



Suitable localities for mussel farming in the County of Kalmar with regard to results from experimental farms in 2013

Erik Olofsson, Markus Nord, Maria Kappling



Baltic Sea Region
Programme 2007-2013

Part-financed by the European Union (European Regional Development Fund and European Neighbourhood and Partnership Instrument)

AQUABEST



AQUABEST 

Finnish Game and Fisheries Research Institute, Helsinki
2014

ISBN 978-952-303-103-6

Reports from Aquabest project 19 / 2014

Suitable localities for mussel farming in the County of Kalmar with regard to results from experimental farms in 2013

Authors: Erik Olofsson Torsta AB, Markus Nord, Maria Kappling
Naturum Västervik

Description

Authors Erik Olofsson, Markus Nord, Maria Kappling		
Title Suitable localities for mussel farming in the County of Kalmar based on results from experimental mussel farms in 2013		
Year 2013	Pages 25	ISBN 978-952-303-103-6
Abstract Using the result of a previous mussel system experiment in 2012 as a basis, a follow-up supplementary mussel farming experiment was planned and implemented in 2013. The objective was to evaluate suitable localities and different substrates for mussel farming in the area. The settlement stations were increased by more substrates and more localities were selected, spread among the Kalmarsund Commission's member municipalities. The settlement stations consisted of four different substrates, ropes, bands, single nets and double nets. Ropes and bands were repeated twice at each settlement station. In mid-May, 12 settlement stations were positioned at selected localities. Following a growth period of May-September, the farms were salvaged and the analysis area was assessed as per the prescribed method. The result showed that the greatest amount of blue mussel fouling occurred in the localities at Hasselö, Dunö and Simpvarp and that the single net and double net substrates had the most abundant blue mussel fouling.		
Keywords Mussel, aquaculture, Sweden, the County of Kalmar		
Publications Internet address http://www.aquabestproject.eu/reports.aspx		
Contact		
Additional information		

Contents

Description	4
1. Introduction	6
1.1. Summary	6
1.2. Background	6
2. Method	7
3. Implementation	7
3.1. Non-conformities	8
4. Results	8
4.1. Tables	8
4.2. Visual results	12
5. Discussion	13
6. Appendices	13
7. References	14
Appendix 1 – Results tables	15
Appendix 2 – Illustration of settlement station	16
Appendix 3 – Information notices	17
Appendix 4 – Pictures	18
Appendix 5 – Instructions to observers	24

1. Introduction

At the request of the Kalmarsund Commission, Naturum Västervik, together with Västervik municipality, has planned and implemented experimental mussel farms in the County of Kalmar.

1.1. Summary

Using the result of a previous mussel system experiment in 2012 as a basis, a follow-up supplementary mussel farming experiment was planned and implemented in 2013. The objective was to evaluate suitable localities and different substrates for mussel farming in the area. The settlement stations were increased by more substrates and more localities were selected, spread among the Kalmarsund Commission's member municipalities. The settlement stations consisted of four different substrates, ropes, bands, single nets and double nets. Ropes and bands were repeated twice at each settlement station. In mid-May, 12 of the settlement stations were positioned in selected localities. Following a growth period, May-September, the farms were salvaged and the analysis area was assessed according to the prescribed method. The result showed that the greatest amount of blue mussel fouling occurred in the localities at Hasselö, Dunö and Simpvarp and that the single net and double net substrates had the most abundant blue mussel fouling.

1.2. Background

During 2012, Naturum Västervik, Västervik municipality and Hasselö Fishing Conservation Area Association implemented an experiment to evaluate whether small (2x5m) experimental mussel farms, or settlement stations, could give an indication as to whether a selected locality had the potential for mussel farming. The experiment was carried out outside Hasselö in Västervik's northern archipelago at the request of Aquabest and the Kalmarsund Commission. The result showed that small settlement stations were effective and relatively easy to handle in order to evaluate the potential of a locality during a growth period (May to September), although it was recognised that more types of substrate would need to be tested in order to optimise the settlement stations. In the 2012 experiment, only one substrate was tested, bands (substrate S2 according to the 2013 experiment). During 2013, a supplementary experiment with more substrates/settlement stations and more localities spread among the Kalmarsund Commission's member municipalities was planned for the purpose of evaluating suitable localities but also different substrates for large-scale mussel farming in the area. The localities were selected by representatives of the municipalities on the basis of the information from the 2012 GIS analysis.

During summer 2013 at the request of the Kalmarsund Commission, Naturum Västervik planned and implemented a supplemented mussel farming experiment in cooperation with Västervik municipality.

2. Method

The experiments are implemented using mussel farming nets or settlement stations made by Kingfisher from Malmö according to specification and the procurement procedures from the Kalmarsund Commission. The equipment in the experiment is purchased using sponsorship money from SKB Svensk kärnbränslehantering AB, Regional Insurance Companies in the County of Kalmar and Södra and E.on wind power. The settlement stations consist of four different substrates with the repetition of two substrates (Appendix 2).

Substrate 1 (S1)

PP line, 6 mm with two (2) repetitions

Substrate 2 (S2)

Cultivation band, 50 mm with two (2) repetitions

Substrate 3 (S3)

Net, 3 mm single-knot with one (1) repetition

Substrate 4 (S4)

Net, 3 mm double-knot with one (1) repetition

The settlement stations are positioned in 12 preselected localities no later than mid-May. Following a growth period, May-September, the farms are salvaged and the analysis area is assessed visually and each substrate is scraped as instructed. The scraping field is measured 1500 mm from the uppermost fixing for the substrate and is scraped 500 mm in a vertical direction. The material or organisms which have been scraped away are placed in a collection vessel, labelled and analysed onshore. The content of the collection vessel is weighed, total weight, and the blue mussel is then sorted out and weighed separately. During November, a report is given to the Kalmarsund Commission.

3. Implementation

At the start of May, an information meeting was arranged in Stora Rör on Öland to inform interested parties and selected observers of the experiment, the equipment that would be used, the way in which reporting would take place, anticipated work input and compensation possibilities. Each observer was also given a written instruction and contact details of the coordinator and project manager (Appendix 5).

In mid-May, the settlement stations were positioned in each locality by the coordinator and/or the observer for the locality. The date was selected for the substrates to lie in the water for a while and hopefully host a certain normal bacterial flora before the mussel larvae settled. Previous surveys substantiate the theory that the mussel larva does not choose clean substrates. The settlement stations were anchored with stakes and 2 metres of chain cable and the farm was marked with a surface buoy labelled "Experimental mussel farming Aquabest 0703337871". A marking buoy was also positioned with a line from the anchor to facilitate the salvage of the farm. In September, all settlement stations were salvaged and the analysis area of each substrate was scraped. The fouling was collected in

separate collection vessels with labelled with locality/substrate/repetition and was analysed in accordance with the prescribed method.

3.1. Non-conformities

After one week, two Mönsterås farms were reported to have disappeared but it was possible to replace them with two older settlement stations from the 2012 experiment (only S1 and S2). In July, the observer in Påskallavik reports that the farm has no surface buoy. When the coordinator arrives at the locality, the settlement station has disappeared with only anchor and marking buoy remaining at the site. The locality is not replaced with a new settlement station. At Dunö, a surface buoy disappears but the station is otherwise intact with the buoy being replaced by the observer. The surface buoy is also reported to be missing at northern Öland both farms, with the observer replacing them.

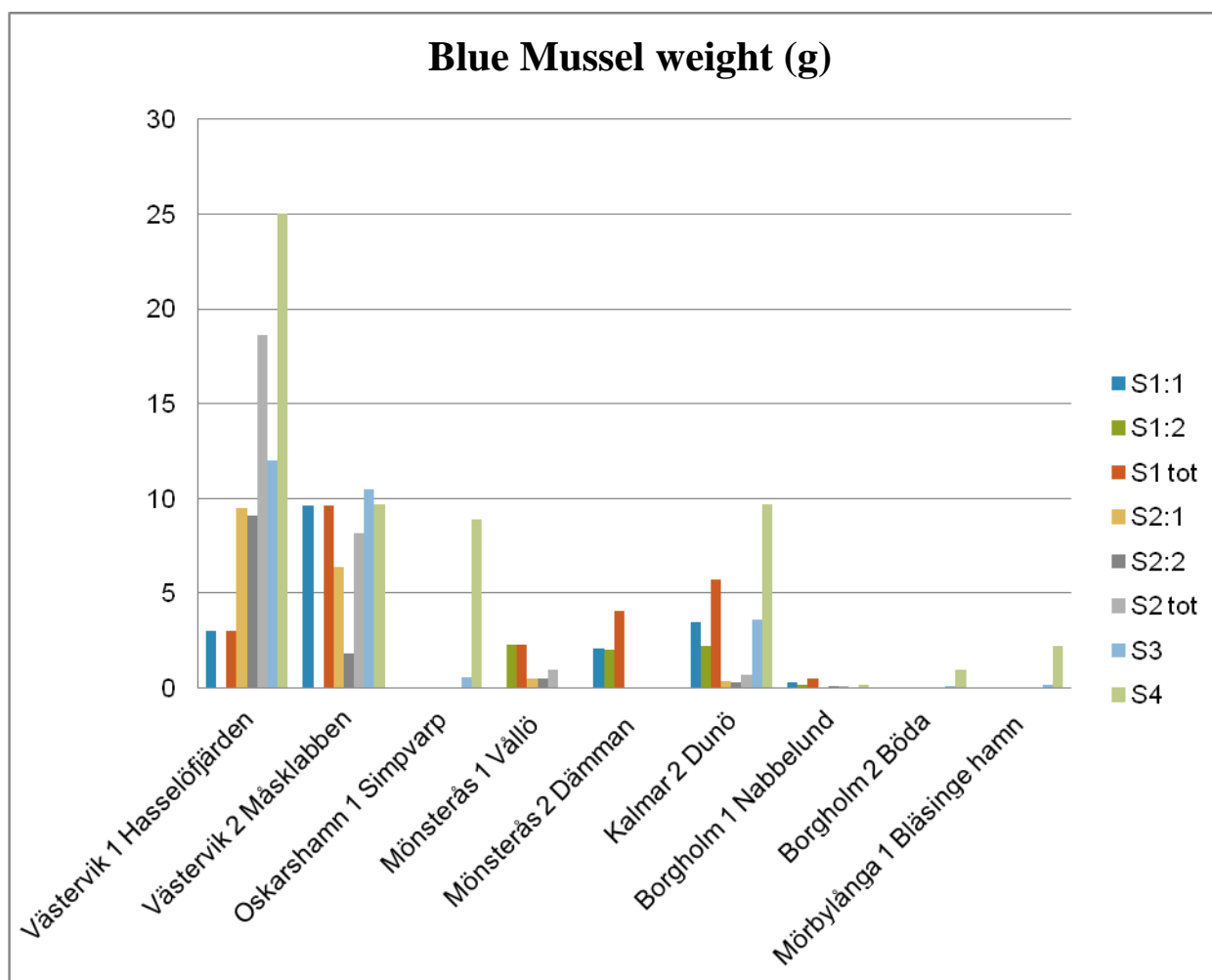
The farm outside Hagby fishing village was never salvaged since the observer had adjusted the transport on the planned salvage day. The Hagby locality is not included in the result. The farm at Ängö had been on the bed for a long time and the farm was not analysed since the majority of mussels that were several years old was found all over the farm. The Ängö locality is not included in the result.

4. Results

4.1. Tables

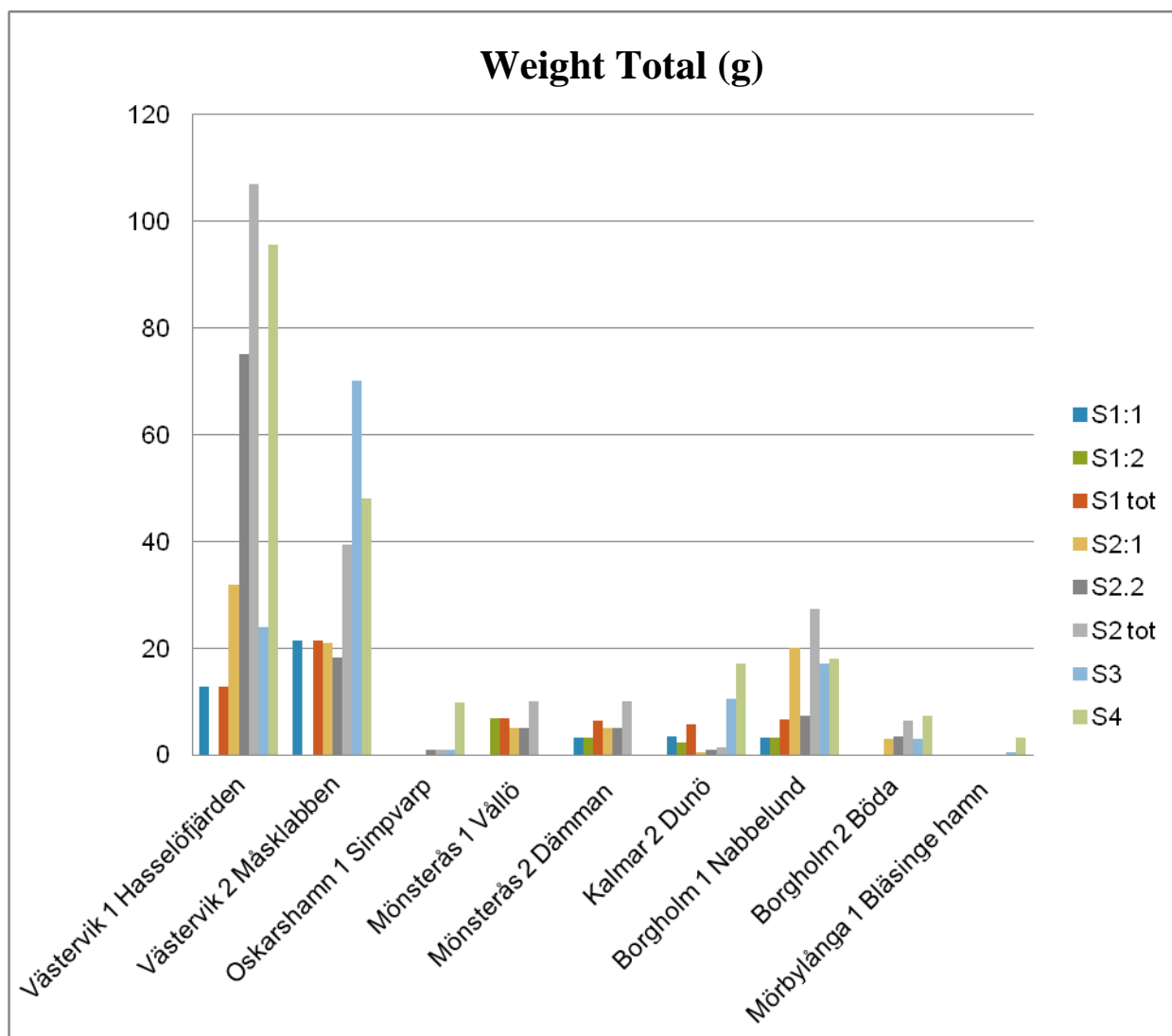
Below follows analysis data from the experimental farms. Where the weight is indicated as zero (0), the substrate has no blue mussel fouling or individual blue mussels at all. If no numbers have been stated, the substrate is lacking at the relevant locality.

Locality	blue mussel weight (g)							
	S1:1	S1:2	S1 tot	S2:1	S2:2	S2 tot	S3	S4
Västervik 1 Hasselöfjärden	3	0	3	9.5	9.1	18.6	12	25
Västervik 2 Måsklabben	9.6	0	9.6	6.4	1.8	8.2	10.5	9.7
Oskarshamn 1 Simpvarp	0	0	0	0	0	0	0.6	8.9
Mönsterås 1 Vällö	0	2,3	2.3	0.5	0.5	1		
Mönsterås 2 Dämman	2.1	2	4.1	0	0	0		
Kalmar 2 Dunö	3.5	2.2	5.7	0.4	0.3	0.7	3.6	9.7
Borgholm 1 Nabbelund	0.3	0.2	0.5	0	0.1	0.1	0	0.2
Borgholm 2 Böda	0	0	0	0	0	0	0.1	1
Mörbylånga 1 Bläsinge hamn	0	0	0	0	0	0	0.2	2.2



The total weight refers to all organisms, including the blue mussel. Where the weight is indicated as zero (0), the substrate has no fouling of macro-organisms at all. If no numbers have been stated, the substrate is lacking at the relevant locality.

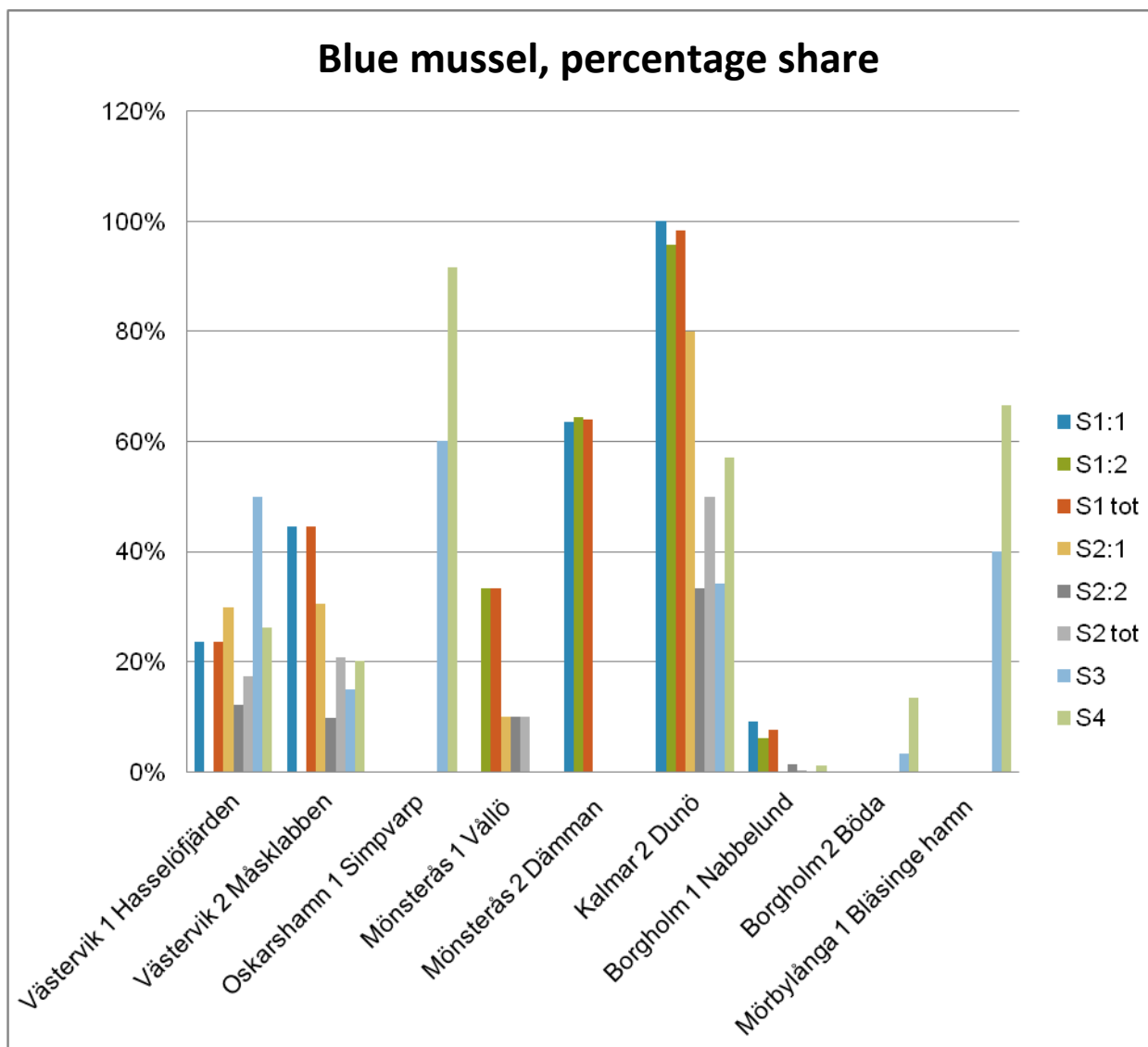
Locality	Weight, total (g)							
	S1:1	S1:2	S1 tot	S2:1	S2:2	S2 tot	S3	S4
Västervik 1 Hasselöfjärden	12.7	0	12.7	31.8	75.2	107	24	95.7
Västervik 2 Måsklabben	21.5	0	21.5	21	18.3	39.3	70	48
Oskarshamn 1 Simpvarp	0	0	0	0	1	1	1	9.7
Mönsterås 1 Vällö	0	6.9	6.9	5	5	10		
Mönsterås 2 Dämman	3.3	3.1	6.4	5	5	10		
Kalmar 2 Dunö	3.5	2.3	5.8	0.5	0.9	1.4	10.5	17
Borgholm 1 Nabbelund	3.3	3.3	6.6	20	7.4	27.4	17	17.9
Borgholm 2 Böda	0	0	0	3	3.4	6.4	3	7.4
Mörbylånga 1 Bläsinge hamn	0	0	0	0	0	0	0.5	3.3



Suitable localities for mussel farming in the County of Kalmar based on results from experimental mussel farms in 2013

Percentage share indicates the blue mussel's share of the total weight. If zero (0) has been indicated, there are no blue mussels or the substrate is completely lacking in micro-organism fouling. If no numbers have been stated, the substrate is lacking at the relevant locality.

Locality	Blue mussel, percentage share								
	S1:1	S1:2	S1 tot	S2:1	S2:2	S2 tot	S3	S4	
Västervik 1 Hasselöfjärden	24%	0%	24%	30%	12%	17%	50%	26%	
Västervik 2 Mäsklabben	45%	0%	45%	30%	10%	21%	15%	20%	
Oskarshamn 1 Simpvarp	0%	0%	0%	0%	0%	0%	60%	92%	
Mönsterås 1 Vällö	0%	33%	33%	10%	10%	10%			
Mönsterås 2 Dämman	64%	65%	64%	0%	0%	0%			
Kalmar 2 Dunö	100%	96%	98%	80%	33%	50%	34%	57%	
Borgholm 1 Nabbelund	9%	6%	8%	0%	1%	0%	0%	1%	
Borgholm 2 Böda	0%	0%	0%	0%	0%	0%	3%	14%	
Mörbylånga 1 Bläsinge hamn	0%	0%	0%	0%	0%	0%	40%	67%	



4.2. Visual results

Description of the dominating organisms at the different localities.

- Västervik 1 | Hasselö | Hasselöfjärden
A locality that has mixed fouling. Large quantities of horn wrack (*Electra crustulenta*) and blue mussels (*Mytilus edulis*). Substrates S3 and S4 have more fouling than the others.
- Västervik 2 | Hasselö | Måsklabben
A locality that has mixed fouling. Large quantities of horn wrack and blue mussels. Substrates S3 and S4 have more fouling.
- Oskarshamn 1 | Simpvarp | Gröttlestensbåden
Dominated by very small blue mussels, fouling only on substrates S3 and S4.
- Oskarshamn 2 | Runnö | Littlösten
The farm was missing; no result reported.
- Mönsterås 1 | Vållö | Nygrund
The locality hosts a small quantity of small blue mussels; one rope empty, the other hosts most of the blue mussel find. Substrates S3 and S4 missing.
- Mönsterås 2 | Dämman | Stopparen
Fouling of fine-fibred algae (*Cladophora sp.*) dominant. Substrates S1 have the most blue mussel fouling. The band accommodates individual blue mussels. Substrates S3 and S4 missing.
- Kalmar 1 | Ängö | Gallbänksrevet
The farm was salvaged but has been on the bed for a long time and cannot be analysed. No result reported.
- Kalmar 2 | Dunö | Kallingen
Dominated by blue mussels. Substrates S1, S3 and S4 accommodate mostly blue mussels. Band S2 individual blue mussels. Some blue mussels that are several years old are found at the farm.
- Kalmar 3 | Hagby | N Hagby fishing village
The farm is not salvaged due to lack of boat transport; no result reported.
- Borgholm 1 | Nabbelund | Grankullaviken
Cockles (*Cardiidae sp.*) dominant with elements of individual blue mussels
- Borgholm 2 | Böda | Böda hamn
Fine-fibred algae and acorn barnacles (*Balanus improvisus*) dominant. Blue mussels are not visible to the eye.
- Mörbylånga 1 | Bläsinge hamn | Hållnäs grund
Small blue mussels found

5. Discussion

The result is based on nine localities since three farms had to be excluded for various reasons. A total of three settlement stations disappeared during the experiment period, two being replaced with previously-used settlement stations containing only two substrates, S1 and S2. One lost settlement station was never replaced and was written off. When collected in September, one settlement station lay on the bed and had probably done so for a long time bearing in mind the fouling, and had to be excluded from the result. One settlement station was never salvaged because there was no access to a boat, so this one also had to be written off. The role of the observers to check the settlement stations was very important to the success of the experiment since they were quick to report non-conformities. The experiment was implemented during 2013 and indicates only the potential of the localities during the growth period of May to September.

The visual result tallied well with the onshore analysis of the scraped material/organisms. Both of the Hasselö localities had rich horn wrack and blue mussel fouling. The blue mussels were also comparatively larger than those at the other localities. This experiment cannot determine whether this is because they settled earlier or because there was a greater supply of nutrients or for some other reason. The locality at Dunö also had rich blue mussel fouling, as did Simpvarp on S4, double nets. The result in the repeating substrates sometimes differed at the same locality, which was probably in visual terms due to chafing. The farms at Mönsterås lacked S3 and S4. Here, it was seen that S1, the rope substrate, had more blue mussel fouling than S2, the band substrate. When comparing localities and substrates, richer blue mussel fouling is seen on S4. This could indicate that the drifting threads can fasten more easily to the greater irregularities of the S4 net. The pictures from Simpvarp in Appendix 4 show that the blue mussel settles in the more protective sections of the net. S3 also generally has more blue mussel fouling than S1 and S2. Kalmar 2, Dunö had the largest share of blue mussels if you look at the total weight of the material that was scraped off while the Västervik/Hasselö localities had the largest weight of blue mussels. To summarise, the greatest amount of blue mussel fouling was at the Hasselö, Dunö and Simpvarp localities, which was not an expected result if you refer to the GIS analysis. It is possible to conclude that the basis of the GIS analysis was too large-scale and substandard and that small-scale local conditions are more important to the settlement potential of the blue mussel. In all, S4 and S3 had the richest blue mussel fouling in order from the top down.

6. Appendices

- Appendix 1. Results Tables
- Appendix 2. Illustration, Settlement station
- Appendix 3. Information notices
- Appendix 4. Pictures from a few farms
- Appendix 5. Instructions to observers

7. References

Andersson, J., Eriksson, A. 2012. GIS-analys av lämpliga lokaler för musselodlingar längs Kalmar läns kust. [GIS analysis of suitable localities for mussel farms along the County of Kalmar's coast]. ISBN 978-951-776-922-8.

Appendix 1 – Results tables

Locality	blue mussel weight (g)							
	S1:1	S1:2	S1 tot	S2:1	S2:2	S2 tot	S3	S4
Västervik 1 Hasselöfjärden	3	0	3	9.5	9.1	18.6	12	25
Västervik 2 Måsklabben	9.6	0	9,6	6.4	1.8	8.2	10.5	9.7
Oskarshamn 1 Simpvarp	0	0	0	0	0	0	0.6	8.9
Mönsterås 1 Vållö	0	2.3	2,3	0.5	0.5	1		
Mönsterås 2 Dämman	2.1	2	4,1	0	0	0		
Kalmar 2 Dunö	3.5	2.2	5,7	0.4	0.3	0.7	3.6	9.7
Borgholm 1 Nabbelund	0.3	0.2	0,5	0	0.1	0.1	0	0.2
Borgholm 2 Böda	0	0	0	0	0	0	0.1	1
Mörbylånga 1 Bläsinge hamn	0	0	0	0	0	0	0.2	2.2

Locality	Total weight (g)							
	S1:1	S1:2	S1 tot	S2:1	S2:2	S2 tot	S3	S4
Västervik 1 Hasselöfjärden	12.7	0	12.7	31.8	75.2	107	24	95.7
Västervik 2 Måsklabben	21.5	0	21.5	21	18.3	39.3	70	48
Oskarshamn 1 Simpvarp	0	0	0	0	1	1	1	9.7
Mönsterås 1 Vållö	0	6.9	6.9	5	5	10		
Mönsterås 2 Dämman	3.3	3.1	6.4	5	5	10		
Kalmar 2 Dunö	3.5	2.3	5.8	0.5	0.9	1.4	10.5	17
Borgholm 1 Nabbelund	3.3	3.3	6.6	20	7.4	27.4	17	17.9
Borgholm 2 Böda	0	0	0	3	3.4	6.4	3	7.4
Mörbylånga 1 Bläsinge hamn	0	0	0	0	0	0	0.5	3.3

Locality	Blue mussel, percentage share							
	S1:1	S1:2	S1 tot	S2:1	S2:2	S2 tot	S3	S4
Västervik 1 Hasselöfjärden	24%	0%	24%	30%	12%	17%	50%	26%
Västervik 2 Måsklabben	45%	0%	45%	30%	10%	21%	15%	20%
Oskarshamn 1 Simpvarp	0%	0%	0%	0%	0%	0%	60%	92%
Mönsterås 1 Vållö	0%	33%	33%	10%	10%	10%		
Mönsterås 2 Dämman	64%	65%	64%	0%	0%	0%		
Kalmar 2 Dunö	100%	96%	98%	80%	33%	50%	34%	57%
Borgholm 1 Nabbelund	9%	6%	8%	0%	1%	0%	0%	1%
Borgholm 2 Böda	0%	0%	0%	0%	0%	0%	3%	14%
Mörbylånga 1 Bläsinge hamn	0%	0%	0%	0%	0%	0%	40%	67%

Appendix 2 – Illustration of settlement station

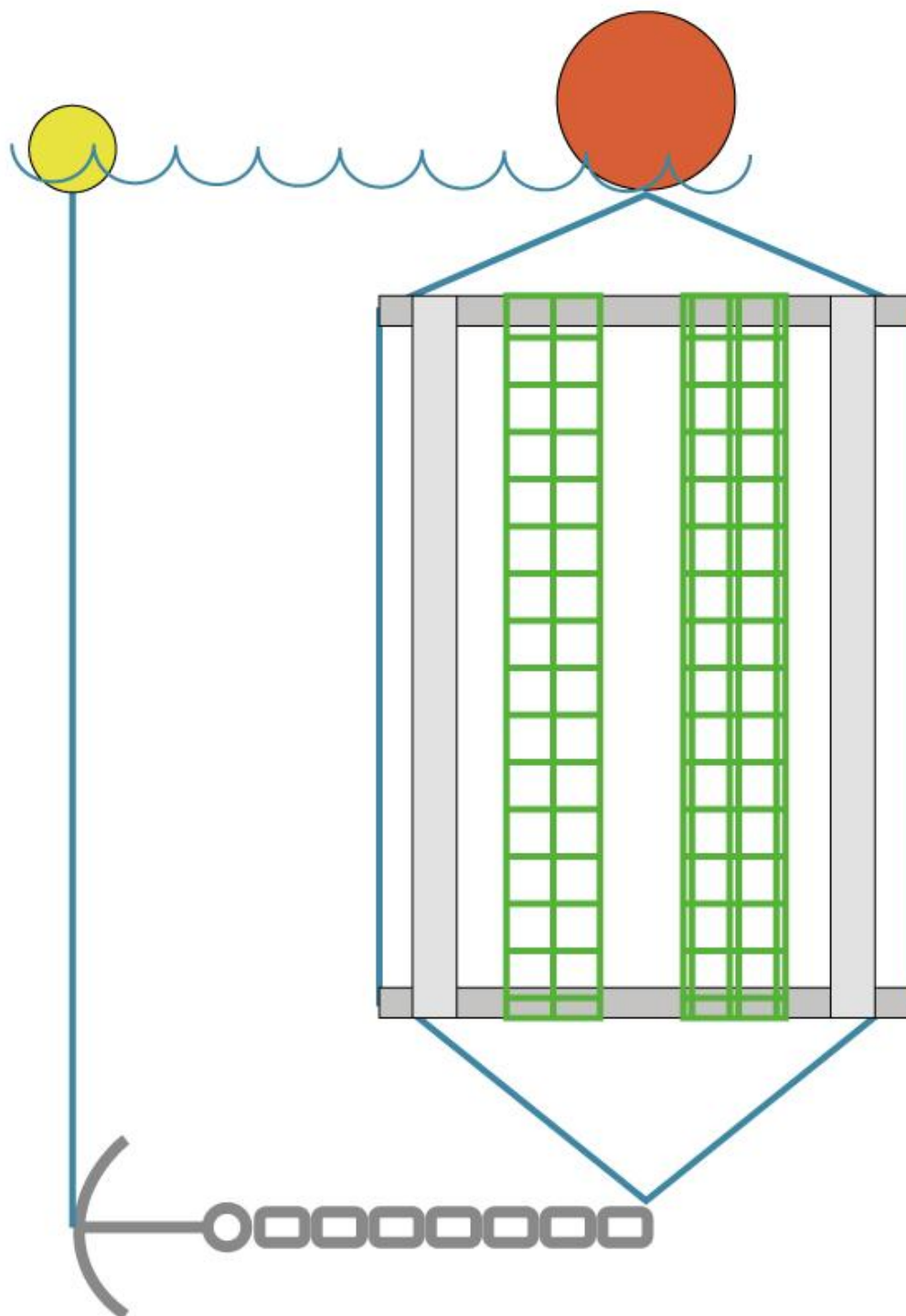


Figure 1. Diagram of Settlement Station

Appendix 3 – Information notices

HÄR TESTODLAR VI MUSSLOR



© Sjömiljöförhållanden, Kalmar Kommun, 2012


Vad kan man odla musslor i Kalmar län?
 Östersjön har under lång tid haft problem med övergödning vilket har orsakat stora mängder växplankton. Det kallas algbloomning, men utgör även födokälla till organismer som blåmussla. Blåmussla kan odlas och användas till foder till häns och fisk. Näringsen kan därigenom ingå i ett kretslopp. Detta kretslopp vill vi i Kalmar län vara med och skapa, men vart ska man anlägga en fullskalig musselodling? Under 2013 års sommar genomför Kalmarsundskommisionen en förstudie med testodlingar för att hitta den bästa platsen för fullskalig musselodling.

Vad kommer hända?
 I mitten av maj placerades testodlingarna i vattnet och de kommer vara kvar där till september då resultaten kommer att analyseras. Från juni till september kommer träffar för information och dialog ordnas runt om i länet. I slutet av året presenteras resultaten av testodlingarna.


Vilken kommun vinner?
 Vilken kommun har bäst förutsättning för att etablera en fullskalig musselodling? Det vill vi ta reda på, för en ny typ av is-säker musselodling kan komma att placeras just där.

Vill du veta mer?
 Vill du veta mer eller delta i utredningen var en fullskalig musselodling kan komma placeras?

**ANMÄL DITT INTRESSE PÅ
 KALMARSUNDSKOMMISSIONEN.SE**




**Länsförbundet
 Kalmar län**
Rekryterings- & Föreningsservice



SKB




SÖDRA



E.ON



Svensk Kärnbränslehantering AB



**KALMAR
 SUNDS
 KOMMISSIONEN**



**Baltic Sea Region
 Programme 2007-2013**



AQUABEST



Appendix 4 – Pictures



Figure 2. Västervik 1 | Hasselö | Hasselöfjärden | S2



Figure 3. Västervik 1 | Hasselö | Hasselöfjärden | S3



Figure 4. Västervik 1 | Hasselö | Hasselöfjärden | S4



Figure 5. Västervik 2 | Hasselö | Måsklabben | S1 and S2



Figure 6. Västervik 2 | Hasselö | Måsklabben | S3



Figure 7. Västervik 2 | Hasselö | Måsklabben | S4



Figure 8. Oskarshamn 1 | Simpvarp | Gröttlestensbåden | S3



Figure 9.
Oskarshamn 1 | Simpvarp | Gröttlestensbåden | S4



Figure 10. Kalmar 2 | Dunö | Kallingen | S1 and S2

Figure 11. Kalmar 2 | Dunö | Kallingen | S1 and S3





Figure 12. Borgholm 1 | Nabbelund | Grankullavik | S4

Figure 13. Borgholm 1 | Nabbelund | Grankullavik | S4



Appendix 5 – Instructions to observers

MUSSELOBSERVATÖR ARBETS BESKRIVNING

Bakgrund

Under 2012 påbörjades ett projekt av kalmarsundskommissionen tillsammans med Aquabest. Alla kustkommuner engagerade sig i projektet och man genomförde två förstudier. Den första var att kartlägga kustens potential för fullskaliga musselodlingar. Detta gjordes genom en GIS analys och kustområdena graderades ut efter olika para metrar. Den andra förstudien var att testa så settlingstationer eller testmusselodlingar. Detta gjorde man utanför Hasselö/Västervik.

I början av 2013 anmälde kommunerna in två lämpliga lokaler utifrån GIS-analysen där testodlingar ska kunna placeras för en fulskalig förstudie under sommaren 2013.

Förstudie testmusselodlingar

under 2013 kommer 12 testmusselodlingar att placeras om två odlingar/kommun. Dessa odlingar ska anläggas under vecka 20 (13-17 maj) för att materialet ska kunna akklimatisera sig innan mussellarverna settlar. Odlingarna ska vara kvar i vattnet till september månad då de kommer att bärgas och analyseras.

Arbetsbeskrivning

Under vecka 20 placeras testmusselodlingarna i vattnet på förutbestämd plats i samråd med samordnaren för projektet (Markus Nord/naturum Västervik). Efter att odlingen är anlagd ska den slutgiltiga lokalens GPS koordinater rapporteras till samordnare. Vid anläggningen av odlingen kan Samordnaren vara på plats om observatören önskar.

Under perioden Vecka 21-38 ska testodlingen kontrolleras regelbundet för att säkerställa att den är intakt och inte flyttats. Testodlingen skall inte plockas upp ur vattnet vid kontrollerna, utan endast kontrolleras från ytan.

Om odlingen inte är intakt

vid ett tillfälle då odlingen inte är intakt vid en kontroll, ta reda på vad det är som är skadat/saknas. Om det går att åtgärda på plats är det lämpligt att göra detta. Om delar av odlingen saknas, notera detta och rapportera till samordnaren för vidare beslut.

Om odlingen har flyttats

Om odlingen inte är på rätt lokal vid en kontroll, se då efter i närområdet om odlingen drivit iväg. Om odlingen påträffas i närområdet, se efter om det är möjligt att flytta odlingen tillbaka till ursprunglig lokal. Om avståndet understiger 100 m och dess nuvarande plats inte utgör någon fara eller inkräktar på annat, låt odlingen vara kvar och notera ny position och rapportera till samordnare. Om ni inte påträffar odlingen i närområdet efter en sökning, återvänd till hamn och rapportera till samordnare för vidare beslut.

För arbetsdagbok

under observationstiden bör en dagbok fyllas i (bifogad blankett) med datum/arbetsmoment/tidsåtgång för att utvärdera projektet arbetsinsats. Er arbetsinsats kan även ligga till grund för medfinansiering av annat projekt. Rapportera även till samordnaren kontinuerligt under sommaren att ni besökt anläggningen.

Ersättning

Er ersättning som observatör är drivmedelskostnad (körda mil med bil och gångtrimmar med båt) under observatörstiden. För att få ut ersättning krävs att rätt uppgifter fylls i de bifogade blanketterna.

Ersättningen är max 4000kr/testodling och ni sätter själv upp er beräknade drivmedelskostnad/gångtrimme. Om ni har övrigt personligt utlägg skall kvitto bifogas (ej häftat på papper, tejp eller gem skall användas). Dessa personliga utlägg skall även godkännas av samordnaren, helst innan inköp.

Bärgning av testmusselodling

Under september månad skall odlingen bärgas, vilket ska göras med samordnare. Varje odling ska analyseras, därför är det viktigt att testodlingarna inte bärgas utan att samordnare (eller annan utsedd person) är på plats. Varje substrat på odlingen är en del av undersökningen vilket innebär att högsta försiktighet bör vidtas så att inte resultaten skall påverkas. Samordnaren kommer att boka tid för bärgning av anläggningarna med varje observatör.

Kontaktuppgifter**Samordnare:**

Markus Nord
0703 33 78 71

markus.nord@vastervik.se

naturum Västervik
Kulbacken
59338 Västervik

Projektledaren:

Susanna Minnhagen
0480 45 01 72

susanna.minnhagen@kalmar.se

Kalmar kommun
Serviceförvaltningen
Box 611
391 26 Kalmar