June 11th, 2014
APPROVED Meeting Notes
Dungeness River Management Team
Dungeness River Audubon Center,
2151 W. Hendrickson Road / Sequim, WA
1:00 – 5:00 P.M.
Notes prepared by: Melissa Coughlin

Team Members/Alternates in Attendance:
Scott Chitwood, Jamestown S'Klallam Tribe
Shawn Hines, Jamestown S'Klallam Tribe (alt)
Hansi Hals, Jamestown S'Klallam Tribe (alt)
Cynthia Nelson, WA DOE
Sheila Roark Miller, Clallam County
Cathy Lear, Clallam County (alt)
Michele Canale, North Olympic Land Trust
Robert Beebe, Riverside Property Owner
Robert Brown, Dungeness Beach Association
Matt Heins, Estuary-Tidelands / Riverside Property Owners
Joe Holtrop, Clallam Conservation District
Don Hatler, Sports Fisheries
Jennifer Brown-Scott, Dungeness National Wildlife Refuge
Tom Martin, PUD
Marc McHenry, USFS (alt)

Others in Attendance:
Powell Jones, Dungeness River Audubon Center
Robert Knapp, Jamestown S'Klallam Tribe
Hilton Turnbull, Jamestown S'Klallam Tribe
Dietrich Schmitt, NWIFC
Tim Humiston, Grower
Cheryl Baumann, NOPLE
Bill Dewey, Taylor Shellfish
Ivan Stocker and Chief, Graysmarsh
Marguerite Glover, Sequim Realtor
Phil Martin, Retired physicist, resident
Mary Ellen Winborn, Winborn Associates
Melissa Coughlin, DRMT Note-taker
Ann Soule, City of Sequim

1:00 P.M.

I. Introductions/Review Agenda/Review & Approve April 2014 DRMT Draft Meeting Notes

- Scott Chitwood welcomed members and attendees and thanked all for coming in an hour earlier than usual for the meeting. Introductions all around. No changes were made to the June agenda. When reviewing the April DRMT notes, Robert Brown asked to change the notes to include a statement that WDOE was in the process of obtaining water meter readers, and the notes need to reflect that isn't complete. Don Hatler moved to accept the April meeting notes with the change proposed; Robert Brown seconded the motion which was unanimously approved.

Public Comment

- Robert Brown commented that the parking area west of the Schoolhouse Bridge is being used for dumping lawn waste. He suggested a no-dumping sign posting, at the least.
- Robert Brown commented on the marijuana grower near his residence; right now there is a greenhouse and new yard valve. He wonders as the business grows how any "new use" for water requirements will be enforced.

II. 2014 SRFB Project Proposal Presentations (East NOPLE) – *Cheryl Baumann, NOPLE Coordinator*

(The last two bullets in this section of notes show where to find complete project information)

- Cheryl reminded the group that the DRMT acts as a Citizen's Review for NOPLE with regard to the SRFB projects in the Dungeness watershed. DRMT members are to prioritize the projects by submitting scores and comments related to the proposals. Large Cap PSAR Competition: allocation for North Olympic projects and large cap for multi-million dollar projects. This year the grant round is before the list goes to the legislature next January. If the project requires a smaller "ask" it will go through regular SRFB PSAR channels. The scoring is similar to past funding request rounds.

Dungeness Riparian Habitat Restoration Proposal– *Robert Knapp, Jamestown S'Klallam Tribe*

- Robert Knapp explained how a landowner approached the Tribe about property along the Dungeness River with salmon habitat to sell for restoration/protection purpose. This is part of a multi-year and phased project to achieve sustainable harvestable salmon runs.
  - Limitations: Working with willing sellers; No ability to hold or lease properties during the funding process; Fair-market value. Challenges: Funding process is long, followed by a long due diligence process, Properties may sell or owner willingness may change. New approach is to ask for funding to acquire multiple properties within a reach of the river. May only pay fair-market value to purchase properties.
  - This project is on a small reach of the river, property is above Highway 101 Bridge.

- Limiting Factors of Dungeness River: High Flow Conditions: Lack of floodplain and off-channel habitats; Low Flow Condition: Lack of stable structures to create habitat.

- Dungeness River has been modified in a number of ways. Channels have been cut off, stranding salmon where they can't get out of channels. Other places also have limiting factors. Commonly, freshwater salmon productivity is expressed by the metric smolts per female spawner. Since 2004, that value has been annually calculated for the Dungeness River and can be compared to the longer record for the Skagit River. Dungeness Chinook productivity has been about half of the Skagit's. Dungeness Chinook productivity is inversely related to the annual peak flow, winter floods (higher) result in less fish. This occurs when the eggs and alevins are in the gravel. In other words, as stream flows rise, the fish in the gravel die. Scour chains were used in past studies to duplicate what happens to redds with river activity. Need funds for floodplain and salmon habitat acquisition and restoration. Better, bigger fish result when habitat and resources are available.
- Funding "ask" is for acquisition and restoration but the only restoration here is the planting of some trees. The proposal will protect 15 acres upstream of Highway 101 Bridge and includes high quality salmon habitat, intact riparian forest with side channels, streams and floodplain habitats. Robert Brown asked about Knapp's statement on levees there and wondered where those are located. Robert Knapp said there are no large levees (as there are downstream in Dungeness Meadows) in this specific area, they hope to avoid future levees. A goal of this is to fill gaps in the already protected areas – with state funds that will include public access. Robert Brown asked if that meant access to the floodplain or the side channels. Robert Knapp said access will be site-dependant, this area has many side channels – hope to make access available rather than having people trespass by walking the river's edge. There are no specific plans for trails or anything like that.
- Marc McHenry asked about willing land owners. Robert Knapp said there are some, they can sign an acknowledgement form that states funding is being sought for purchase of their property, (but land owner can change their mind).
- Don Hatler asked how acquiring this property will affect the salmon numbers. Knapp said that without improvements, salmon numbers will maintain the status quo. Don Hatler noted that thousands of dollars will be spent on just boundary readjustments. Robert Knapp said the house of the landowner is upland on high ground and they are selling the lowland part of their property. Don noted the appraisal costs are very high. Robert Knapp agreed, with the multiple properties it has been a struggle, and standard appraisals usually include buildings.
- Robert Brown asked about any affects of bluff landslides at this property. Robert Knapp has not noticed any instability at the site. The County has critical areas regulations for those situations.

Lower Dungeness River Estuarine and Floodplain Restoration and Levee Setback Proposal – *Cathy Lear, Clallam County.*

- Cathy Lear stated the goals of the project as she displayed map of the area: re-connect the Dungeness River with the floodplain; setback portion of the 1963 Corps levee to preferred location; reconnect channels.
- Levees have had many problems; as a result, a lot of sediment is going into Sequim Bay. As a flyway, migrating birds are dependent on floodplain habitat. This is not a standalone project; there are many efforts to restore the riparian area inside the corridor along the Dungeness River. This project was started about 16 years ago at River's End: acquisition is complete, restoration work and re-use of removed structures were part of the first phase, the Jamestown S'Klallam Tribe has created more salmon habitat by connecting some side channels in this area.
- Second Phase: Funding for design in 2015, project construction will begin in 2016. Robert Brown noted Cathy failed to mention what will happen with Towne Road, which is used as a route to town and for emergency access. Cathy said they are working with Ross Tyler on the fate of Towne Road, but at this point it hasn't been decided (there are a lot of options, and there will be a public comment period). Towne Road also provides recreation access and farm equipment access. Robert Brown said that many people today are using the dike for river access and many park their cars on Towne Road.
- Robert Brown noted the sharp corner on the boundary on the slide showing the existing dike and proposed new location. Cathy said the previous presentation included re-channeling the river with big dredging activity. Overall goal is to give the river the ability to flood properly, with a return flow with no standing water or ponding, (which cuts off fish access back to river). Robert Brown asked about maintenance of the culverts on the river side. Cathy explained that since it is a county facility, the county will maintain.

Dungeness Habitat / Large Property Protection Proposal – *Robert Knapp, Jamestown S'Klallam Tribe*

- Robert Knapp explained this request for funds is for the next biennium. The larger reach is the target for larger landowners. The "ask" is time and money to buy long stretch of large parcels of property along the river. Combination "ask" for acquisition and restoration. Different outcomes: purchase land that is not being farmed, sealing attempts to purchase large properties, restoration and maintenance of ecosystem function.
- He described property in current condition and with proposed restoration. Planting needs to happen soon as large trees to provide shade and protection need time to grow.
- Robert Brown commented about an earlier slide showing the location of setback levees, and asked where the experience and expertise to setback a levee will come. Robert Knapp answered that there are no proposed levee setbacks in this project; if properties contain levees they will come back with a separate proposal for design, etc.
- Don asked about the likeliness of owners to sell. Robert Knapp answered that there are owners willing to talk. They are now looking at a broader area.
- Robert Brown asked about recreation access, there are pullouts with benches at river accesses on south Woodcock Road, and would this be within the bounds of this proposal. Robert Knapp said the funding requires public access, but not necessarily any infrastructure. Funding sources like the park departments can provide the infrastructure (e.g. toilet paper, parking).
- Tom Martin asked why this project isn't combined with other acquisition projects. Cheryl said that PSAR large cap projects have to be a couple of million dollars. The other project Robert Knapp presented will be funded in the regular grant round. The Lead Entity will decide on what to move forward for funding. Projects compete, rank, and if they score in the top ten (and Partnership gets funding) they are funded. Otherwise the projects compete in the next round.
- Tom Martin asked why the price per acre is less downstream. Robert Knapp answered that the cost per acre of smaller parcels is known, the larger parcels are more difficult to appraise.
- Marc asked if the grant allows for parcels which can't be acquired some sort of conservation easement acquisition. Robert Knapp said the Land Trust easements can be an option for property owners.

- Cheryl Baumann said the Technical Review Group met yesterday (handout with scores); they were pleased with the scale and scope of the projects. Currently they are $85,000 to $100,000 short to fund all projects. Potentially may be able to fund all in the right circumstances.
- DRMT voting members need to score and provide comments on projects and return 3rd page (score sheet) to Shawn Hines by June 18th. Shawn will compile DRMT scoring and comments and return to Cheryl by the 24th .
- For full applications of the project proposals in PRISM (the online grant application system), go to this link:http://www.rco.wa.gov/prism_app/about_prism.shtml
- Habitat Work Schedule: http://hws.ekosystem.us/prun.aspx?p=Page_89901fef-078a-47c8-9c7b-f3c0c259700a&sid=180

III. Dungeness River ELJ Project Update – *Hilton Turnbull, Biologist, Jamestown S'Klallam Tribe*

- Hilton Turnbull introduced the large woody debris enhancement project (Jamestown S'Klallam Tribe and the U.S. Forest Service partner) with the objective to increase and enhance Upper Dungeness riparian habitat. The funding is in place from last year's SRFB money.
- Hilton turned the talk over to Marc McHenry, U.S. Forest Service, who spoke about scheduling and next steps. The project includes creating 15 engineered log jams and stabilizing 3 natural ones. The area of concern is from the Forest Service boundary to 2 miles into the Greywolf River. The Forest Service has identified wood source unit for the project in the Canyon Creek area. As the NEPA (National Environmental Policy Act) process moves forward, a public scoping process will begin this summer. The Environmental Assessment will be out in January 2015 for public comments. Expect a signed decision notice in 2015 and implementation will be in 2016 (avoiding the Pink year 2015). They are avoiding Pink run and locations in the upper river. A formalized scoping letter will be out in a few months. They will reconvene the 2012 work group to address design and project status.
- Helicopters will be used to place wood jams, so no roads will be built and heavy equipment will not be needed. Natural Systems did the designs to last 100 years. An anchorage system and using second growth trees is part of the design. Geomorphic work: scour out and collect spawning grounds and activate channels. Marguerite Glover

remembers county log jam blowing out in a flood. Marc said this method of anchoring is a rock collar system, a ballast of large rocks, which will be used in lower radiant reaches of a log jam.

- Robert Brown asked if global warming was taken into account; there will be a decrease in the snow pack, but with heavier winter rains and runoff. Hilton answered that the frequency and duration of flood events will be longer with climate change, but the engineers are aware of these changes, especially in the upper river.

IV. Impacts of Acidification on Shellfish Industry – *Bill Dewey, Taylor Shellfish Farms*

- Bill Dewey is the public affairs manager of Taylor's Shellfish Farms. He described Taylor Shellfish's history and next steps. They are the largest producer of farmed shellfish in the state. The state of Washington leads the country in shellfish production. This is possible because Washington laws permit the ownership of tidelands. In his overview, Bill said he would discuss: ocean acidification; Impacts on shellfish growers*;* what shellfish growers are doing in response.
- Ocean acidification occurs when atmospheric CO^2 released by human activities dissolves in seawater. Ocean acidification and climate change have a common cause, but they are separate physical processes. When human-released carbon dioxide dissolves in seawater, it creates carbonic acid, which lowers pH and decreases carbonate ion levels in the ocean. Both of these chemical changes are significant for many marine organisms that depend on narrow windows of water chemistry to remain healthy.
- Ocean chemistry changes: When CO^2 dissolves in water it converts to a short lived species called 'carbonic acid' which is perhaps why some have referred to rise in oceanic CO^2 as 'ocean acidification'. Carbonic acid readily dissociates into hydrogen and bicarbonate which is what results in the pH change. This pH change would be much more dramatic if it were not for the fact that the oceans are well buffered to such changes and much of this hydrogen subsequently reacts with species such as carbonate ion to form more bicarbonate, retarding the change in pH. This is the problem for marine calcifiers such as coral reefs because it is the carbonate ion that controls how supersaturated the oceans are with respect to the carbonate minerals from which many coral species construct their skeletons (which in some cases produce reefs). By 2100, depending on how effective the world is at curbing emissions, the CO_3^{2-} could decline between 30% to 50% with a proportional change Ω. How sensitive these organisms are to such changes has been a focus of considerable recent and on-going research. Upwelling on the U.S. West Coast / high CO^2, low pH, low aragonite saturation brought to the surface with north winds
- Shellfish seed production: First two days of life, Pacific oyster larvae precipitate ~ 90% of their body weight as calcium carbonate shell. This is done with energy derived from the egg. With low aragonite they expend too much energy building shell. There is not enough energy left to build their feeding mechanism. They become stressed and/or die.
- Expanded industry collaboration:
  - Pacific Coast Shellfish Growers Association working to: Resolve seed shortage for industry; secure funding for monitoring, research & modeling; Sharing lessons learned between facilities.
  - Ramped up monitoring and research: Industry scientists dedicated to improving hatchery production.
  - Collecting & interpreting data.
  - Experimenting with various water treatments; expanded collaboration with University and Government scientists.
  - Evaluating breeding as potential adaptation tool: Sea Grant funded research assessing early exposure to ocean acidification on subsequent performance and genetic parameters for an effective breeding program.
  - Oregon legislature appropriated funding to support efforts at the Hatfield Marine Science Center to develop oysters more tolerant to ocean acidification.
  - Treating hatchery intake water: Water treatment systems installed in Whiskey Creek's Netarts Bay hatchery and Taylor Shellfish Dabob Bay hatchery: Injecting sodium carbonate in response to real-time monitoring to increase availability of carbonate ions for larvae to build shell.
  - Targeting Ω of 3.0
  - Expanded Outreach and Education: Local, national and international media attention
  - Documentaries
  - Speaking at various forums on ocean acidification

- Participating in public policy discussions
- Some excellent politicians have responded to the problem. Washington State's Governor Christine Gregoire formed a Blue Ribbon Panel which Bill Dewey had the honor of serving on that delivered 42 recommendations to her in 2012 on what Washington could do to address ocean acidification. The Blue Ribbon panel's report is an excellent resource with comprehensive appendices on the science of our current understanding and the practicality of implementing the recommendations. http://www.ecy.wa.gov/water/marine/oceanacidification.html
- Panel recommendations: Reduce emissions of carbon dioxide; Reduce local land-based contributions to ocean acidification; Increase our ability to adapt and remediate impacts of ocean acidification; Invest in Washington State's ability to monitor and investigate the causes and effects of ocean acidification; Inform, educate and engage stakeholders, the public, and decision makers on ocean acidification; Maintain a sustainable and coordinated focus on ocean acidification at all levels of government.
- Secretary of State holding "Our Ocean" conference June 16-17, 2014.
- Senate Bill 5603 passed legislature in June 2013. Creates the Washington Marine Resources Advisory Council in Governor's office: Sustainable coordinated focus to address the impacts of ocean acidification; Advise and work with the UW Ocean Acidification Center on effects and sources of ocean acidification. To deliver recommendations to the Governor and Legislature; to seek public and private funding to assist in effort; to do outreach and education on ocean acidification.
- University of Washington Ocean Acidification Center was created by legislature in June, 2013. The five priority actions: Water quality monitoring at the six existing shellfish hatcheries and rearing areas; Expanded and sustained ocean acidification monitoring network; Establish the ability to make short-term forecasts of corrosive conditions; Laboratory studies to assess the direct causes and effects of ocean acidification; Investigate and develop commercial-scale water treatment methods or hatchery designs.
- Cathy Lear asked about his statement that Pacific oysters naturalized, how are those populations doing? Bill said those have been 7 years without natural reproduction. Oyster reserves were established to seed the industry.
- Scott Chitwood said people would argue that the term acidification is inappropriate in this case because it is not more acidic, it is less basic. Regardless, when this information first appeared it was said the pH of marine waters was changing and dissolving shell, but actually the larvae are not getting the opportunity to build the shell. The carbonate ion is less available for the individual organism to collect. If Ω value is less than 1 the larvae can't build shell.
- Don Hatler asked if that meant the adult shellfish do not develop normal shell. Industry emphasis has been on the impact to the larvae. As they metamorphous they transition to another kind of calcium carbonate, that doesn't dissolve as easily. As the ocean pH continues to drop, carbonate ions are less available. Suspect there are also problems in the nurseries (the next area of focus and monitoring for the industry).
- Ann Soule asked what the natural supply is, and will it be exhausted. Bill said the farms still buy seeds, up and down the coast. Should work for the foreseeable future.
- Phil Martin asked about Bill's statement on the upwelling water carrying CO_2 circulating down in the ocean; Bill said the last time the water was at surface absorbing CO_2 was 30 years ago. With the steady increase in fossil fuel consumption that will result in worsening conditions.
- Robert Brown asked about the fate of other shellfish (other than oysters). Bill said a lot of the research now is on that, they think the geoduck may also have been affected.
- Marc McHenry asked what pH threshold correlates with negative effects for shellfish. Bill answered 7.8-7.9. Measuring the pH of sea water is difficult. There are bacteria that thrive in high CO_2 and low pH water.
- Phil Martin asked if the situation was similar on the east coast. Bill thought not, except in Chesapeake Bay. In the east coast there is a nutrient problem, which results in algae bloom and growth. Effects on soft shell clams have been seen by scientists in Maine. The nutrient runoff and localized effect has changed the pH of the sediment and dissolves in mud. New shellfish hatcheries in Virginia are researching problems. There are other problems in the gulf, (deep water horizon), the gulf had dominated the industry for years until the deep water horizon.
- Washington State's OA webpage: http://www.ecy.wa.gov/water/marine/oceanacidification.html
  UW Ocean Acidification Center webpage: http://coenv.washington.edu/research/major-initiatives/ocean-acidification/

V. Cannabis Agriculture in the Dungeness Valley – *Sheila Roark-Miller, Clallam County & Tim Humiston, Grower*

- Sheila Roark Miller introduced Tim Humiston, whose employer is about five months into the licensing process for a commercial marijuana grow in Carlsborg, and who himself has been involved in commercial growing efforts for many years. The licensing process is very expensive and rigorous. Any effort must include strict monitoring, itemized inventory and tracking. Security, including video monitoring, is required, and so is 'seed to sale' tracking which bio-tracks one plant and any products, waste or harvestable, for the life of that plant. Visit: http://lcb.wa.gov/marijuana/faqs_i-502 for complete information on licensing from the Washington State Liquor Control Board, including 43 pages of specific rules, regulations and how violations will be handled: https://lcb.app.box.com/adopted-rules
- Don Hatler asked the water requirements of a commercial grow and what happens to the plants.
- Robert Brown commented on the neighbor that is a new grower, with a license and the greenhouse is located less than 1,000 feet from a public park. (The license statute says that a greenhouse must be located MORE than 1,000 feet from a public park).. Part of the week people monitor the site. Is this a new use for water (under the Dungeness water rule), and what if he tapped off the well. Tim informed group that site was used for growing exotic plants, so it is not a new use. Tracking will be a coordinated effort between the Washington State Liquor Control Board and other agencies with licensed growers.
- There are so many variables in cannabis growing: growing outside, growing hydroponically, growing in greenhouse, etc., with each case different levels of water, heat, light and humidity are required. This makes answering Don Hatler's question on resources required to commercially grow marijuana difficult to calculate. Using the sources in last bullet of this section, **Tim was comfortable sharing the following sort of calculations and comparison to other planted crops:**
- 0.15-0.69 gallons of water is used to produce 1 gram of finished marijuana product. Using 100 grams of product as an average use for one customer per year, 21-26.9 gallons of water are used per user/customer per year.

Product	*Amount of water needed*	*Revenue per acre*
Marijuana	15"-20"	$7.4 million
Corn	22"-24"	$1,107
Blueberries	18"	$17,000

- Benefits of the commercial grow industry are high tax revenues, living wage employment opportunities (20 employees per ½ acre) and they may decrease the amount of illegal grow operations.
- .0004 of 1% of all national farmland would be all that is needed to satisfy all users (according to calculations).
- It was estimated that 0.8 of 1% total energy is used to grow cannabis in Washington State.
- Energy use to grow this product varies greatly depending on the method of growing. Growing outdoors is the least energy intensive means. Indoor growing requires heat, light and humidity.
- Studies show 0.5% greenhouse emissions would result from marijuana grow operations. 1,000 lbs CO_2 from 1 lb of cannabis grown inside; 250 lbs of CO_2 for 1 lb cannabis in greenhouse; zero CO_2 from 1 lb cannabis grown outdoors is produced.
- Legalization has provided an opportunity to push to grow outside where fewer resources are used and less carbon emission is produced. Cynthia Nelson asked if there are any grower education or outreach for the public. Tim didn't know of any.
- **Sources used by Tim Humiston to calculate potential revenue and resource depletion/costs**: "*California Agriculture, Water and You*", Blaine Hanson, Department of Land, Air and Water Resources, University of California, Davis. "*Pot Growers Shake off Federal Water Denia*l", by Rob Hotakainen, The News Tribune, May 21, 2014. "Environmental Risks and Opportunities in Cannabis Cultivation, Michael O'Hare, BOTEC Analysis, UC Berkeley, Daniel L. Sanchez and Peter Alstone, UC Berkeley (from BOTEC Analysis Corporation). "*Estimated Cost of Production for Legalized Cannabis"* working paper by Jonathan P. Caulkins (Rand Drug Policy Research Center).

VI. Other Business/ Announcements

- Robert Brown suggested suspending the August DRMT meeting. Shawn Hines will look at the year agenda topics to make certain it will be possible to cancel the August meeting. Shawn will let group know the status of the August

meeting.

Meeting adjourned at 5:00 P.M.

OPEN ACTIONS/TOPICS FOR FOLLOW-UP:

UPDATE ON DELTA FARMS – (FROM 4/13 MEETING REQUEST)
CANYON CREEK FISH LADDER STATUS FROM WDFW (TOPIC SUGGESTED AT 10/13 DRMT MEETING.)
UPDATE ON SURVEY WORK FROM ARMY CORPS OF ENGINEERS --- WHEN IT PROGRESSES FROM PLANNING STAGE). (TOPIC SUGGESTED 0/13 DRMT MTG.)
LiDAR MAPPING OF THE DUNGENESS WATERSHED (IN LIGHT OF RECENT MUDSLIDES) (TOPIC SUGGESTED AT APRIL 2014 MTG.)
PRESENTATION ON: PSP ACTION # 37: IMPLEMENT STREAM FLOW IMPROVEMENT PROJECTS WITHIN THE DUNGENESS PORTION OF THE ELWHA-DUNGENESS WATER RESOURCE INVENTORY AREA (WRIA 18)". LEADS: CLALLAM CONSERVATION DISTRICT AND WASHINGTON WATER TRUST. (TOPIC SUGGESTED AT APRIL 2014 MTG.)
SNOTEL DATA OR WATER ANALYSIS UPDATE (TOPIC SUGGESTED AT APRIL 2014 MTG.)

HANDOUTS:

- From Cheryl Baumann: North Olympic Lead Entity for salmon list of web addresses; Summary: NOPLE 2014 Scoring Project Proposals; 2014 NOPLEG (WRIA 18) project prioritizing instructions; Color handout of Severson Property Map; Project summaries for: Project #14-1384, Dungeness Habitat Protection – RM 6.5 – RM7.5; Project #14-1382, Lower Dungeness River Floodplain; Project#14-1385, Dungeness Landscape protection –RM 1.5 – RM 6.5;
- Source material for Tim Humiston's calculations was given to note-taker.