low annual cost.

Artificial Reef Patents

PATENT ABSTRACTS OF JAPAN

- [TRUSS TYPE ARTIFICIAL REEF](#)
- [ARTIFICIAL FISH REEF](#)
- [ARTIFICIAL FISHING BANK](#)
- [ARTIFICIAL FISH REEF](#)
- [METHOD FOR PRODUCING ARTIFICIAL FISH-BREEDING REEF](#)
- [METHOD FOR PRODUCING ARTIFICIAL FISH REEF AND APPARATUS FOR PRODUCING THE SAME](#)
- [SEAWEED BED DEVELOPMENT BY USING PLASTIC ARTIFICIAL TURF TYPE ALGAL REEF BOARD](#)
- [ARTIFICIAL FISH REEF](#)
- [HYBRID FISH REEF](#)
- [ARTIFICIAL FISHING REEF MEMBER AND ARTIFICIAL FISHING REEF](#)
- [FACILITY FOR RAISING ABALONE, OR THE LIKE](#)
- [ARTIFICIAL FISH-BREEDING REEF](#)
- [ARTIFICIAL FISH REEF](#)
- [ARTIFICIAL FISH REEF AND METHOD FOR PRODUCING THE SAME](#)
- [METHOD FOR DEVELOPING ARTIFICIAL FISHING BANK OF TROPICAL OR SUBTROPICAL SEA AREA TYPE BY UTILIZING REEF-PRODUCING TYPE CORAL AS PART OF THE BANK](#)
- [ARTIFICIAL FISH-BREEDING REEF](#)
- [ARTIFICIAL FLOATING FISH REEF FOR SURFACE AND INTERMEDIATE LAYER](#)
- [ARTIFICIAL CORAL REEF](#)
- [ARTIFICIAL FISH REEF](#)
- [STONE CONSTRUCTION MATERIAL AND ARTIFICIAL FISH REEF](#)
- [MEMBER FOR REPELLING SEA URCHIN, METHOD FOR ATTACHING THE SAME AND ARTIFICIAL ALGAL REEF](#)
- [SUBMARINE FOREST FISH-BREEDING REEF OF REPLACING THINNED LUMBER](#)
- [ARTIFICIAL FISH-BREEDING REEF](#)
- [ARTIFICIAL FISH-BREEDING REEF BUILT UNDER WATER](#)
- [ARTIFICIAL SPAWNING BED FOR BIGFIN REEF SQUID](#)
- [METHOD FOR DEVELOPING UNDERWATER FOREST](#)
- [DEVICE FOR PRODUCING ARTIFICIAL FISH REEF](#)
- [FISH-SPAWNING REEF PLANTED WITH ARTIFICIAL SEAWEEDS THEREON](#)

Koha tehiskoelmud Eestis



Noodalinast kudepesade esialgne konstruktsioon ja koelmuliini skeem

