FARMING OPPORTUNITIES for the Rhine-Maas Delta
APPENDIX | food patterns

Lena Niel
4227395
L.Niel@student.tudelft.nl

The patterns are part of the appendix of Productive Riverscapes.

TU Delft:
First mentor: Taneha Kuzniecow Bacchin
Second mentor: Nico Tillie
Third mentor: Ulf Hackauf

External examiner: Hans Teerds

Municipality of Rotterdam
External mentor: Pieter de Greef

June, 2015
This booklet is part of PRODUCTIVE RIVERSCAPES. It shows an overview of all the farming opportunities of the Rhine-Maas Delta. The booklet could be used when a design is made that is located along the river. Plants could be selected in such a manner that it improves biodiversity and, at the same time, stimulates social interaction in the highly dense city of Rotterdam.

The edible species are selected based on both the physical conditions of the Delta and the cultures living in the city of Rotterdam. The thesis itself elaborates in depth on the patterns and farming opportunities should be used in urban design.
## CONTENTS

**INTRODUCTION**

### FISH
- HERRING 1
- MACKEREL 2
- HALIBUT 3
- PLAICE 4
- COD 5
- SMELT 6
- SALMON 7
- STURGEON 8
- FINT 9
- SHAD 10
- BREAM 11
- ANCHOVY 12
- EEL 13
- FLOUNDER 14
- PIKE-PERCH 15
- TENCH 16
- CARP 17
- TILAPIA 18
- SQUID 19
- OCTOPUS 20

### SHELL FISH
- ZEELAND MUSSEL 21
- SCALLOP SHELL 22
- JAPANESE OYSTER 23
- FRENCH OYSTER 24
- MITTEN CRAB 25
- CRAB 26
- CRAYFISH 27
- STELLENDAM SHRIMP 28
- NORTH SEA SHRIMP 29
- MACROFAUNA 30

### AQUATIC PLANTS
- JAPANESE SEAWEED 31
- SEAGRASS 32
- SEA CAULIFLOWER 33

### TIDAL HERBS
- SAMPHIRE 34
- LAMSOOR 35
- WATERMINT 36

### TIDAL VEGETABLES
- LETTUCE OF WILLOW 37

### HERBS
- PARSLEY 38
- SAGE 39
- THYME 40
- CELERY 41
- CORIANDER 42
- BAY LEAF 43

### VEGETABLES
- ONION 44
- GARLIC 45
- TOMATO 46
- POTATO 47
- PAPRIKA 48
- CARROT 49
- QUINOA 50

### MEAT
- EUROPEAN GRASSHOPPER 51
- CRAKE 52
- CHICKEN 53
- GREY GOOSE 54
- LAM 55
HERRING, haring

SOIL TYPE
SALINITY
TIDE
DEPTH
SPAWNING
SHORE

PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

IN VolvEMEnt
enab les
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

HABITAT
lives in (•)

A F

FOOD
eats (•)

28 29 30

SPECIES
similar specie to (•)

2 3 4 5 6
MACKEREL, makreel

SOIL TYPE
SALINITY [3000, < ]
TIDE
DEPTH deep water
SPAWNING deep water
SHORE

PRODUCTIVITY
biophysical

Soil type
Contamination
Groundwater table
Water quality
Velocity

INVOLVEMENT
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

HABITAT
lives in (...) A F

FOOD
eats (...) 28 29 30

SPECIES
similar specie to (...) 1 3 4 5 6

fish
small fish
aquatic plants
tidal herbs
tidal vegetables
herbs
vegetables
meat
HALIBUT, *halibut*

**SOIL TYPE**
muddy bottom

**SALINITY**
3000, <

**TIDE**
depth

**DEPTH**
shallow water

**SPAWNING**
shoreline

**SHORE**
vegetated shore

**HABITAT**
lives in (...) A B C E F G

**FOOD**
eats (...) 28 29 30 18

**SPECIES**
similar specie to (...) 1 2 4 5 6

**PRODUCTIVITY**
biophysical

**INvolvement**
enables

**ECOSYSTEM SERVICES**
benefits

PRODUCTIVITY

| Soil type | Contamination | Groundwater table | Water quality | Velocity | Point in ecological network | Point in recreational network | Participation | Educational value | Linking city and nature | Research pilot | Small scale food production | Small scale energy production | Increase biodiversity | Greening land | Improve water safety | Reduce cost of maintenance | Multiplier effect | Symbolic value | Increase value of property | Catalyst urban development |
|-----------|---------------|-------------------|---------------|----------|------------------------------|-------------------------------|---------------|-------------------|--------------------------|----------------|--------------------------|--------------------------|------------------------|----------------|----------------|-----------------------------|-------------------------|
| 5         | 5             | -                 | -             | 3        | 6                            | 6                            | 5             | 5                | 3                        | 3              | 3                        | 2                        | 8                       | 1              | 1               | 1                           | 1                       | 5                   | 4               | 4                          |
PLAICE, *placem*

**SOIL TYPE**
- Salt
- Peat

**SALINITY**
- 1000 <

**TIDE**
- Deep water

**DEPTH**
- Shoreline

**SPAWNING**
- Shore

**SHORE**
- Tidal
- Vegetables
- Aquatic plants

**PRODUCTIVITY**
- Biophysical

**ECOSYSTEM SERVICES**
- Benefits
- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

**INVolVEMENT**
- Enables
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

**HABITAT**
- Lives in ( )
  - A
  - B
  - C
  - E
  - F
  - G

**FOOD**
- Eats ( )
  - 30

**SPECIES**
- Similar species to ( )
  - 1
  - 2
  - 3
  - 5
  - 6
**PRODUCTIVITY**
- Biophysical
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**SOIL TYPE**
- Salinity
  - 1000, 3000 < 
- Tide
- Depth
- Spawning
- Shore

**HABITAT**
- Lives in (...) A B C E F

**FOOD**
- Eats (...) 28 29 30

**SPECIES**
- Similar species to (...) 1 2 3 4 6

**ECOSYSTEM SERVICES**
- Benefits
  - Small scale food production 5
  - Small scale energy production 2
  - Increase biodiversity 5
  - Greening land 1
  - Improve water safety 3
  - Re-use sludge 5
  - Reduce cost of maintenance 4
  - Multiplier effect 5
  - Symbolic value 5
  - Increase value of property 4
  - Catalyst urban development 4

**INVOlVEMENT**
- Enables
  - Point in ecological network 6
  - Point in recreational network 5
  - Participation 2
  - Educational value 5
  - Linking city and nature 5
  - Research pilot 5

**COD**
- *kabeljauw*

- Small scale food production 5
- Small scale energy production 2
- Increase biodiversity 5
- Greening land 1
- Improve water safety 3
- Re-use sludge 5
- Reduce cost of maintenance 4
- Multiplier effect 5
- Symbolic value 5
- Increase value of property 4
- Catalyst urban development 4

**INVOLVEMENT**
- Enables
  - Point in ecological network 6
  - Point in recreational network 5
  - Participation 2
  - Educational value 5
  - Linking city and nature 5
  - Research pilot 5

**ECOSYSTEM SERVICES**
- Benefits
  - Small scale food production 5
  - Small scale energy production 2
  - Increase biodiversity 5
  - Greening land 1
  - Improve water safety 3
  - Re-use sludge 5
  - Reduce cost of maintenance 4
  - Multiplier effect 5
  - Symbolic value 5
  - Increase value of property 4
  - Catalyst urban development 4
SOIL TYPE
muddy bottoms
SALINITY [1000, 3000 < ]
TIDE shallow water
TIDE rivers & streams
DEEPNESS vegetated shore
SPAWNING shut
SHORE

PRODUCTIVITY
biophysical
Soil type 5
Contamination 5
Groundwater table 5
Water quality 5
Velocity 5

IN Volvement
enables
Point in ecological network 6
Point in recreational network 4
Participation 2
Educational value 5
Linking city and nature 5
Research pilot 5

ECOSYSTEM SERVICES
benefits
Small scale food production 5
Small scale energy production 2
Increase biodiversity 6
Greening land 5
Improve water safety 1
Re-use sludge 5
Reduce cost of maintenance 7
Multiplier effect 7
Symbolic value 7
Increase value of property 7
Catalyst urban development 3
Salmon, *zalm*

**SOIL TYPE**
- [ ]

**SALINITY**
- 1.0, 3000 < 1

**TIDE**
- all types

**DEPTH**
- rivers & streams

**SPAWNING SHORE**
- vegetated shore

**PRODUCTIVITY**
- **biophysical**
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**INVolvEMENT**
- enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature
  - Research pilot

**ECOSYSTEM SERVICES**
- benefits
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development

**HABITAT**
- lives in (...)
  - A, B, C, E, F

**FOOD**
- eats (...)
  - 28, 29, 30

**SPECIES**
- similar specie to (...)
  - 8, 9, 10, 11, 12
PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity
SOIL TYPE
SALINITY
TIDE
DEPTH
SPAWNING SHORE

INVOLVEMENT
enables
Point in ecological network
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ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

8 STURGEON, steur

SOIL TYPE muddy bottom
SALINITY 0, 3000 < 1
TIDE 100 %
DEPTH all types
SPAWNING rivers & streams
SHORE vegetated shore

HABITAT
lives in ( )
A B C E F G

FOOD
eats ( )
28 29 30

SPECIES
similar species to ( )
7 9 10 11 12
**HABITAT**
lives in (...)
A B C E F G

**FOOD**
eats (...)
28 29 30

**SPECIES**
similar specie to (...)
7 8 10 11 12

---

**PRODUCTIVITY**
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

**SOIL TYPE**
muddy bottoms

**SALINITY**
| 0, 3000 < |

**TIDE**

**DEPTH**

**SPAWNING**

**SHORE**
vegetated shore

---

**INVolvement**
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

**ECOSYSTEM SERVICES**
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Increase value of property
Catalyst urban development
Reduce cost of maintenance
Multiplier effect
Symbolic value

---

muddy bottoms
shallow water & deep water
rivers & streams
vegetated shore
**PRODUCTIVITY**

- **biophysical**
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**SOIL TYPE**
- muddy bottoms

**SALINITY**
- 0.3000 ≤ 1

**TIDE**
- all types

**DEPTH**
- rivers & streams

**SPAWNING**
- vegetated shore

**SHORE**

**INVolvEMENT**

- enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature
  - Research pilot

**ECOSYSTEM SERVICES**

- **benefits**
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development
**PRODUCTIVITY**
- **biophysical**
  - Soil type
  - Contamination
  - Groundwater table
  - Waterquality
  - Velocity

**SOIL TYPE**
- muddy bottom

**SALINITY**
- \[ 0, 3000 < \]

**TIDE**
- shallow & deep water

**DEPTH**
- rivers & streams

**SPAWNING**
- vegetated shore

**SHORE**

**HABITAT**
- lives in (...) A B C E F G

**FOOD**
- eats (...) 28 29 30

**SPECIES**
- similar specie to (...) 7 8 9 10 12

**INVOLEMENT**
- enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature

**ECOSYSTEM SERVICES**
- benefits
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development

**BREAM, braxem**
- muddy bottom
- \[ 0, 3000 < \]
- shallow & deep water
- rivers & streams
- vegetated shore
**PRODUCTIVITY**
- biophysical
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**SOIL TYPE**
- muddy bottom

**SALINITY**
- (1000, 3000 < )

**TIDE**
- deep water

**DEPTH**
- shoreline

**SPAWNING**
- ( )

**SHORE**
- tidal vegetables
- tidal herbs
- aquatic plants

**INVOLVEMENT**
- enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature
  - Research pilot

**ECOSYSTEM SERVICES**
- benefits
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development

**HABITAT**
- lives in ( )
  - A B C E F G

**FOOD**
- eats ( )
  - 30

**SPECIES**
- similar specie to ( )
  - 7 8 9 10 11

**ANCHOVY**, *ansgovis*

**12**

**SOIL TYPE** muddy bottom
**SALINITY** (1000, 3000 < )
**TIDE** deep water
**DEPTH** shoreline
**SPAWNING** ( )
**SHORE** tidal vegetables, tidal herbs, aquatic plants

**INVOLVEMENT** enables
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

**ECOSYSTEM SERVICES** benefits
- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

**HABITAT** lives in ( )
- A B C E F G

**FOOD** eats ( )
- 30

**SPECIES** similar specie to ( )
- 7 8 9 10 11

**ANCHOVY**, *ansgovis*

**12**
### Productivity

<table>
<thead>
<tr>
<th>Biophysical</th>
<th>Soil type</th>
<th>Contamination</th>
<th>Groundwater table</th>
<th>Water quality</th>
<th>Velocity</th>
</tr>
</thead>
</table>

### Involvement

<table>
<thead>
<tr>
<th>Enables</th>
<th>Point in ecological network</th>
<th>Point in recreational network</th>
<th>Participation</th>
<th>Educational value</th>
<th>Linking city and nature</th>
<th>Research pilot</th>
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<td>5</td>
<td>4</td>
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</table>

### Ecosystem Services

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Small scale food production</th>
<th>Small scale energy production</th>
<th>Increase biodiversity</th>
<th>Greening land</th>
<th>Improve water safety</th>
<th>Re-use sludge</th>
<th>Reduce cost of maintenance</th>
<th>Multiplier effect</th>
<th>Symbolic value</th>
<th>Increase value of property</th>
<th>Catalyst urban development</th>
</tr>
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<td>8</td>
<td>5</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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</tr>
</tbody>
</table>

### Habitat


### Food

- Eats: (A, B, C, E, F, G)

### Species

- Similar species to: (A, B, C, E, F, G)

### Soil Type

- muddy bottoms |

### Salinity

- 0.3000 < |

### Tide

- all types

### Depth

- rivers & streams

### Spawning Shore

- vegetated shore

---

**EEL, paling**

- SOIL TYPE: muddy bottoms
- SALINITY: 0.3000 < 1
- TIDE: all types
- DEPTH: rivers & streams
- SPAWNING SHORE: vegetated shore

---

### Food

- Eats: (A, B, C, E, F, G)

### Species

- Similar species to: (A, B, C, E, F, G)

---

**13**
**PRODUCTIVITY**

<table>
<thead>
<tr>
<th>Biophysical</th>
<th>Soil type</th>
<th>Contamination</th>
<th>Groundwater table</th>
<th>Water quality</th>
<th>Velocity</th>
</tr>
</thead>
</table>

**SOIL TYPE**
- muddy bottom

**SALINITY**
- 0.3000 < 1

**TIDE**
- shallow - deep water

**DEPTH**
- rivers & streams

**SPAWNING SHORE**
- vegetated shore

**INVOILMENT**

<table>
<thead>
<tr>
<th>Enables</th>
<th>Point in ecological network</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Point in recreational network</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Participation</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Educational value</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Linking city and nature</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Research pilot</td>
<td>5</td>
</tr>
</tbody>
</table>

**ECOSYSTEM SERVICES**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Small scale food production</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small scale energy production</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Increase biodiversity</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Greening land</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Improve water safety</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Re-use sludge</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Reduce cost of maintenance</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Multiplier effect</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Symbolic value</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Increase value of property</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Catalyst urban development</td>
<td>4</td>
</tr>
</tbody>
</table>

**HABITAT**
- lives in (...)

**FOOD**
- eats (...)

**SPECIES**
- similar species to (...)

**14**

**FLOUNDER, bot**

- muddy bottom
- shallow - deep water
- vegetated shore
PIKE-PERCH, snoekbaars

SOIL TYPE  muddy bottom
SALINITY  0, 3000 < 1
TIDE  all types
DEPTH  rivers & streams
SPAWNING  vegetated shore
SHORE

HABITAT  lives in (...)
A B C E F G

FOOD  eats (...)
28 29 30 6

SPECIES  similar specie to (...)
13 14

PRODUCTIVITY
biophysical

Soil type  5
Contamination  5
Groundwater table  -
Waterquality  5
Velocity  5

INHABIT  enables

Point in ecological network  6
Point in recreational network  5
Participation  3
Educational value  5
Linking city and nature  5
Research pilot  5

ECOSYSTEM SERVICES
benefits

Small scale food production  6
Small scale energy production  5
Increase biodiversity  6
Greening land  3
Improve water safety  3
Re-use sludge  -
Reduce cost of maintenance  3
Multiplier effect  3
Symbolic value  5
Increase value of property  3
Catalyst urban development  4
**16 TENCH, zeelt**

**SOIL TYPE**
- sandy bottoms

**SALINITY**
- 0.1000

**TIDE**
- shallow water

**DEPTH**
- rivers & streams

**SPAWNING**
- vegetated shore

**SHORE**
- muddy bottoms

---

**HABITAT**
- lives in (...)  
  - A BC E F G

**FOOD**
- eats (...)  
  - 30

**SPECIES**
- similar specie to (...)  
  - 17

---

**PRODUCTIVITY biophysical**
- Soil type
- Contamination
- Groundwater table
- Waterquality
- Velocity

**IN VOLVEMENT enables**
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

**ECOSYSTEM SERVICES benefits**
- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintainance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development
**PRODUCTIVITY**

**biophysical**

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

**SOIL TYPE**

- muddy bottom

**SALINITY**

- 0.300

**TIDE**

- shallow water

**DEPTH**

- rivers & streams

**SPAWNING SHORE**

- vegetated shore

---

**HABITAT**

lives in (...)

A B C E F

**FOOD**

eats (...)

30

**SPECIES**

similar species to (...)

16

---

**INVolvEMENT**

enables

- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

- 1
- 2
- 4
- 5
- 5
- 5

**ECOSYSTEM SERVICES**

benefits

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

- 1
- 1
- 2
- 2
- 5
- 5
- 7
- 7
- 7
- 7
- 7

---

**CARP**

karper

- muddy bottom

- 0.300

- shallow water

- rivers & streams

- vegetated shore
<table>
<thead>
<tr>
<th>HABITAT</th>
<th>lives in (...)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A B C E F G</td>
<td></td>
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<table>
<thead>
<tr>
<th>FOOD</th>
<th>eats (...)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
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<table>
<thead>
<tr>
<th>SPECIES</th>
<th>similar specie to (...)</th>
</tr>
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<thead>
<tr>
<th>18 TILAPIA, <em>O. niloticus</em></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SOIL TYPE</th>
<th>SALINITY</th>
<th>TIDE</th>
<th>DEPTH</th>
<th>SPAWNING SHORE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-300</td>
<td></td>
<td></td>
<td>shallow water</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>shoreline</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>vegetated shore</td>
</tr>
</tbody>
</table>

### PRODUCTIVITY
- **biophysical**
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

### INvolvement
- Enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature
  - Research pilot

### ECOSYSTEM SERVICES
- **benefits**
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development
HABITAT
lives in (...)
A B C E F G

FOOD
eats (...)
30

SPECIES
similar specie to (...)
22

PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Waterquality
Velocity

SOIL TYPE
SALINITY
TIDE
DEPTH
SPAWNING
SHORE
muddy bottom
(3000, <)
very deep water
deep water

INVOlVEMENT
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

SQUID,  
pjilinkvis

SPECIES
similar specie to (...)
30

3D
4D
5D

SQUID,  
pjilinkvis

SPECIES
similar specie to (...)
30

3D
4D
5D

SQUID,  
pjilinkvis

SPECIES
similar specie to (...)
30

3D
4D
5D
OCTOPUS, octopus

SOIL TYPE
- muddy bottom

SALINITY
- 3000, <

TIDE
- deep water

DEPTH
- deep water

SPAWNING
- 

SHORE
- 

HABITAT
- A B C E F G

FOOD
- eats (...) 30

SPECIES
- similar specie to (...) 21

PRODUCTIVITY
- biophysical

INVolVEMENT
- enables

ECOSYSTEM SERVICES
- benefits

- Small scale food production 5
- Small scale energy production 2
- Increase biodiversity 8
- Greening land 5
- Improve water safety 3
- Re-use sludge 5
- Reduce cost of maintance 3
- Multiplier effect 5
- Symbolic value 5
- Increase value of property 4
- Catalyst urban development 4

- Soil type 6
- Contamination 6
- Groundwater table 5
- Water quality 5
- Velocity 3
- Point in ecological network 6
- Point in recreational network 2
- Participation 1
- Educational value 5
- Linking city and nature 3
- Research pilot 3
- 20
SOIL TYPE
SALINITY
TIDE
DEPTH
SPAWNING
SHORE

PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Waterquality
Velocity

INVolvEMENT
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

Zeeland Mussel,
Zeeuwse mossel

Habitat
A
C
G

Zeeland Mussel

Soil type
S
Contamination
S
Groundwater table
S
Waterquality
S
Velocity
S

Zeeland Mussel

Soil type
S
Contamination
S
Groundwater table
S
Waterquality
S
Velocity
S
SCALLOP SHELL, Sint Jacobsschelp

**SOIL TYPE**
- muddy bottom

**SALINITY**
- 2000, 3000 < 1
- 100%

**TIDE**
- shallow - deep water

**DEPTH**
- deep water

**SPAWNING**
- solid substrate

**SHORE**

**HABITAT**
- lives in (...) A C G

**PRODUCTIVITY**
- biophysical

<table>
<thead>
<tr>
<th>Soil type</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contamination</td>
<td>6</td>
</tr>
<tr>
<td>Groundwater table</td>
<td>5</td>
</tr>
<tr>
<td>Waterquality</td>
<td>6</td>
</tr>
<tr>
<td>Velocity</td>
<td>3</td>
</tr>
</tbody>
</table>

**INvolvement**
- enables

<table>
<thead>
<tr>
<th>Point in ecological network</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point in recreational network</td>
<td>2</td>
</tr>
<tr>
<td>Participation</td>
<td>5</td>
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<tr>
<td>Educational value</td>
<td>5</td>
</tr>
<tr>
<td>Linking city and nature</td>
<td>5</td>
</tr>
</tbody>
</table>

**ECOSYSTEM SERVICES**
- benefits

<table>
<thead>
<tr>
<th>Small scale food production</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small scale energy production</td>
<td>2</td>
</tr>
<tr>
<td>Increase biodiversity</td>
<td>7</td>
</tr>
<tr>
<td>Greening land</td>
<td>1</td>
</tr>
<tr>
<td>Improve water safety</td>
<td>1</td>
</tr>
<tr>
<td>Re-use sludge</td>
<td>1</td>
</tr>
<tr>
<td>Reduce cost of maintenance</td>
<td>1</td>
</tr>
<tr>
<td>Multiplier effect</td>
<td>2</td>
</tr>
<tr>
<td>Symbolic value</td>
<td>6</td>
</tr>
<tr>
<td>Increase value of property</td>
<td>5</td>
</tr>
<tr>
<td>Catalyst urban development</td>
<td>5</td>
</tr>
</tbody>
</table>
### JAPANESE OYSTER, *Japanese oyster*

**HABITAT**  
*...*  
A B C D E G

**SOIL TYPE**  
- reef

**SALINITY**  
- [1000, 3000 < ]
- 100 % shallow water

**TIDE**  
- shallow water

**DEPTH**  
- shallow water

**SPAWNING**  
- solid substrate

**SHORE**  
- *

### PRODUCTIVITY

<table>
<thead>
<tr>
<th>biophysical</th>
<th>Soil type</th>
<th>Contamination</th>
<th>Groundwater table</th>
<th>Waterquality</th>
<th>Velocity</th>
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</thead>
<tbody>
<tr>
<td></td>
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### INVOLVEMENT

<table>
<thead>
<tr>
<th>enables</th>
<th>Point in ecological network</th>
<th>Point in recreational network</th>
<th>Participation</th>
<th>Educational value</th>
<th>Linking city and nature</th>
<th>Research pilot</th>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ECOSYSTEM SERVICES

<table>
<thead>
<tr>
<th>benefits</th>
<th>Small scale food production</th>
<th>Small scale energy production</th>
<th>Increase biodiversity</th>
<th>Greening land</th>
<th>Improve water safety</th>
<th>Reduce cost of maintance</th>
<th>Multiplier effect</th>
<th>Symbolic value</th>
<th>Increase value of property</th>
<th>Catalyst urban development</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
### FRENCH OYSTER, 
*Franse oester*

#### SOIL TYPE
- **reef**

#### SALINITY
- **1000, 3000 <**
- **100 %**

#### TIDE
- **shallow water**

#### DEPTH
- **shallow water**
- **solid substrate**

#### SPAWNING
- **3**
- **5**

#### SHORE
- **5**
- **-**
- **-**
- **-**
- **3**
- **5**
- **5**

#### HABITAT
- Lives in (...)

#### A B C D E G

#### PRODUCTIVITY
**biophysical**
- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

#### INvolvement
**enables**
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

#### ECOSYSTEM SERVICES
**benefits**
- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development
HABITAT

A B C E F G

Mitten Crab, wolhandkrab

SOIL TYPE: peat, sand and clay

SALINITY: 0.3000 < 1

TIDE: 100%

DEPTH: shallow - deep water

SPAWNING: shoreline

VEGETATION: vegetated shore

PRODUCTIVITY

biophysical

Soil type
Contamination
Groundwater table
Water quality
Velocity

INvolvement

enables

Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES

benefits

Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

SOIL TYPE

SALINITY

TIDE

DEPTH

SPAWNING

SHORE
PRODUCTIVITY
biophysical
Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity
tidal vegetables tidal herbs aquatic plants
shell fish
fish
herbs
vegetables
meat
ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

SOIL TYPE
muddy bottom

SALINITY
100 %

TIDE
shallow - deep water

DEPTH
shoreline

SPAWNING
rocky & vegetated shore

SHORE

HABITAT

26 CRAB, kраб

ECOSYSTEM SERVICES

PRODUCTIVITY

IN Volvement

biophys Ical
enables

Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

ECOSYSTEM SERVICES

benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

SOIL TYPE

SALINITY

TIDE

DEPTH

SPAWNING

SHORE

HABITAT

lives in (...)
**PRODUCTIVITY**

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

**INVolvEMENT**

- Tidal vegetables
- Tidal herbs
- Aquatic plants
- Shell fish
- Fish
- Herbs
- Vegetables
- Meat

**ECOSYSTEM SERVICES**

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

**SOIL TYPE**

- Salinity
- Tide
- Depth
- Spawning
- Shore

**HABITAT**

- Lives in (...)
# Productivity

<table>
<thead>
<tr>
<th>Biophysical</th>
<th>Involvement</th>
<th>Ecosystem Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil type</td>
<td>Point in ecological network</td>
<td>Small scale food production</td>
</tr>
<tr>
<td>Contamination</td>
<td>Point in recreational network</td>
<td>Small scale energy production</td>
</tr>
<tr>
<td>Groundwater table</td>
<td>Participation</td>
<td>Increase biodiversity</td>
</tr>
<tr>
<td>Water quality</td>
<td>Educational value</td>
<td>Greening land</td>
</tr>
<tr>
<td>Velocity</td>
<td>Linking city and nature</td>
<td>Improve water safety</td>
</tr>
</tbody>
</table>

## Involvement

- Enables
- List of involvements (e.g., link to ecological network, recreational network, participation, educational value, linking city and nature, research pilot, re-use sludge, reduce cost of maintenance, multiplier effect, symbolic value, increase value of property, catalyst urban development)

## Ecosystem Services

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

## Soil Type

<table>
<thead>
<tr>
<th>Salinity</th>
<th>Tide</th>
<th>Depth</th>
<th>Spawning</th>
<th>Shore</th>
</tr>
</thead>
<tbody>
<tr>
<td>muddy bottom</td>
<td>shallow - deep water</td>
<td>shallow water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Habitat

- Lives in a...
PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

HABITAT
lives in (..)

ecosystem services
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

SOIL TYPE
SALINITY
TIDE
DEPTH
SPAWNING
SHORE
muddy bottom
[1000, 3000 < ]
- shallow - deep water
shallow water

INTEGRITY
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

NORTH SEA SHRIMP,
Noordzee garnaal

fish
shell fish
aquatic plants
tidal vegetables
herbs
vegetables
meat
### Productivity

**Biophysical**

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

### Involvement

- Enables

- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

### Ecosystem Services

**Benefits**

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

### Soil Type

- Salinity
  - 0, 3000 < 1
- Tide
- Depth
- Spawning
- Shore

### Habitat

- Lives in (...)
AQUATIC PLANTS
### JAPANESE SEAWEED, Japans zeewier

<table>
<thead>
<tr>
<th>HABITAT</th>
<th>lives in (•-•)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

#### SOIL TYPE
- Clay

#### SALINITY
- 1000, 3000 <

<table>
<thead>
<tr>
<th>TIDE</th>
<th>DEPTH</th>
<th>WEIGHT</th>
<th>SHORE</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>deep water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PRODUCTIVITY
**biophysical**
- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

#### INVOLVEMENT
**enables**
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

#### ECOSYSTEM SERVICES
**benefits**
- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development
PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

SOIL TYPE
SALINITY
TIDE
DEPTH
WEIGHT
SHORE

INVOlVEMENT
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development

SEAGRASS, zeegras

HABITAT
lives in (...)

A B C E

32
**Productivity**

- Biophysical
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**Soil Type**
- 

**Salinity**
- 

**Tide**
- 

**Depth**
- 

**Weight**
- 

**Shore**
- 

---

**Habitat**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
</table>

**Productivity**

- Biophysical
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**Involvement**

- Enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature
  - Research pilot

**Ecosystem Services**

- Benefits
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development

---

**Sea Cauliflower,**

**Zeebloemkool**

---

**Soil Type**

- Clay

**Salinity**

- [1000, 3000 <]

**Tide**

- 

**Depth**

- 

**Weight**

- 

**Shore**

- 

---

**Habitat**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
</table>
TIDAL HERBS
Soil type: peat, sand and clay
Salinity: 1000 - 3000
Tide: 100%
Depth: shallow water
Weight: vegetated slope

Productivity
- Biophysical
  - Soil type: 5
  - Contamination: 5
  - Groundwater table: 5
  - Water quality: 5
  - Velocity: 5

Involvement
- Enables
  - Point in ecological network: 5
  - Point in recreational network: 5
  - Participation: 5
  - Educational value: 5
  - Linking city and nature: 5
  - Research pilot: 5

Ecosystem services
- Benefits
  - Small scale food production: 5
  - Small scale energy production: 1
  - Increase biodiversity: 5
  - Greening land: 4
  - Improve water safety: 1
  - Re-use sludge: 2
  - Reduce cost of maintenance: 1
  - Multiplier effect: 3
  - Symbolic value: 5
  - Increase value of property: 4
  - Catalyst urban development: 5

Habitat
- Lives in:
  - A
  - B
  - C
  - D
  - E
  - F
  - H

Ecological network
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

Recreational network
- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

34 Samphire, zee kraal
PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

SOIL TYPE
Salinity
TIDE
DEPTH
WEIGHT
SHORE

peat, sand and clay
[ 1000, 3000 < ]
100 %
shallow water
vegetated shore / quay

HABITAT
lives in ( ... )

A B C D E H

WATERMINT, watermint

SOIL TYPE
Salinity
TIDE
DEPTH
WEIGHT
SHORE

PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

IN VolVEMENT
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development
TIDAL VEGETABLES
| HABITAT | lives in (...)
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>H</th>
</tr>
</thead>
</table>

**LETUCE OF WILLOW, wilgsla**

| SOIL TYPE | peat, sand and clay |
| TIDE | 100 % |
| DEPTH | shallow water |
| WEIGHT | - |
| SHORE | vegetated shore / quay |

**ECOSYSTEM SERVICES benefits**
- Small scale food production 5
- Small scale energy production 3
- Increase biodiversity 5
- Greening land 4
- Improve water safety 3
- Re-use sludge 2
- Reduce cost of maintance 3
- Multiplier effect 3
- Symbolic value 5
- Increase value of property 4
- Catalyst urban development 5

<table>
<thead>
<tr>
<th>PRODUCTIVITY biophysical</th>
<th>INVolVEMENT enables</th>
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<td>Soil type</td>
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<td>Waterquality</td>
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<td>Velocity</td>
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<td>Participation</td>
<td>6</td>
</tr>
<tr>
<td>Educational value</td>
<td>6</td>
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<tr>
<td>Linking city and nature</td>
<td>6</td>
</tr>
<tr>
<td>Research pilot</td>
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37
HERBS
### PRODUCTIVITY

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<thead>
<tr>
<th>Biophysical</th>
<th>Soil type</th>
<th>Contamination</th>
<th>Groundwater table</th>
<th>Waterquality</th>
<th>Velocity</th>
</tr>
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<tbody>
<tr>
<td>5</td>
<td>5</td>
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</table>

### INVOLVEMENT

<table>
<thead>
<tr>
<th>Enables</th>
<th>Point in ecological network</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Point in recreational network</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Participation</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Educational value</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Linking city and nature</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Research pilot</td>
<td>5</td>
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</table>

### ECOSYSTEM SERVICES

<table>
<thead>
<tr>
<th>Benefits</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small scale food production</td>
<td>5</td>
</tr>
<tr>
<td>Small scale energy production</td>
<td>5</td>
</tr>
<tr>
<td>Increase biodiversity</td>
<td>5</td>
</tr>
<tr>
<td>Greening land</td>
<td>5</td>
</tr>
<tr>
<td>Improve water safety</td>
<td>5</td>
</tr>
<tr>
<td>Re-use sludge</td>
<td>5</td>
</tr>
<tr>
<td>Reduce cost of maintenance</td>
<td>5</td>
</tr>
<tr>
<td>Multiplier effect</td>
<td>2</td>
</tr>
<tr>
<td>Symbolic value</td>
<td>5</td>
</tr>
<tr>
<td>Increase value of property</td>
<td>2</td>
</tr>
<tr>
<td>Catalyst urban development</td>
<td>5</td>
</tr>
</tbody>
</table>

### SOIL TYPE

- peat, sand and clay

### SALINITY

- 0, 1000

### TIDE

- 50%

### SPACE

- 4

### CLIMATE

- moderate

### SHORE

- vegetated shore

### HABITAT

- lives in (A, B, C, D, E, H)

### PARSLEY, peterselie
PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

SOIL TYPE
SALINITY
TIDE
SPACE
CLIMATE
SHORE
peat, sand and clay
[0, 1000]
50%
10
moderate
vegetated shore

HABITAT
lives in (...)
A B C D E H

PRODUCTIVITY
involvement
biophysical
Enables

ECOSYSTEM SERVICES
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Small scale food production
Small scale energy production
Increase biodiversity
Greening land
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Symbolic value
Increase value of property
Catalyst urban development
THYME, thym

SOIL TYPE
SALINITY
TIDE
SPACE
CLIMATE
SHORE

sand and peat
[ 0, 300 ]
0 %
10
moderate
-

PRODUCTIVITY
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**Productivity (biophysical)**

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<th>Groundwater table</th>
<th>Water quality</th>
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</thead>
<tbody>
<tr>
<td>Sandy, well drained soil</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Soil type**

Sandy, well drained soil

**Involvement (benefits)**

<table>
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<tr>
<th>Products</th>
<th>Small scale food production</th>
<th>Small scale energy production</th>
<th>Increase biodiversity</th>
<th>Greening land</th>
<th>Improve water safety</th>
<th>Re-use sludge</th>
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<th>Increase value of property</th>
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<td>4</td>
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<td>5</td>
<td>5</td>
<td>5</td>
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</tbody>
</table>

**Habitat**

- Lives in (...)
- Sandy, well drained soil
- Moderate vegetation

**Celery, Seldery**

<table>
<thead>
<tr>
<th>Plant type</th>
<th>Habitat</th>
<th>SOIL TYPE</th>
<th>Salinity</th>
<th>TIDE</th>
<th>SPACE</th>
<th>CLIMATE</th>
<th>SHORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celery, Seldery</td>
<td>Sandy, well drained soil</td>
<td>Sandy</td>
<td>[0,1000]</td>
<td>50%</td>
<td>3</td>
<td>Moderate</td>
<td>Vegetated slope</td>
</tr>
</tbody>
</table>
CORIANDER, korander

SOIL TYPE
peat, sand and clay

SALINITY
0 %

TIDE
3

SPACE
moderate

CLIMATE
-

SHORE
-

PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Waterquality
Velocity

IN VolVEMENT
enables
Point in ecological network
Point in recreational network
Participation
Educational value
Linking city and nature
Research pilot

ECOSYSTEM SERVICES
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Small scale energy production
Increase biodiversity
Greening land
Improve water safety
Re-use sludge
Reduce cost of maintenance
Multiplier effect
Symbolic value
Increase value of property
Catalyst urban development
43 BAY LEAF, laurierblad

**SOIL TYPE**
peat, sand and clay

**SALINITY**
[0, 300]

**TIDE**
0 %

**SPACE**
0.6

**CLIMATE**
moderate

**SHORE**
-

**PRODUCTIVITY**
biophysical

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

**INVolVEMENT**
enables

- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

**ECOSYSTEM SERVICES**
benefits

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintance
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- Symbolic value
- Increase value of property
- Catalyst urban development
VEGETABLES
PRODUCTIVITY

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

INVolVEMENT

- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

ECOSYSTEM SERVICES

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

SOIL TYPE
- peat, sand and clay

SALINITY
- 0-300

TIDE
- 0%

SPACE
- 250/m²

CLIMATE
- moderate

SHORE
GARLIC, *knoflook*

**SOIL TYPE**
- peat & sand

**SALINITY**
- 0 %

**TIDE**
- 60 / m²

**SPACE**
- moderate

**CLIMATE**

**ECOSYSTEM SERVICES**
- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development

**PRODUCTIVITY**
- biophysical

**Productivity**

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**INVOlVEMENT**
- enables

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**ECOSYSTEM SERVICES**
- benefits

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**PRODUCTIVITY**

**biophysical**
- Soil type
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**ECOSYSTEM SERVICES**

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**INVolVEMENT**

- Enables
- Point in ecological network
- Point in recreational network
- Participation
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- Research pilot
- Re-use sludge

**SOIL TYPE**

- peat, sand and clay

**SALINITY**

- 0 %

**TIDE**

- 2.5 / m²

**SPACE**

- moderate

**CLIMATE**

- 5

**SHORE**

- 5

---

**TOMATO, tomaat**

<table>
<thead>
<tr>
<th>SOIL TYPE</th>
<th>peat, sand and clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALINITY</td>
<td>[ 0, 300 ]</td>
</tr>
<tr>
<td>TIDE</td>
<td>0 %</td>
</tr>
<tr>
<td>SPACE</td>
<td>2.5 / m²</td>
</tr>
<tr>
<td>CLIMATE</td>
<td>moderate</td>
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<tr>
<td>SHORE</td>
<td>5</td>
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PRODUCTIVITY

biophysical

Soil type 6
Contamination 5
Groundwater table 5
Waterquality -
Velocity -

IN Volvement

enables

Point in ecological network 6
Point in recreational network 5
Participation 5
Educational value 5
Linking city and nature 5
Research pilot 5

ECOSYSTEM SERVICES

benefits

Small scale food production 5
Small scale energy production 1
Increase biodiversity 4
Greening land 5
Improve water safety -
Re-use sludge -
Reduce cost of maintenance 5
Multiplier effect 5
Symbolic value 5
Increase value of property 7
Catalyst urban development 3

SOIL TYPE

peat, sand and clay

SALINITY

[0, 3000]

TIDE

0 %

SPACE

4 / m2

CLIMATE

moderate

SHORE

POTATO,  
aardappel

vegetables

fish

herbs

small fish

aquatic plants
PAPRIKA, *paprika*

**SOIL TYPE**
paprika

**SALINITY**
peat, sand and clay

**TIDE**
0 %

**SPACE**
4 / m²

**CLIMATE**
moderate

**SHORE**
-

**PRODUCTIVITY**
biophysical

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### CARROT, wortel

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<th>SPACE</th>
<th>CLIMATE</th>
<th>SHORE</th>
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</thead>
<tbody>
<tr>
<td>sand and peat</td>
<td>0, 300</td>
<td>0 %</td>
<td>45 / m²</td>
<td>moderate</td>
<td>-</td>
</tr>
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### PRODUCTIVITY

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<td>-</td>
</tr>
</tbody>
</table>

### INVolVEMENT

<table>
<thead>
<tr>
<th>enables</th>
<th>Point in ecological network</th>
<th>Point in recreational network</th>
<th>Participation</th>
<th>Educational value</th>
<th>Linking city and nature</th>
<th>Research pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### ECOSYSTEM SERVICES

<table>
<thead>
<tr>
<th>benefits</th>
<th>Small scale food production</th>
<th>Small scale energy production</th>
<th>Increase biodiversity</th>
<th>Greening land</th>
<th>Improve water safety</th>
<th>Re-use sludge</th>
<th>Reduce cost of maintance</th>
<th>Multiplier effect</th>
<th>Symbolic value</th>
<th>Increase value of property</th>
<th>Catalyst urban development</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

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**Note:** The table above lists the biophysical and ecological properties of the carrot, along with its involvement and ecosystem services.
**Productivity**

- **Biophysical**
  - Soil type
  - Contamination
  - Groundwater table
  - Water quality
  - Velocity

**Involvement**

- Enables
  - Point in ecological network
  - Point in recreational network
  - Participation
  - Educational value
  - Linking city and nature
  - Research pilot

**Ecosystem Services**

- Benefits
  - Small scale food production
  - Small scale energy production
  - Increase biodiversity
  - Greening land
  - Improve water safety
  - Re-use sludge
  - Reduce cost of maintenance
  - Multiplier effect
  - Symbolic value
  - Increase value of property
  - Catalyst urban development

**Soil Type**

- Sandy, well drained soil

**Salinity**

- 0.3000 < 1

**Tide**

- 0%

**Space**

- 4 m²

**Climate**

- Moderate
PRODUCTIVITY
biophysical
Soil type
Contamination
Groundwater table
Water quality
Velocity

SOIL TYPE
Salinity
Tide
Space
Climate
Shore

ECOSYSTEM SERVICES
benefits
Small scale food production
Small scale energy production
Increase biodiversity
Greening land
Improve water safety
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Increase value of property
Catalyst urban development

INVOlVEMENT
enables
Point in ecological network
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Linking city and nature
Research pilot

EUROPEAN GRASSHOPPER,
Europese sprinkhaan

SOIL TYPE
peat, sand and clay

SALINITY
[ 0, 2000 ]

TIDE
0 %

SPACE
10 / m²

CLIMATE
moderate

SHORE
vegetated shore
CRAKE, parseteinhoen

SOIL TYPE
- peat, sand and clay

SALINITY
- 0.3000 < 1

TIDE
- 100 %

SPACE
- 1 / m²

CLIMATE
- moderate

SHORE
- vegetated shore

PRODUCTIVITY
biophysical

Soil type
Contamination
Groundwater table
Waterquality
Velocity

INVolvement
enables

- Point in ecological network
- Point in recreational network
- Participation
- Educational value
- Linking city and nature
- Research pilot

ECOSYSTEM SERVICES
benefits

- Small scale food production
- Small scale energy production
- Increase biodiversity
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- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development
**PRODUCTIVITY**

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

**SOIL TYPE**

- peat, sand and clay

**SALINITY**

- 0.3000 <

**TIDE**

- 100%

**SPACE**

- 1/m²

**CLIMATE**

- moderate

**SHORE**

- vegetated shore

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**IN VolvEMENT**

- Enables

- Point in ecological network
- Point in recreational network
- Participation
- Educational value
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**ECOSYSTEM SERVICES**

- benefits

- Small scale food production
- Small scale energy production
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- Symbolic value
- Increase value of property
- Catalyst urban development

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**53 CHICKEN, kip**

- **SOIL TYPE:** peat, sand and clay
- **SALINITY:** 0.3000 <
- **TIDE:** 100%
- **SPACE:** 1/m²
- **CLIMATE:** moderate
- **SHORE:** vegetated shore

---

**PRODUCTIVITY**

- Soil type
- Contamination
- Groundwater table
- Water quality
- Velocity

**SOIL TYPE**

- peat, sand and clay

**SALINITY**

- 0.3000 <

**TIDE**

- 100%

**SPACE**

- 1/m²

**CLIMATE**

- moderate

**SHORE**

- vegetated shore

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**IN VolvEMENT**

- Enables

- Point in ecological network
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- Participation
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**ECOSYSTEM SERVICES**

- benefits

- Small scale food production
- Small scale energy production
- Increase biodiversity
- Greening land
- Improve water safety
- Re-use sludge
- Reduce cost of maintenance
- Multiplier effect
- Symbolic value
- Increase value of property
- Catalyst urban development
SOIL TYPE
peat, sand and clay

SALINITY
[0, 3000 < ]

TIDE
100 %

SPACE
1 / m²

CLIMATE
moderate

SHORE
vegetated shore

PRODUCTIVITY
biophysical

Soil type

Contamination

Groundwater table

Waterquality

Velocity

INFORMATION
enables

Point in ecological network

Point in recreational network

Participation

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Linking city and nature

Research pilot

ECOSYSTEM SERVICES

benefits

Small scale food production

Small scale energy production

Increase biodiversity

Greening land

Improve water safety

Re-use sludge

Reduce cost of maintenance

Multiplier effect

Symbolic value

Increase value of property

Catalyst urban development

GREY GOOSE, grauwe gans

54
### PRODUCTIVITY

- **Soil type**
- **Contamination**
- **Groundwater table**
- **Water quality**
- **Velocity**

### INVOLVEMENT

- **Point in ecological network**
- **Point in recreational network**
- **Participation**
- **Educational value**
- **Linking city and nature**
- **Research pilot**

### ECOSYSTEM SERVICES

- **Small scale food production**
- **Small scale energy production**
- **Increase biodiversity**
- **Greening land**
- **Improve water safety**
- **Re-use sludge**
- **Reduce cost of maintenance**
- **Multiplier effect**
- **Symbolic value**
- **Increase value of property**
- **Catalyst urban development**

### SOIL TYPE

- peat, sand and clay

### SALINITY

- 0.3000 < 1

### TIDE

- 100%

### SPACE

- 1 / m²

### CLIMATE

- moderate

### SHORE

- vegetated shore
Patterns
Source: image made by author. Spatial operations retrieved from report: Eco-engineering in the Netherlands RWS& Deltares, 2013

**Source:**

- **Lower Velocity**
  - Lowering the velocity of the water aims three different goals. Firstly, plants are able to attach to substrates. Secondly, fish are able to find optimal habitats regarding both migration and breeding season. Thirdly, the flush of sediments is decreased.

- **Shallowing Water**
  - An optimal habitat for aquatic food production could be achieved by creating less deep waters in the current harbours. At this moment there is not enough light in the deep water, which has a negative effect on the quality of the water (growth of algae). More daylight is able to reach the ground of the riverbed if shallow water is created. It both affects the quality of the water and the population of aquatic food positively.

- **Avoid Sediment From Moving**
  - Creating river parks along the river Muse should not affect the harbour activities. A large amount of big ships are passing by the river parks every day. To eventually realise river parks in the city of Rotterdam, one should avoid sediment of the parks from moving into the main transportation zone of the harbour.

- **Visible Greening**
  - One of the objectives of the project River as a Tidal Park is to create more visible green in the city. Nevertheless, not all types of food production and building with nature are contributing to this objective.

- **Remediation**
  - Both the type of soil and the quality of the water should be suitable for food production. Certain types of food could be used to clean the soil and water. Notably, the quality of the food itself should be taken into account.

- **On-going Corridors**
  - By creating on-going routing (corridors), animals are able to move from A to B. This is necessary to improve biodiversity (patches) along the river.

- **Accessible**
  - The added value of food production in urban river parks is stimulating social interaction among people (land nature). Still, the type of food production and building with nature should be accessible by both people and biodiversity.

**PATTERNS**

- **Tidal area**
  - Seaweed area
  - Forest of poles (hoela's)
  - Oyster reefs
  - Mussel banks
  - Dead wood
  - Aquatic vegetation
  - Forest of willow trees
  - Floating structures
  - Hanging structures
  - Stones
  - Eco-concrete

- **Gradient**
  - Create a gradient (aquatic, tidal, country) as large as possible. On one hand, a greater surface for food production is achieved. On the other hand, a longer sloping shore (low inclination) protects the hinterland better than a short sloping shore (high inclination).

- **Soft covered dikes/shores**
  - Certain types of crops could be produced based on the type of water cultures of people. It results in both production of food and habitat for other species.
  - Marshes: could be designed as an alternative shore
  - Eco-concrete: creates habitat for macro fauna which improves the ecological system
  - Recreit: creates habitat for macro fauna which improves the ecological system

**SPATIAL OPERATION**

- **Lower Velocity**
  - Forest of willows
  - Marshes
  - Vegetated slope/dike
  - Swamp area
  - Floating structures

- **Shallowing Water**
  - River parks located in the inner curve of the river: velocity is less than in the outer curve.
  - Create shallow water: sediment: in slowly flowing water w.I moves less.
  - ‘Stain-engines’ principle: by using this principle both the flow of water and movement of sediments can be influenced.
  - Forest of willow trees: by creating these types of forests, the sediment will not move.
  - Forest of poles: same principle as the forest of willow trees.
  - Floating structures: construction avoids sediment from moving.

- **Remediation**
  - Forest of willow trees: harvesting is only possible during low tide
  - Marshes: harvesting is only possible during low tide
  - Vegetated slope/dike: harvesting is, depending on the angle of the dike
  - Swamps: harvesting is only possible via fanning elements
  - Floating structures: harvesting is possible at all times
  - Stones: harvesting is depending on the placement of stones regarding the height of the dike
  - Ecoconcrete: harvesting is depending on the placement of concrete regarding the height of the dike

**JOBS COLLECTIVE GARDENS**

- **Land**
  - Ecological connection under/along big infrastructure. For example tidal corridors, marshes, small patches of willow trees. By creating small ecological corridors along major infrastructural routes, animals are able to cross these barriers.

- **Water**
  - Stairs for fish, they are able to ‘save the stairs’
  - Fishing reel
  - Structures that are fish-friendly; technical measurement to enable fish to cross these civil constructions