Pacific Urchin Harvesters Association

Annual General Meeting

August 24, 2017

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James Oliver Community Center
Nanaimo, BC

Attendance:

George Dennis	David McRae	Raf Kalus
William Strong	Alfa Wong	Kyle Davies
LeeAnne Strong	Dave Lansdowne	Al Shanks
Lourdes Gant	John Parkin	Thom Liptrot
Eric Gant	John Lindsay	Marek Ulanovski
Bob Hegedus	Mike Featherstone	Ken Ridgway Jr.
Ron Ross	Geoff Krause	Janet Lochead
Darin Macy	Christina Burridge	Pauline Ridings
Erin Wylie	Barbara Shanks	

A quorum was declared and the meeting called to order at 1000 hours

1.0. Approval of 2016 AGM Minutes

Motion: 1°- John Lindsay. 2° Bob Hegedus. AIF. Carried.

2.0 Election of Officers

All members of the current Board are willing to stand again. They are:

Officers: Mike Featherstone- President
Ross Morris - Secretary Treasurer

Directors: Al Shanks, Alfa Wong, Bob Hegedus, David McRae, Chris Grant, Jim Dyck, John Lindsay, Ken Ridsgway Jr., Tim Joys.

Motion to Accept BOD and Officers. 1°: Marek Ulanovski. 2°: John Parkin. AIF. Carried

3.0 Financial Report

Ross Morris presented the Financial Report as prepared by the PUHA accountant, Dave van Gruen. Detailed statements prepared by the accountant were distributed to interested members. These are summarized as follows:

Revenues came mainly from memberships and validation charges which at $580,500 was up by about $67,600 from 2016. Fees from RSU increased by $54,700 and from GSU by $12,900.

The Agri-Marketing funding came in at $71,400, about $14,900 higher than 2016.

How funds were spent:
64% on on-grounds monitoring and validation - $420,400
22% on marketing programs - $142,700
6% on research - $43,800
The balance was spent on administration

Expenses exceeded revenues by $2,000. This deficit resulted in PUHA having $258,000 in net assets at the end of the year comprising cash and term deposits totalling $298,000 and accounts receivable of $33,500 less $71,000 of accounts payable. Accoutns receivable were all for recoveries of Agri-Marketing expenses. Accounts payable were mainly to D&D for validation fees.

Motion to accept Financial Report. 1° John Lindsay. 2°: David McRae. AIF. Carried.

4.0 President's Report

First up was mention of the California Sea Urchin Commission request to the State Government to declare the California sea urchin fishery a disaster, apparently because of slow recovery of the feed (kelp) resources that took such a pounding during the 2016 El Nino. The harvest numbers on the urchins are down by 80 - 90% in the North and South parts of the state and are not coming back up. As a result a lot of guys down that way are hurting big time. That and a number of other very interesting matters are reviewed in the August edition of the CSUC newsletter These include the development of very exciting local domestic markets in California and possible increases in urchin feeding and metabolic rates with increasing temperature and ocean acidification levels may have far reaching implications for urchin fishery ecology.

MPA's and First Nation reconciliation efforts are seeing a lot of side ruins by "remote" stakeholders that is really messing things up for some of us more directly in the line of fire.

The amalgamation of the reds and greens under the single roof of PUHA has proven successful to date.

PUHA directors meetings are being conducted via conference calling and are similarly working out really well. Technically this may require a change in the constitution so meetings can be conducted by means other than physical presence and remain compliant with PUHA bylaws.

Recommendations we have received with reference to the new "Societies Act" suggest we need some changes to our constitution to better reflect the broader vision we have for the organization. This includes criteria for membership in PUHA. Voting members are restricted to Red or Green urchin licence holders. Non-voting associate members can include anyone approved by the Board of Directors. These conditions mean that any corporation, or First Nation, can be a voting member. It goes without saying that each licence only get one vote, multiple representative for a single licence only get one vote. The application for membership in PUHA is going to include a signature block and the forms kept on record until either the licence is sold or some other criterion of membership changes.

Richard (Keevil), the lawyer retained to help with this exercise, also suggested setting a quorum of (say) 20 for a general meeting. There were a number of other details discussed, including using 2/3 (66.6%) as the majority needed to pass a resolution at a general or special meeting, explicitly allowing notification of meeting(s) by email. The new constitution and bylaws must be filed electronically with the government at some point prior to November 2018.

With regard to media materials- we can really use whatever the guys on the grounds can produce and provide. Please send the links to either Ross (puha@telus.net), Geoff (gkrause@shaw.ca) or Ron Ross (ronrossis@shaw.ca) so the links can be posted on the website. Any and all video and pictures will be reviewed and used appropriately. If things work out, perhaps we can make this into a bit of an annual competition.

We are also looking at other ways to make the site more useful for fishermen. This includes posting a copy of Conditions of licence must be on each and every boat although the legislation does not exclude electronic versions as valid. Still it is not a good idea to have only a link to an on-line version in case you are out of range on cell or wifi when the need to produce them comes up. These are sometimes(often) not part of the transmission package when licence owners send electronic copies of the licences to fishermen but since they are pretty much the same for every licence having a web version available for download when it is convenient for the boat(s) would seem to be a reasonable solution.

There are also some new Transport Canada requirements to post Standard Operating Procedures, including Emergency Response Procedures, somewhere accessible on each and every boat that came into effect on July 1, 2017. The website will similarly link to a template from Transport Canada that each boat can modify for their particualr circumstance(s). Note that all safety equipment must have inspection certifications completed annually or perhaps by some other schedule. The vessel owner is ultimately responsible for making sure these are done properly. Being that some of us are getting a bit long in the tooth, it is also makes sense for at least some boats to have an AED (Automatic External Defibrillator). Larger oxygen kits on at least some boats likely also make sense.

Motion to Accept Presidents Report. 1°- Will Strong. 2°- John Parkin. AIF. Carried.

5.0 D&D reports

5.1 Green Sea Urchins (including harvester reports)

There harvest levels were up again this year and all 49 licences were active. All 9 Quota Management Areas (QMA's) were active and biomass reports were healthy.

John Lindsay reported that prices and stock numbers were both strong this past year. There are apparently lots of pounds left around Kelsey Bay but quality is an issue. Historically, some areas north of Campbell River and through to Port McNeill could not be fished until after a cold snap in January-February because of quality issues.

John Parkin reports big GSU numbers are being seen on the North Coast and abundance in the north is increasing and definitely worth more scrutiny. There are not many GSU in Area 11 but it is still worth keeping on the books. Even though everyone knows surveys will be required prior to fishing, there was a suggestion that the phrase “could increase” Total Allowable Catch and area quotas be changed to “should increase”. It would be nice if some kind of objective recon (reconnoitring) data could be collected to inform ongoing survey planning. Ancillary survey data on GSU from surveys for other species has been collected - but its fate is unknown.

There was some discussion on the Kuriles situation where volumes are apparently stable but there are rumours of quality falling off quite quickly. This may be a bit of wishful thinking as the volumes remain on pace to the 6,000 MT yr seen in recent years and prices for product landed in Hanasaki Port are higher (¥ 950-980 /kg vs ~ ¥ 800 last year).

Darin applauded the guys as the compliance record was nothing short of great.

Motion to accept the D&D and GSU reports. 1°- Bob Hegedus. 2°- Alfa Wong. AIF. Carried

5.2 Red Sea Urchins (including harvester reports)

This past year saw a decrease in the TAC because the spreading otter population is impacting abundance of RSU. The South Coast (SC) quota was set at 1.6 M-lbs and the North Coast (NC) quota at 7.4 M-lbs. although there is some provision to increase the latter by up to a million pounds in-season following discussions with the Haida First Nation.

The individual quotas were 86,197 and 66,791 lbs respectively for the North and South Coast. The new season opened on August 1, 2016 and fishing started both north and south shortly thereafter. 33 and 14 vessels fished North and South respectively, including 6 vessels that fished both areas. Harvests came in at 6.22 M-lbs (84%) and 0.96 M-lbs (60%) for north and south respectively. As just a bit of an observation, it looks like there is substantial capacity available in the South to cover more of the shortfalls from the North that occur regularly in the winter because of weather interruptions. Of course the devil is in the details - planning and coordination in particular- but it is something that offers some potential that looks like it is not being used as effectively as it has on the past. Live market sales totalled 300 lbs and 41,745 lbs from the north and south respectively.

It looks like Green sea urchins are taking over in many areas of the SC although there does seem to be some better recruitment starting to show up. There is lots of variability in numbers and quality over the whole SC range with better recoveries showing up albeit at possibly different times than seen historically. Quality in Camppbell River and Kelsey Bay has declined dramatically by the time they are fished and it seems that the Christmas reservation agreement is not working any more in these areas. There was general agreement on changing that agreement for these areas. It is still working in Port McNeill so will be kept in place there.

On the North Coast, fishing went well December through January although there were a few weather issues- as always. The closure of Matheson Channel because of the tug sinking kind of messed things up and it seems inter-departmental rivalries (DFO, CFIA, Env. Can. & reportedly especially the Heiltsik FN) are keeping things from improving.

The extra pounds on Haida Gwaii would have really helped this past year, even though the quality was a bit soft in southern areas. The Gwaii Hanaas program which will see PUHA harvesting quality urchins and then destroying many more to help control spreading urchin barrens is scheduled to start next September (2018?). PUHA agreed to participate because it is an opportunity to establish not just a quota but also establish the industry's credibility and credentials as a true Ecological Based Management tool. A common sense contribution from fishermen will also be helpful in ensuring the program is more effective. Buyer participation will also be required.

The pilot Vessel Monitoring System (VMS) program in the North and alternative validation method for live sales are both continuing and working well. Confirmation of a vessel's VMS status requires clearance from DFO and just having the elctronics on board does not automatically qualify a boat as On Ground Coordinator (OGC).

Compliance this past year was good from D&D's perspective and they feel the emailing in of harvest charts is working great. Darin also hailed Brian Lynch as the best guy at getting his charts in on time and etc. It's a great turnaround.

D&D has a 20 year data set on quality realized from different areas at different times of the year but is not sure what it can be used for- Geoff to explore that a bit with them.

Moore Islands maybe have 3 years of fishing left in them because of otter presence.

There was some discussion about an emerging problem in the US which is seeing an influx product identified as Canadian RSU - even though no one is fishing. There may be some going from Mexico and/or, according to the CSUC newsletter, places further south. Still, if it is being identified as Canadian when it is not us, it is and has to be a concern- what with all the new security and Country of Origin Rules.

Motion to accept the D&D, SC and NC reports. 1°- John Lindsay. 2°- Al Shanks. AIF. Carried

6.0 Budget 2018

Mike presented a budget for the year, broken out separately into a GSU and an RSU section. Overall revenues are projected at $ 741 K and expenses about $ 720 K, leaving a $ 21 K surplus for the year.

Everybody is happy with Janet Lochead Pauline Ridings and Erin Wylie these days as they are really quite supportive of the industry and committed to working with us as collaboratively as possible. There was some discussion about the wisdom of planning and preparing for future surveys. The GSU side is budgeted at 2- 3 surveys a year, even though there is hope more may be on sooner especially on the North Coast.

On the RSU side, there are going to be some changes to the Vessel Monitoring System reimbursement system this year as payment will be directed at On-Grounds Coordinators instead of VMS *per se.*

Motion: Directors to consider alternative compensation for active OGC duties. 1°: John Parkin. 2°: David McRae. AIF. Carried.

Motion to accept the 2017/18 budget. 1°: Al Shanks. 2°: Bob Hegedus. AIF. Carried.

Break for lunch

7.0 External Reports

7.1 Political Challenges Christina Burridge

Reconciliation with First Nations- is a priority for the government and there are many changes coming. The priority for the FN's is not financial return.

Marine Protected Areas (MPA's) are projected to cover 31.7% of the Pacific Coast by 2020. No linkages between areas are being considered in the planning of the MPA's and all are being looked at in isolation from all the others. There is also a prevailing assumption by political types that fisheries closures will simply entail moving effort elsewhere, as if being covered by seawater is the only criterion that matters for fisheries habitat. With regard to the North Shelf MPA, the Federal government, the Province and 17 FN's are all involved and it is looking like the MAPP plans are gaining approval.

Changes to Fisheries Act are also coming. Habitat protections are OK from industry's perspective however there are add-ons being included in some upcoming legislation (October) that will allow the Minister to make decisions on social and cultural considerations.. The legislation will also reduce the ability of citizens to sue the government for compensation. This is likely to be enabling legislation (as opposed to prescriptive).

There are also mandatory measures for stock rebuilding that are going to have many unintended consequences.

The Minister has also indicated redistribution of licensing benefits so the rewards are more widely spread is a priority for him, and that the point of the exercise is to reduce the value of the licences, basically using expropriation to write off all the work and money licence holders have invested to increase the value of the fisheries they are involved in.

The changes are being driven by political rather than legal considerations. She did not link to any Supreme Court of Canada decisions except right at the very beginning of her presentation. Some of the main supporters of these initiatives, the Moore and Packard foundations, see their work here as done and have moved on.

Even Clearwater Fisheries Ltd is worried- they just lost 25% of their surf clam quota, a fishery that only exists because their, and only their, investments of time, money and effort were what made it possible. It hardly seems fair. Christina apologized for her bleak outlook.

7.2 DFO Science Report

Janet Lochead reported that PFMA 20 (Sooke) is now re-opened for GSU. Last year Area 11 was surveyed but the results are not in yet. They will be written up this fall while the Boiling Reef survey is due out next year.

She also mentioned there are RSU surveys planned in a number of areas this year and next.

The Tofino report detailing the effects of sea otters on RSU abundance will also be out in the next couple of months. Reviews the report received are currently being incorporated.

CSAS is looking at differential harvest rates in different areas for RSU (and GSU?). The old model (2% of legal sized biomass) was based on the New and Emerging Fisheries guidance but this is no longer considered appropriate. Zane Zhang at PBS is now putting together real parameters to better define harvest rates supported by the data that has been collected over the past years. This is due out in the Fall of 2018.

The GSU CSAS review is due out in April 2018.

Comparison between GSU and RSU management

GSU	RSU
time series with repeat surveys over same ground	wide-area biomass surveys
index sites (PFMA 18 and 12)	some talk of establishing index sites
data feeds into model	Time series- more informal- some
quota very precautionary	sites re-surveyed & so provide a sort of
Area 11 and 20 each need index site	time series

Lots of GSU north of the narrows up towards Browns Bay that are not getting touched. (If I get some locations from John Lindsay then maybe some aerial survey pics from J. Harper). The abundance of GSU in Area 11 is very patchy and generally low.

Need to roll out new quotas into draft IFMP by March -April to meet end of August final IFMP. This suggests the GSU and RSU (joint?) research meeting should be scheduled for February-March 2018.

Plan intervals now are 2 years- there was some question as to whether an annual (1 year) plan might be better as it offers more flexibility to respond to changes in surveyed abundances.

There seem to be changes in how DFO is managing fisheries- decisions are more political now as opposed to science-based. The current harvest rate in Haida Gwaii for example is only 1%. The survey data based on the 2% harvest rate supports a quota of 3.6 M lbs but the Council of the Haida Nation (CHN) derailed negotiations so it remains at 2 M lbs. Negotiations with the CHN focus on community benefits which seems funny given the impacts of the spreading urchin barrens are an impact as opposed to a benefit. They may be looking for opportunities but are nervous because of prior experience with companies running amok in logging and fishing. There may be an opening for a on-shore live holding facility that could benefit all sides here.

Sea cucumber fishing in Seaforth Channel, the site of last year's tug sinking, is scheduled for October as a test for the "system". If it goes ahead, so will sea urchin fishing.

7.3 Processor forecast for 2017/18 Alfa Wong

International markets are looking good
they are planning on introducing live GSU in Qingdao- one would suppose at the CFSE

7.4 Website refresh Ron Ross

Ron ran through various videos he has prepared for PUHA over the years and talked for a bit on the website refresh which is scheduled for completion in early October.

7.5 International Marketing Project Geoff Krause

This past year has been pretty busy for us as far as trade shows go. We checked out the Shanghai show and toured that market pretty nicely in late August last year just before exhibiting at the Seafood Expo Asia (SEA) in Hong Kong in Sept. 2016. We were part of the BC booth at the Busan (Korea) Fisheries and Seafood Expo (BFSE) in Oct. 2016, just before exhibiting at our own booth at the China Fisheries and Seafood Expo (CFSE) in Qingdao in Nov. 2016. We also joined the BC booths at the Seafood Expo North America (SENA) in Boston in Mar. 2017 and the 2017 Seafood Expo Global (SEG) in Brussels. As far as contacts go we qualified some 82 (including 14 good ones with score ≥7), 20 (4), 38 (2), 45 (5) and 55 (4). The number of brochures, English and Chinese, given away at the show generally parallels these findings. By these metrics the Hong Kong show remains our most successful although comments from processors seem to favour the China show.

As far as sales went, StatsCan reported overall value of exports increased by $600 K to $20.4 M even as the volume declined to 652 MT from 696 MT last year. I think it is fairly common knowledge that Grand Hale makes a very nice frozen product but interestingly exports of frozen apparently declined from 67 MT in 2015 to 0 in 2016. Sales of processed uni alone totalled 289 MT worth $C 16.5 M with an average unit price increase to $57.43/kg from $52.75 last year.

Sales to Japan were up by about 38 MT and $C 1M to 368 MT and $12.4 M representing about 56% and 61 % of our total exports by volume and value respectively. The data from Japan did not agree with that from Canada with volumes trending lower showing much less than the Canadian stats at 257 MT but value trending up and being way higher at C$ 25.7 M. I have been trying to access the trade stats of other countries to get a better handle on what might be happening but have thus far not had any success.

So- based on StatsCan numbers again, Hong Kong came back as our second biggest market with increases to 55 MT worth $C 3.4 M which works out to $C 62/kg. while Taiwan languished a bit in third position with a decline to 25 MT worth $C 1.6 M as the unit price increased from $C31 to $C 37 /kg. China similarly fell back in shipments and value, declining by about a third in terms of volume to about 14 MT, but this is likely a consequence of a general unit value increase of about 30% to $C 43 from $C32/kg last year.

South Korea is interesting. We have a new Free Trade agreement with them that eliminates tariffs of around 30% and we saw an increase of over 50% in sales last year to 14.7 MT worth $C 962 K at an average price of $C 65/kg. We attended the Busan show last year and saw quite a bit of interest in the RSU so it is on the books again for this year.

Sales of live product to the US stayed about the same at about 153 MT worth $C 530K while processed product declined more than half by volume from 2015 to 3.7 MT from 11.5 MT worth $C 260 K and 435 K respectively. This probably reflects the retreat of the 2015 El Nino but the recent average is in the hundreds of kilos worth about $C15 K - so we are still looking at gains down there. Interestingly the California Sea Urchin Commission is requesting the California urchin fishery be granted disaster status this year because the El Nino so badly damaged the kelp that the urchins are just not coming back.

Our plans for this year include attending the SEA, CFSE and the SENA while slipping in a side trip or two where we can. We'll be checking out a new show in Beijing just prior to the Hong Kong show and it looks like there is a seafood showcase in Guangzhou just after the Qingdao show this year that we are looking to participate in.

This is the second and final year of our current project so we will be putting together a new proposal this year under the new, just-agreed-to "Growing Forward 3" funding program. This program allows us to continue with the same Market Development initiatives and may include more options for innovation funding. In general, we continue to emphasize the pristine waters, high quality production and a focus on the environmental and operational sustainability of the fishery. We are going to continue working on our messaging to this effect.

Results in China have been slower to materialize than hoped but the potential of this market makes continuing pursuit of it worthwhile. Internet access is still tightening up in China and we are going to have to continually confirm accessibility of the website there. The EU is another attractive opportunity, especially as our newly completed Comprehensive Economic and Trade Agreement, aka CETA, will be provisionally in force this September.

We continue to develop temperature and fishing location profiles and are working on live shipment deliveries to foreign markets like China as one avenue to differentiate us from other suppliers. It is still kind of casual at this point, especially since I have to guess for the most part when the product is moving from dive boat to packer to dock etc., but it is something that could be a big part of what makes BC product special down the road. Ultimately getting area profiles so we can project and get optimum product quality using handling protocols specifically tailored for various product types from each area might be doable down the road. However it remains kind of aspirational, doable I think but a ways off yet. The next step forward I see is getting more data from fishermen on when they go in and more participation by buyers/processors so we can get data on quality to help us use the data we currently collect to better effect.

			On dive vessel			On packer				On the dock			
Date in	Time in	MOD #	hours on	°C-mins	°C- out	hours on	°C-mins	% of T	°C- out	hours on	°C-mins	% of T	°C- out
02-Apr-16	12:30 PM	5	2.0	1,110	8.5	31.0	15,975	48.3%	9.0	3.0	1,620	4.9%	9.0
02-Apr-16	08:30 AM	16	5.5	3,075	9.0	34.0	14,835	53.3%	8.0	0.5	240	0.9%	8.0
10-Apr-16	12:01 PM	3	9.0	4680	8.5	45.0	19,890	55.5%	7.5	2.0	840	2.3%	7.5
10-Apr-16	11:30 AM	4	7.0	3,465	7.5	43.0	22,155	53.1%	8.0	2.0	1,020	2.4%	8.5
11-Apr-16	11:30 AM	8	7.5	3,480	8.0	20.5	8,550	33.2%	7.5	6.0	2,775	10.8%	7.5
13-Apr-16	01:30 PM	17	6.5	3,270	8.5	43.0	24,105	53.1%	10.0	2.0	1,215	2.7%	10.0
14-Apr-16	08:00 AM	14	7.5	6,180	13.5	20.0	16,245	31.7%	12.0	0.5	375	0.7%	12.5
14-Apr-16	09:31 AM	13	6.0	4,980	15.5	68.0	30,300	56.5%	6.5	12.5	5,955	11.1%	8.0
16-Apr-16	11:00 AM	6	4.5	2,310	8.5	46.0	29,385	64.3%	12.5	1.5	1,125	2.5%	12.5
17-Apr-16	01:00 PM	2	4.5	2,385	9.0	23.0	11,250	38.9%	7.5	1.5	705	2.4%	7.5
19-Apr-16	08:30 AM	10	9.0	6,855	13.5	25.0	12,285	28.9%	8.0	11.0	5,940	14.0%	9.5
21-Apr-16	**02:30 PM**	**12**	**2.5**	**1,545**	**9.5**	**48.0**	**33,750**	**60.9%**	**13.0**	**1.0**	**765**	**1.4%**	**13.0**
06-Aug-16	01:01 PM	5	2.5	2745	16.5	43.5	23,475	62.1%	7.0	1.5	975	2.6%	10.0
06-Aug-16	03:00 PM	6	2.5	2,715	16	38.0	22,500	50.7%	9.0	1.5	915	2.1%	10.5
06-Aug-16	03:00 PM	8	2.0	2,085	15	43.0	23,490	57.3%	7.5	1.5	840	2.0%	10.0
06-Aug-16	03:30 PM	16	0.5	375	12.5	41.5	20,235	59.1%	8.0	1.0	570	1.7%	9.5
06-Aug-16	03:00 PM	10	1.0	1,305	22	41.0	31,230	66.6%	8.0	1.5	780	1.7%	8.5
06-Aug-16	03:00 PM	17	0.5	660	22	42.0	29,595	51.0%	11.0	0.5	315	0.5%	10.5
06-Aug-16	03:00 PM	12	0.5	375	12.5	42.5	26,910	55.7%	10.0	4.0	2,625	5.4%	11.0
07-Aug-16	09:00 AM	14	4.0	3,510	14	19.0	13,515	34.9%	10.0	3.0	1,950	5.0%	11.0
11-Aug-16	10:00 AM	13	1.5	1,350	14.5	11.5	9,180	22.0%	11.5	2.5	2,085	5.0%	14.0
18-Mar-17	04:30 PM	26	0.5	195	6.5	21.0	6,405	20.0%	5.5	3.5	1,335	4.2%	6.5
22-Mar-17	**10:00 AM**	**14**	**1.5**	**525**	**6**	**20.0**	**4,695**	**11.7%**	**3.0**	**8.0**	**4,800**	**11.9%**	**14.0**
22-Mar-17	**12:00 PM**	**25**	**1.5**	**675**	**7**	**22.0**	**5,655**	**14.3%**	**6.5**	**3.5**	**2,100**	**5.3%**	**11.5**
22-Mar-17	**01:00 PM**	**6**	**6.0**	**1,860**	**5**	**30.0**	**5,685**	**17.3%**	**2.5**	**4.0**	**900**	**2.7%**	**4.0**
28-Mar-17	09:00 AM	21	7.5	3525	8.5	21.0	11,535	42.7%	10.0	1.0	585	2.2%	9.5
28-Mar-17	01:30 PM	9	4.0	1,965	8.5	17.0	8,670	34.6%	8.5	3.5	1,785	7.1%	8.5
29-Mar-17	10:30 AM	13	5.0	2,250	6.5	22.5	4,755	24.2%	3.5	3.5	1,350	6.9%	6.5
13-Apr-17	10:30 AM	20	7.5	3,900	8.5	31.0	15,495	41.4%	7.5	2.5	975	2.6%	6.5

avgs 4.138 2,529.3 32.862 17,301.7 3.103 1,636.6

	In truck				In plant				Date	Time	Processed		Total since capture	
MOD #	hours on	°C-mins	% of T	°C- out	hours on	°C-mins	% of T	°C- out	arrive	into cooler	Date	Time	°C-mins	# days
5	20.0	7,155	21.6%	3.5	37.5	7,215	21.8%	3.5	04-Apr	08:40 PM	06-Apr	10:00 AM	33,075	3.90
16	18.0	4,740	17.0%	4.0	39.5	4,920	17.7%	3.5	04-Apr	06:30 PM	06-Apr	10:00 AM	27,810	4.10
3	22.0	6,465	18.0%	4.0	42.5	3,990	11.1%	3.5	13-Apr	06:00 PM	15-Apr	12:30 PM	35,865	5.00
4	22.0	6,705	16.1%	4.5	68.0	8,385	20.1%	2.0	13-Apr	02:30 PM	16-Apr	09:30 AM	41,730	5.90
8	19.5	5,430	21.1%	4.5	40.0	5,550	21.5%	2.5	13-Apr	06:00 PM	15-Apr	09:00 AM	25,785	3.90
17	20.0	9,360	20.6%	6.5	46.0	7,410	16.3%	1.0	16-Apr	01:00 PM	18-Apr	11:00 AM	45,360	4.90
14	21.5	8,640	16.9%	6.0	119.0	19,800	38.6%	1.5	16-Apr	06:00 PM	21-Apr	08:30 AM	51,240	7.00
13	17.0	5,700	10.6%	4.5	41.5	6,660	12.4%	1.5	18-Apr	04:30 PM	20-Apr	10:00 AM	53,595	6.00
6	29.0	6,720	14.7%	2.5	63.5	6,150	13.5%	2.0	19-Apr	08:00 PM	22-Apr	11:30 AM	45,690	6.00
2	26.0	7,785	26.9%	4.0	86.0	6,765	23.4%	1.5	19-Apr	08:00 PM	23-Apr	10:00 AM	28,890	5.90
10	29.0	9,105	21.4%	3.5	71.5	8,295	19.5%	3.0	22-Apr	03:30 PM	25-Apr	09:30 AM	42,480	6.10
12	**25.5**	**14,835**	**26.8%**	**7.5**	**15.0**	**4,515**	**8.1%**	**4.5**	**24-Apr**	**07:30 PM**	**25-Apr**	**10:30 AM**	**55,410**	**3.80**
5	22.5	10,155	26.9%	10.5	0.5	450	1.2%	15.0	09-Aug	n/a	09-Aug	11:20 AM	37,800	2.94
6	23.0	12,075	27.2%	9.0	3.0	2,130	4.8%	13.0	09-Aug	11:00 AM	09-Aug	02:00 PM	44,400	3.02
8	23.5	12,630	30.8%	8.5	3.0	1,935	4.7%	12.0	09-Aug	11:30 AM	09-Aug	02:30 PM	40,980	3.04
16	25.5	11,715	34.2%	7.0	4.5	1,365	4.0%	9.0	09-Aug	12:01 PM	09-Aug	04:30 PM	34,260	3.04
10	25.0	9,555	20.4%	5.5	20.5	3,990	8.5%	11.0	09-Aug	12:01 PM	10-Aug	08:00 AM	46,860	3.71
17	26.5	10,425	17.9%	5.5	49.5	17,085	29.4%	8.0	09-Aug	12:01 PM	11-Aug	02:00 PM	58,080	4.96
12	22.5	12,855	26.6%	8.0	21.5	5,565	11.5%	6.5	09-Aug	12:31 PM	10-Aug	10:00 AM	48,330	3.79
14	24.0	5,955	15.4%	5.5	45.0	13,770	35.6%	9.0	09-Aug	11:30 AM	11-Aug	08:30 AM	38,700	3.96
13	30.0	8,505	20.4%	2.5	72.0	20,520	49.3%	8.5	13-Aug	08:00 AM	16-Aug	07:30 AM	41,640	4.90
26	44.0	10,995	34.3%	4.5	68.0	13,140	41.0%	2.5	21-Mar	01:30 PM	24-Mar	09:30 AM	32,070	5.7
14	**100.0**	**27,915**	**69.3%**	**4.5**	**11.0**	**2,325**	**5.8%**	**2.5**	**27-Mar**	**07:30 PM**	**28-Mar**	**06:30 AM**	**40,260**	**5.85**
25	**102.0**	**29,355**	**74.3%**	**4.5**	**11.0**	**1,740**	**4.4%**	**1.0**	**27-Mar**	**09:00 PM**	**28-Mar**	**08:00 AM**	**39,525**	**5.8**
6	**89.0**	**22,650**	**68.9%**	**4.0**	**12.0**	**1,800**	**5.5%**	**3.0**	**27-Mar**	**10:00 PM**	**28-Mar**	**10:00 AM**	**32,895**	**5.88**
21	22.5	8,760	32.4%	5.5	18.5	2,610	9.7%	2.0	30-Mar	01:00 PM	31-Mar	07:30 AM	27,015	2.9
9	26.0	9,735	38.8%	4.5	16.5	2,925	11.7%	2.5	30-Mar	04:00 PM	31-Mar	08:30 AM	25,080	2.79
13	19.0	6,900	35.2%	6.0	66.5	4,365	22.2%	1.0	31-Mar	12:30 PM	03-Apr	07:00 AM	19,620	4.85
20	28.0	10,140	27.1%	6.0	71.5	6,930	18.5%	1.0	16-Apr	07:30 AM	19-Apr	06:30 AM	37,440	5.83

avgs 31.810345 10,791.7 40.15517 6,631.0 39,030.5

Highlights

Green: Very good. lowest °C- minutes total- but almost 5 days from harvest to processing. Most of time spent in plant cooler at 1°C- probably good to very good quality retention.

Blue: Not Good- highest °C-minutes total- but a day less harvest- processing interval than the green example. Why? - high temperatures with a special outlier = 2 days on packer at 13.5 °C

Pink: Not too bad. But look at the long periods on the trucks- 90 - 102 hours suggests they were used to hold inventory. That's OK but temperature could have been a bit cooler. Also- first one of these had 8 hours on dock during which the product warmed from 3 to 13 °C, that is something deserving more effort/coordination especially when product is 20 - 30 hours on packer which should provide lots of time to plan better.

Yellow: Long interval between harvest and processing- 2 and 3(?) day loads . Also- holding temperatures on dive boat, packer, dock and truck kind of high- these are things that could/should be anticipated and planned around with extra (temporary?) chilling capacities as response options.

Meeting adjourned at 1555 hours.