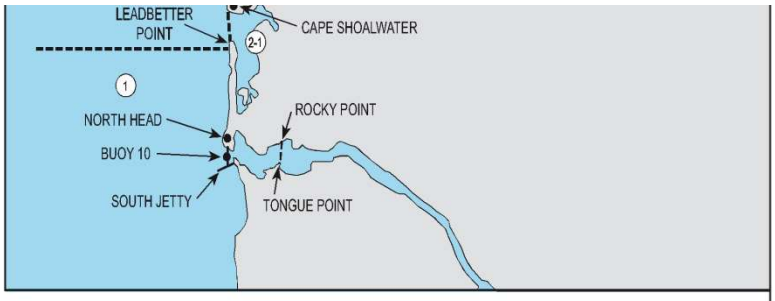
7KH :KDOH 0XVHXP 6RXWKHUQ 5HVLGHQW 6LJKWLQJ &RPSLODWLRQ WK (G

)LJXUH :DVKLQJWRQ 'HSDUWPHQW RI)LVK DQG :LOGOL



Island Light line (described in 8-1 above) and north of the Possession Point-Shipwreck line (described in 9 below).

9. **ADMIRALTY INLET** - all waters inside and south of the Partridge Point - Point Wilson line, south and west of a line from Possession Point 110° true to shipwreck, north of the Hood Canal Bridge, and north of the Apple Cove Point-Edwards Point line.
10. **SEATTLE-BREMERTON AREA** - south from the Apple Cove Point-Edwards Point line to a line projected true east- west through the north tip of Vashon Island.
11. **TACOMA-VASHON ISLAND** - south from a line projected true east west through the north tip of Vashon Island to the Tacoma Narrows Bridge.
12. **HOOD CANAL** - all waters south of the Hood Canal Bridge.
13. **SOUTH PUGET SOUND** - all waters south of Tacoma Narrows Bridge.

Marine Areas

6RXUFH :DVKLQJWRQ 'HSDUWPHQW RI)LVK DQG :LOGOLIH
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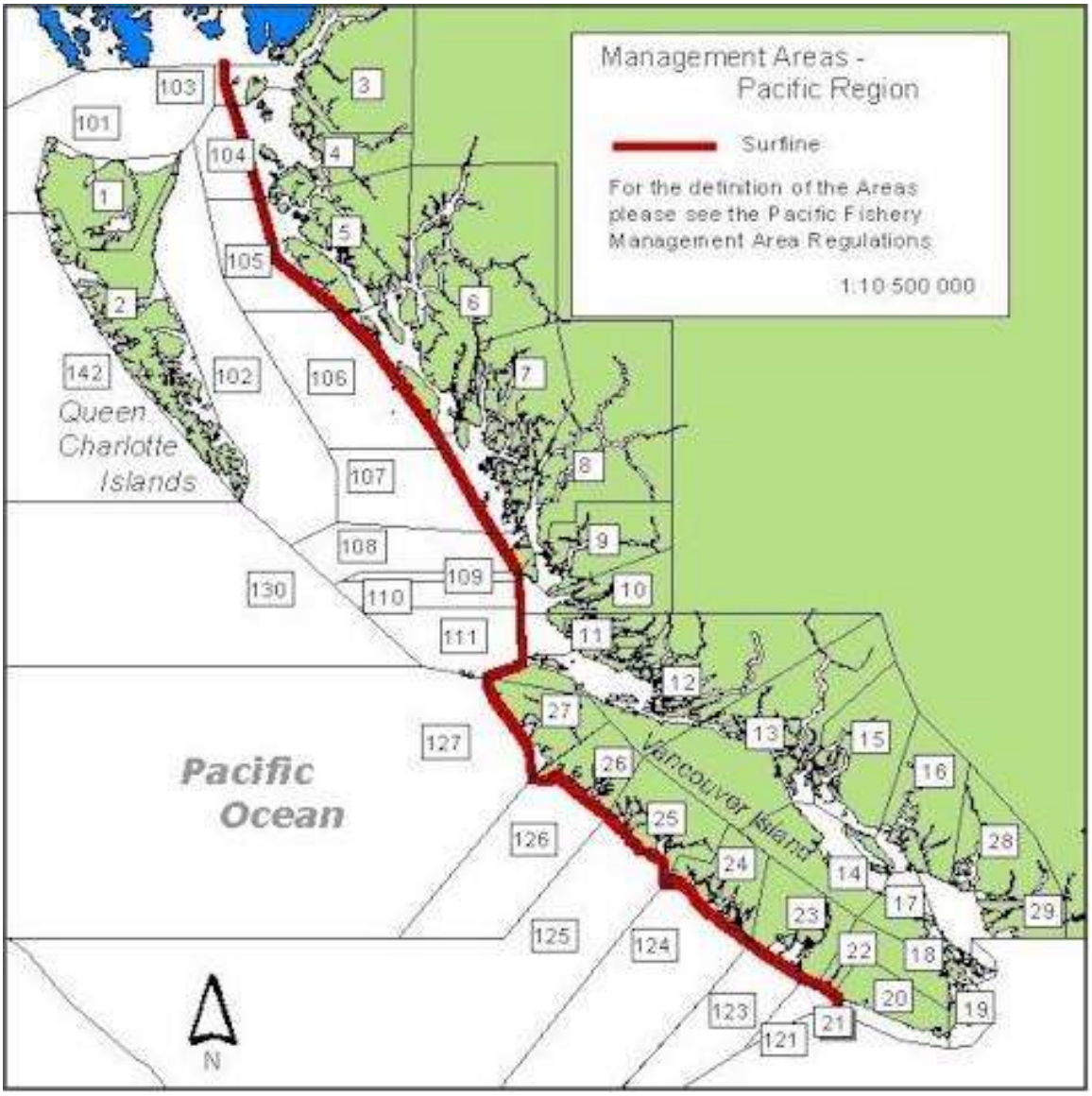

6RXUFH)LVKHULHV DQG 2FHDQV &DQDGD DQG SDFLIIF RSV IP $UHDV D

3URMHFW 5HVXOWV

5HFHQW 7HPSRUDO 7UHQGV LQ 65.: +DELWDW 8VH

7KHUH DUH WKUHH SULPDU\ DQQXDO KDELWDW XVH SDWWH
$XJXVW SULPDULO\ FHQWHUHG LQ WKH VWUDLWV DUXQG
-DQXDU\ D YDULDWLRQ RQ VXPPHU ZLWK H[WHQGHG H[FXU
RXWHU FRDVW DQG ZLQWHU VSULQJ)HE 0D\ H[WHQGHG
RXWHU FRDVW SDUWLFXODUO\ IRU . DQG / SRGV +HLPOLFK
+DXVHU HW DO

7KH PRVW EDVLF XQGHUO\LQJ SDWWHUQ LV UHSRUWHG 65.:
RI WKH 6DOLVK 6HD 7KLV LV LOOXVWUDWHG LQ)LJXUH Z
PRQWKV E\ \HDUV)LJXUH VKRZV WKH QHDUO\ \HDU URXQG
PRQWKO\ SUHVHQFH RI WKH HQWLUH SRSXODWLRQ - . DQ
VXPPHU DQG IDOO PRQWKV 7KH WUHQG LQ WKLV SDWWHUQ
3RGV WR LQFUHDVH WKH QXPEHU RI PRQWKV WKH\ DUH GHV
6DOLVK 6HD WKURXJK WKH IDOO DQG LQWR WKH HDUO\ ZLQ
IRU PRQWKV DW D WLPH LQ ODWH ZLQWHU ,Q WKH PRVW U
QRWHG DEVHQFHV RI - SRG ,Q QRQH RI WKH WKUHH SR
6LPLODUO\ PDUNHG WKH ILUVW WLPH VLQFH WKH VWDU
WKH LQODQG ZDWHUV GXULQJ WKH PRQWK RI $XJXVW 7KH
VWDUW RI WKLV GDWDEDVH WKDW - SRG ZDV QRW VLJKWHG
GXULQJ WKH PRQWKV RI $SULO RU 0D\ )LJ 'XULQJ $XJX
YLVXDOO\ UHSRUWHG RQ WKH :HVW VLGH RI 6DQ -XDQ ,VOD
SRG ZDV UHSRUWHG RQ WKH /LPH .LOQ +\GURSKRQH $UUD\
UHSRUWHG HOVHZKHUH LQ WKH 6DOLVK 6HD $OWKRXJK YH
PRQWKO\ DQQXDO 65.: DUULYDOV DQG GHSDUWXUHV IURP W
WKHUH PD\ EH VRPH ORFDOL]HG FKDQJHV LQ WKHLU UHVLG
VHDVRQDO KDELWDWV ,W FRXOG SRWHQWLDOO\ EH LQIRUP
VSHFLILF TXDGUDQWV SDUWLFXODUO\ WKH ZHVW VLGH RI 6
FKDQJHV LQ WKHLU GLVWULEXWLRQ 7KH 65.:V DUH VLJKWH
DQG KDYH EHHQ DQHFGRWDOO\ NQRZQ WR VSHQG PRUH WL
KLVWRULFDOO\ WKH\ ZHUH FRPPRQO\ REVHUYHG LQ DQG DU

)LJXUH 0RQWKO\ 6FDOH 3RG 2FFXUUHQFH LQ WKH ,QOD

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	No data	K·L	K	J·K·L	No data	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	No data	J
1977	unk SRs	No data	unk SRs	unk SRs	unk SRs	unk SRs	J·L	J·K·L	J·K·L	J·K·L	unk SRs	J·K·L
1978	J	J	J·K	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	No data
1979	J	unk SRs	unk SRs	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K	J
1980	J·L	J	J·K	J	J	J·K·L	J·K·L	J·K·L	J·L	J·K·L	unk SRs	J·K·L
1981	unk SRs	unk SRs	No data	J·K·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·L	J·K·L	J
1982	J·L	K·L	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	unk SRs	J·K·L	unk SRs
1983	J·K·L	unk SRs	J	J·K	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	K	J·K
1984	unk SRs	No data	J	J	unk SRs	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	unk SRs	No data
1985	J	unk SRs	unk SRs	J	J	J·K·L	J·K·L	J·K·L	J·K	J·K·L	unk SRs	unk SRs
1986	unk SRs	J	J	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	K·L	K·L	unk SRs
1987	J	K·L	unk SRs	unk SRs	J·K	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J	J
1988	J·K	J	J	J·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J	No data
1989	J	J	J·K	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K	J	J·K·L
1990	J	No data	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	K·L	No data	No data
1991	No data	J	No data	No data	J·K	J·K·L	J·K·L	J·K·L	No data	J·K	J	No data
1992	No data	No data	No data	No data	J·K·L	K·L	J·K·L	J·K·L	J·K·L	J·K·L	J	L
1993	J·L	J	No data	J·K	J·K	J·K·L	J·K·L	J·K·L	J·K·L	No data	J	J
1994	J	No data	J·K·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·L	J	J
1995	J	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J	J·L	J
1996	J	J	J·L	J	J·K	J·K·L	J·K·L	J·K·L	J·K·L	No data	No data	J·K
1997	J	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K
1998	No data	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K	J
1999	J	J	No data	J	J·K	J·K·L	J·K·L	J·K·L	J·K·L	L	J·K·L	J·K·L
2000	J·K·L	J	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·L	J·K	J·K·L
2001	J·K·L	J·L	J·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2002	J·K·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2003	J·K·L	J	J·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K
2004	J·K·L	J	J·L	J	J·K·L	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K
2005	J·K	L	J	J·K	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K
2006	J·L	J	J·K·L	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2007	J·K·L	J	J·K·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J	J·K·L
2008	J·K·L	J·L	J	J	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2009	J·L	J·K·L	J	No data	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2010	J	J·K·L	J	J·K	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2011	J·K·L	J·K	J·K	J·L	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K
2012	J·K	J·K·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2013	J·K	J·L	J·K·L	K	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K
2014	J·K·L	J·L	J·K	J·K	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2015	J·K·L	J·K·L	J	J·L	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2016	J·K·L	J·K·L	J·K·L	J	J·K	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K	J·K·L
2017	J	J·K·L	J	J	J·L	J·K·L	J·K·L	L	J·K·L	J·L	J·K·L	J·K·L
2018	J·K·L	J·L	J·K·L	J	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K	J·K·L
2019	J·K·L	J·L	J·L	J·K·L	J·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L	J·K·L
2020	J·K·L	J·K	J·L	J	J·K·L	J·K·L	J·K·L	J·K	J·K·L	J	J·K	J·K
2021	J·K·L	J·K·L	J	J	No data	J	J·K·L	J·L	J·K·L	J·K·L	J·K·L	J·K·L
2022	J·L	J	J	J	J	J·L	J·K·L	J·K·L	J·K·L	J	J·K·L	J·K

- No data
- Unk SRs
- J Pod
- K Pod
- L Pod
- J & K Pod
- J & L Pod
- K & L Pod
- J, K, L Pod

65.: +DELWDW 8VH &RPSDULVRQ DQG 'HFDGDO 0HDQV &HQW

,Q)LJXUHV DQG WKH VHDVRQDO RFFXUUHQFH SDWWHUQ
DQG 3XJHW 6RXQG)LJXUH DUH LOOXVWUDWHG DIWHU
RI GD\V SHU PRQWK 65.: ZHUH GHWHFWHG IURP WR Z
UHVSHFWLYH GHFDGDO \HDU PHDQV RI RFFXUUHQFH IR
65.: ZHUH LQFOXGHG LQ WKHVH ILJXUHV)RU WKH &HQWUD
SDWWHUQ RI LQFUHDVHG RFFXUUHQFH GXULQJ WKH VXPPH
GHFDGHV ,Q UHFHQW \HDUV H J D WUHQ
VSULQJ PRQWKV PD\ EH HPHUJLQJ ZLWK VRPH \HDUV H J
WKURXJKRXW WKH VXPPHU PRQWKV DV ZHOO

65.: RFFXUUHQFH LQ 3XJHW 6RXQG SURSHU IROORZV D SDW
VXPPHU DQG DQ LQFUHDVLQJ RFFXUUHQFH LQ WKH ODWH ID
VHHPV WR KDYH EHFRPH HVWDEOLVKHG DIWHU D VXE JURXS
,Q DQG WKH QXPEHUV RI GD\V ZLWK 65.: LQ 3XJHW
H[FHSW IRU WKH IDOO ZLQWHU SDWWHUQ)LJXUH ,Q
WKH GHFDGDO PHDQ IDLUO\ FORVHO\ ZLWK GHYLDWLRQV IU
6HSWHPEHU ZKHUH WKH QXPEHU RI GD\V GHWHFWHG ZDV Z

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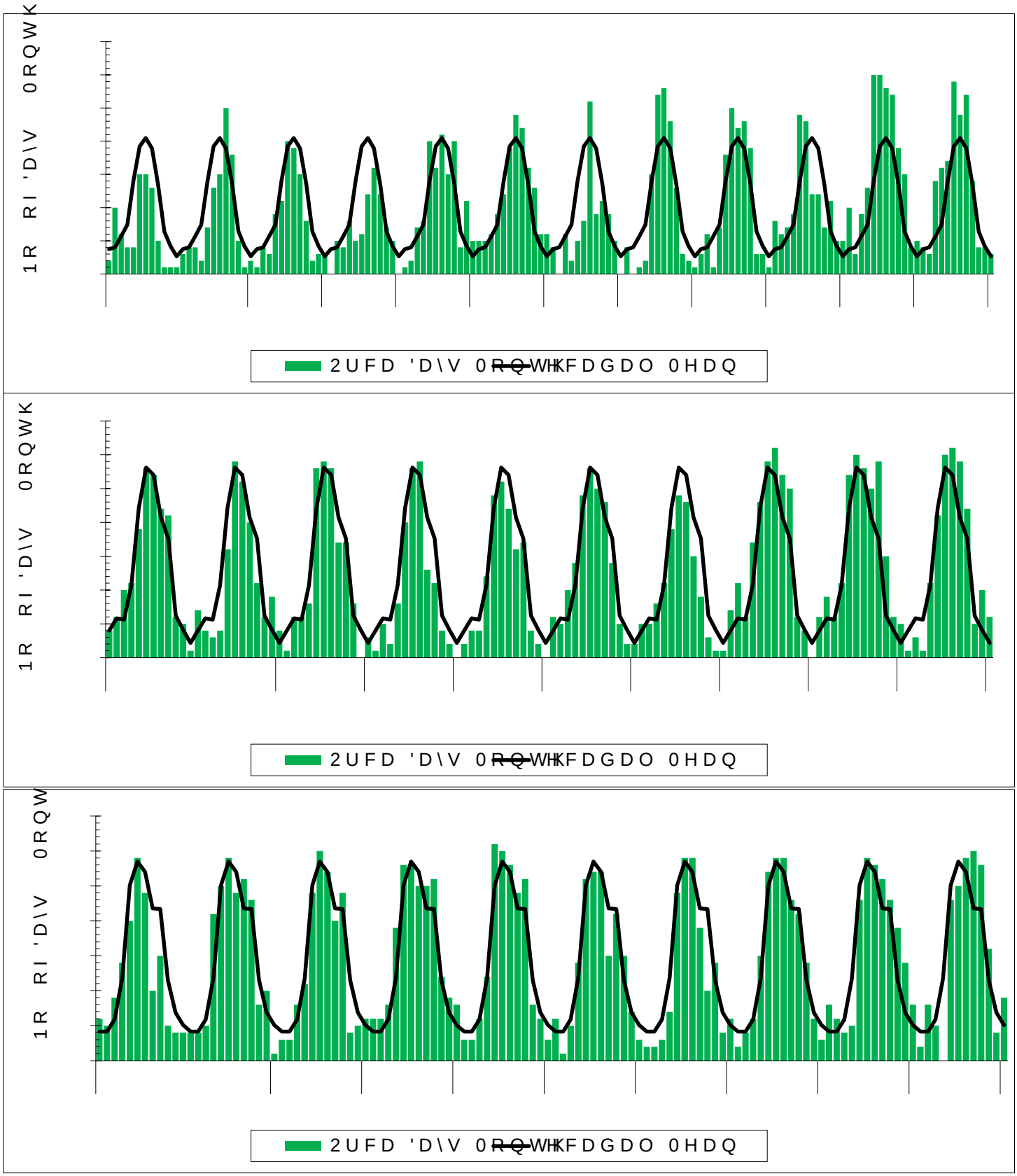

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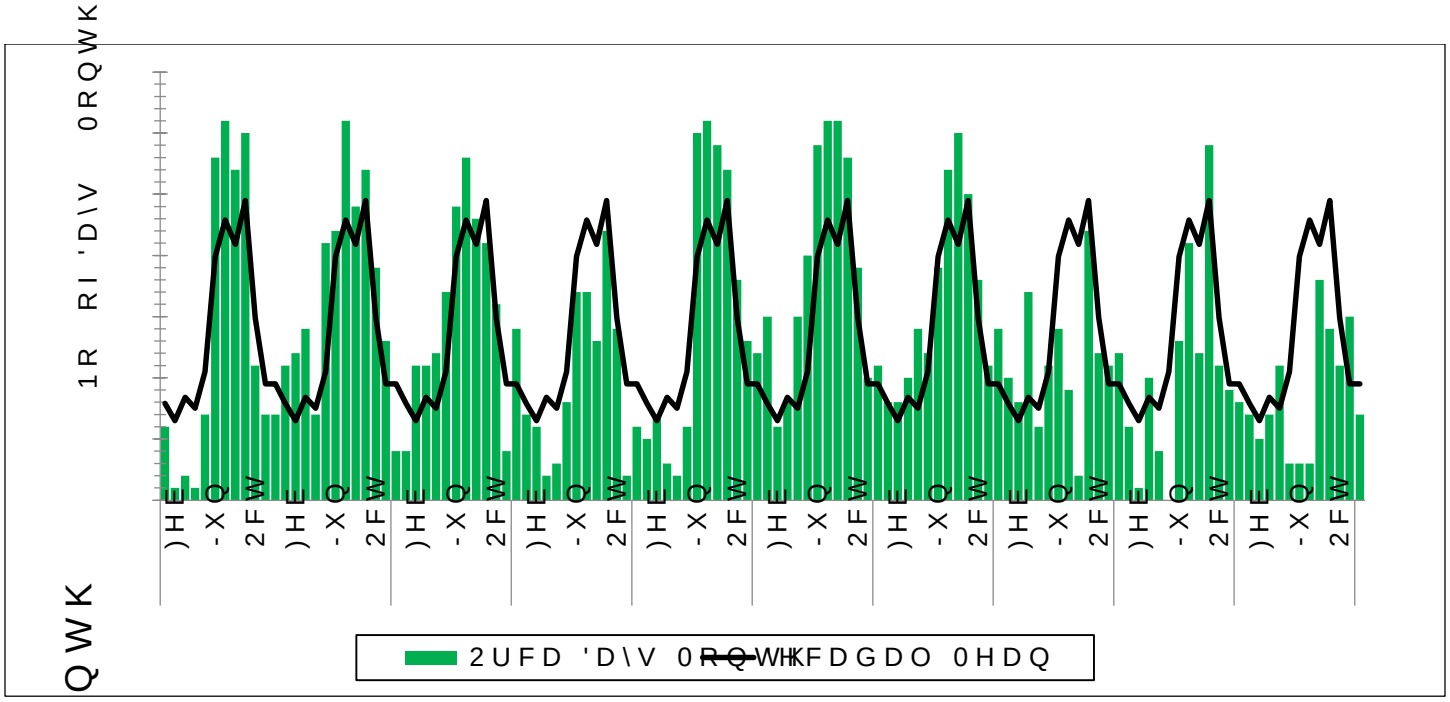

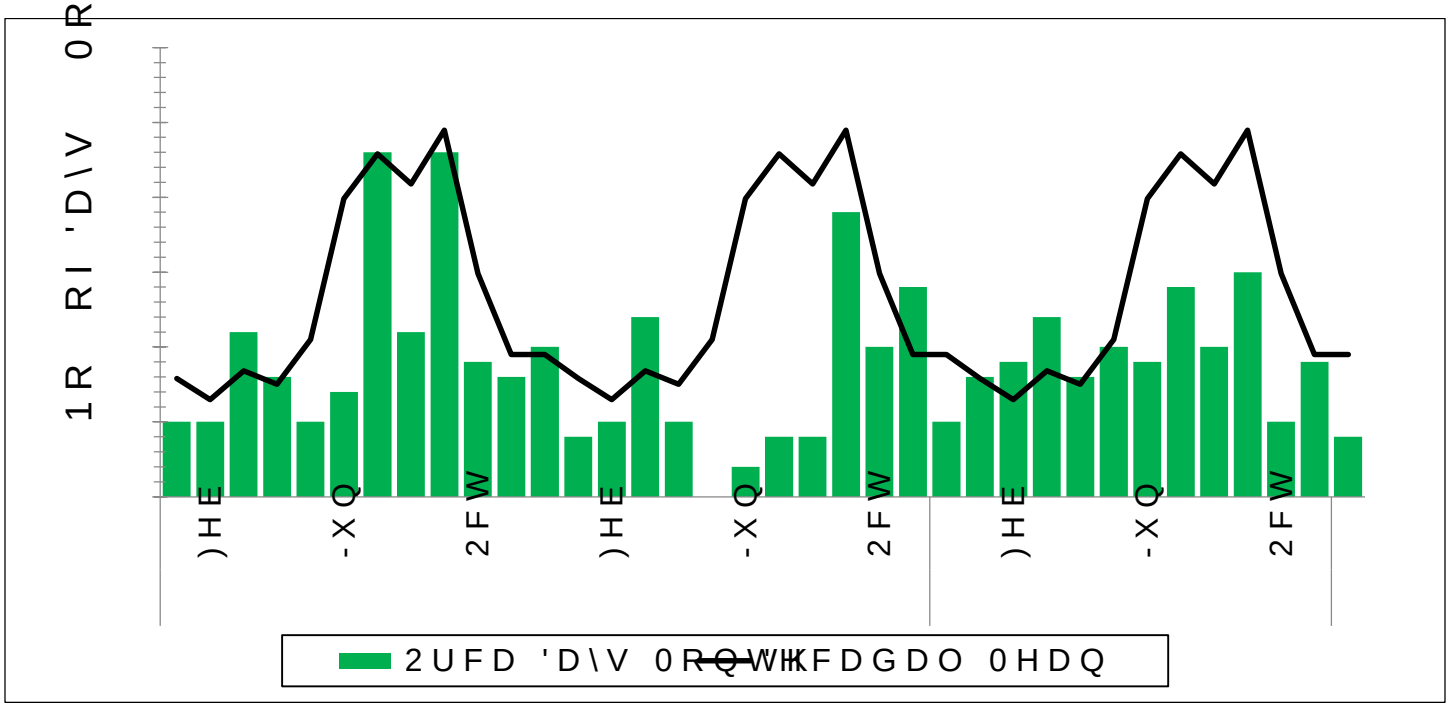

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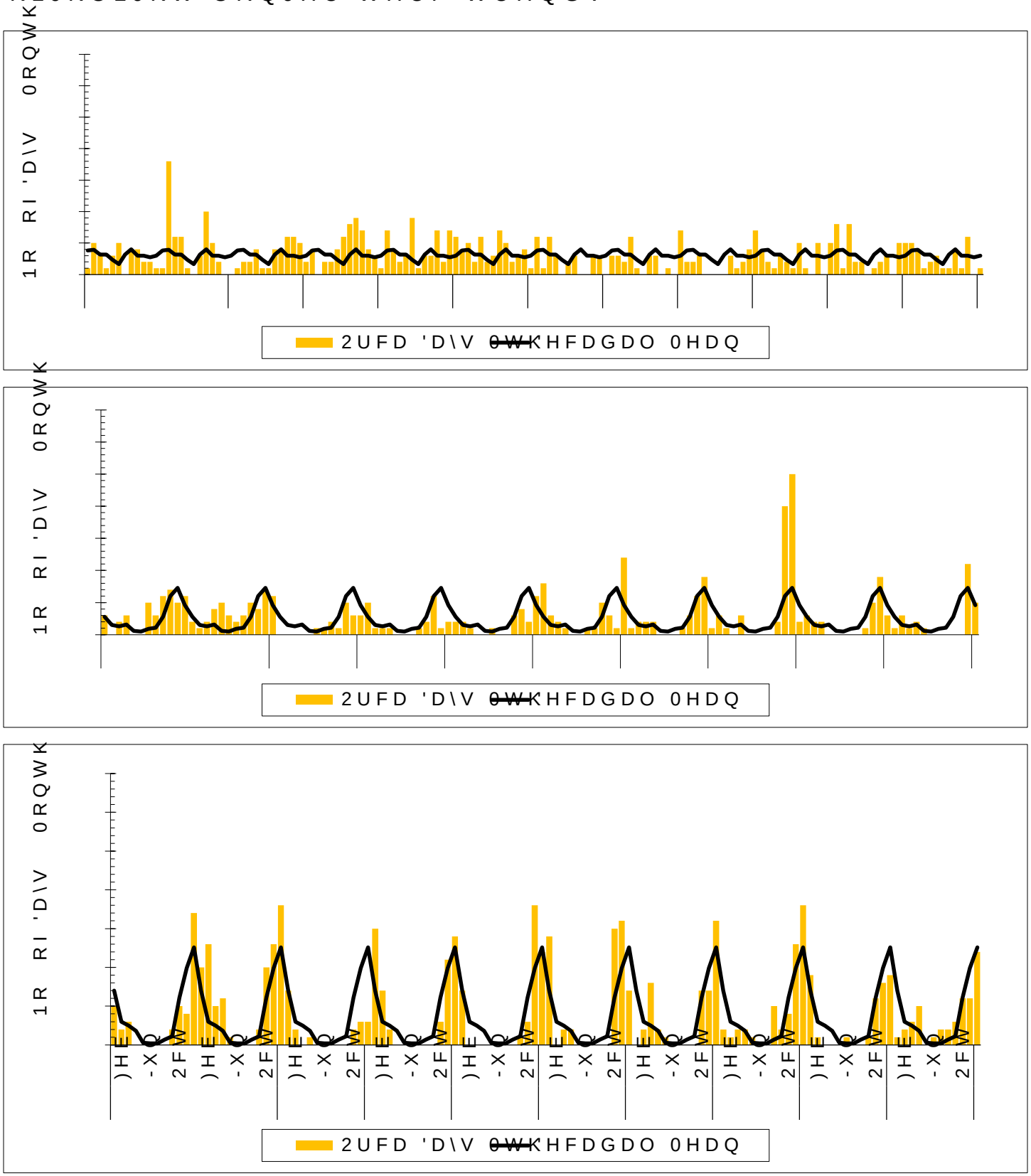

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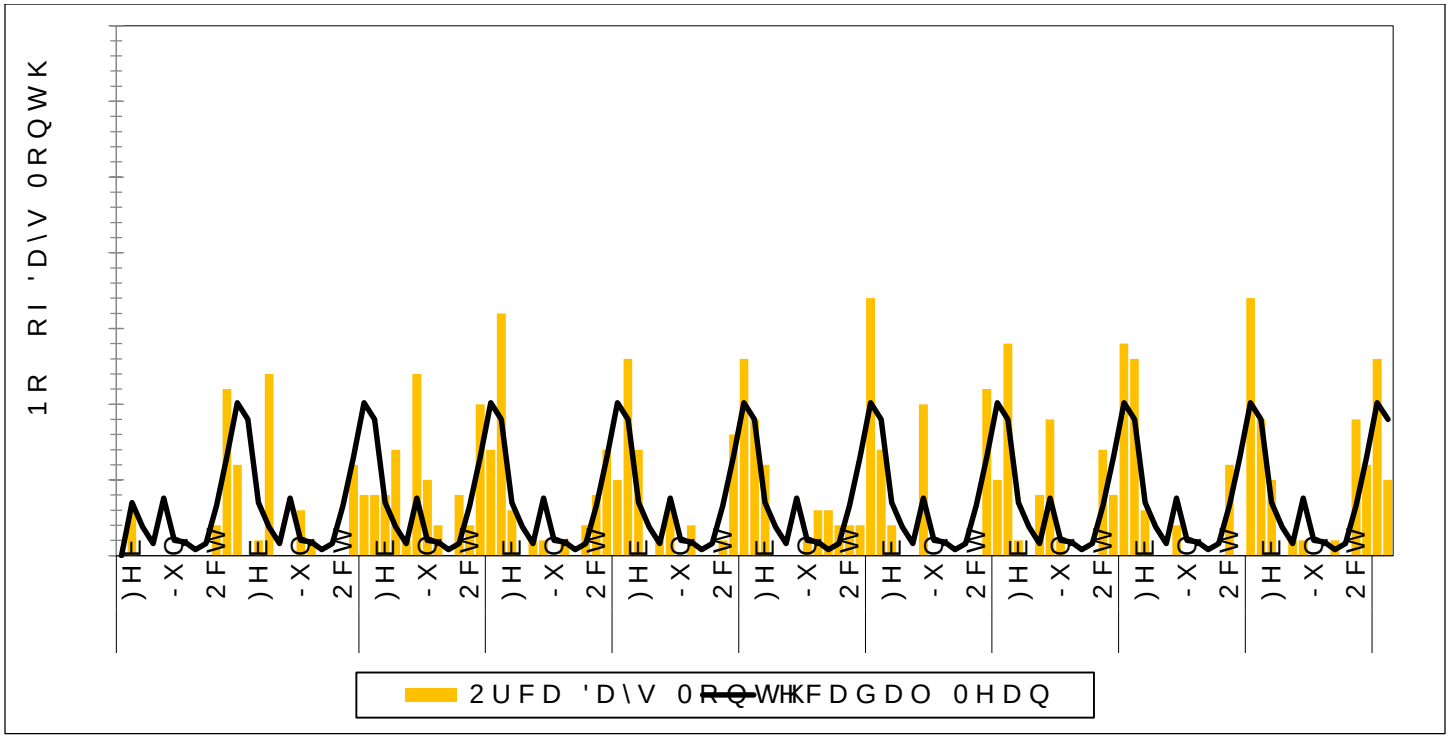

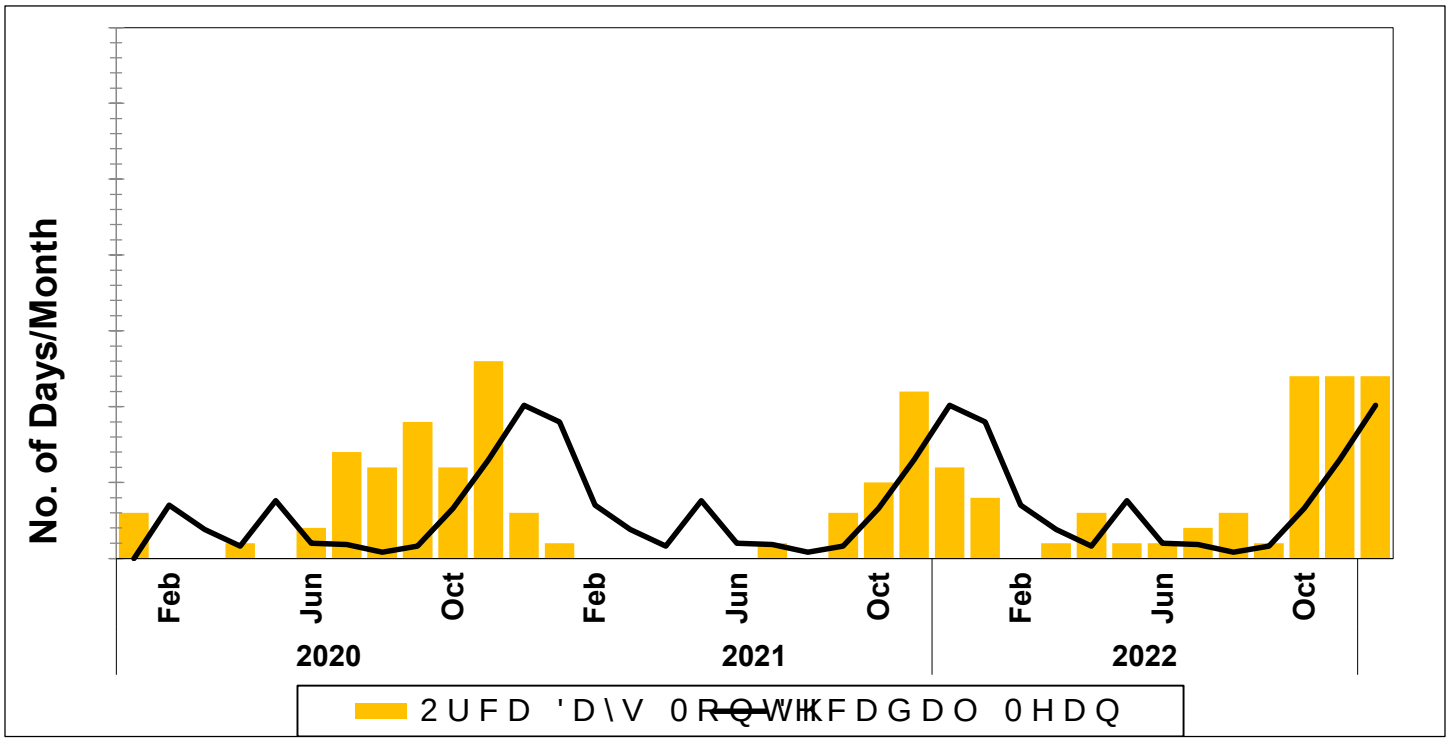

65.: 6LJKWLQJ 6XPPDU\

)LJXUH GHSLFWV QHZ 65.: VLJKWLQJV LQFOXGHG LQ WKLV TXDGUDQW DQG WKHQ GHSLFWHG RQ WKH PDS DW WKH FHQ V\PERO WKH JUHDWHU WKH QXPEHU RI VLJKWLQJV LQ WKD LQFOXGHG LQ WKLV PDS DQG WKHUHIRUH LV QRW MXVW LQ RIWHQ EXW ZKHUH SHRSOH ZHUH PRVW OLNHO\ WR YLHZ D WKH LPSRUWDQFH RI +DUR 6WUDLW DV ZHOO DV WKH XVH R RI 9DVKRQ ,VODQG LQ 3XJHW 6RXQG SURSHU 7KLV LV OLNH E\ WKH 65.: LQWR WKH 3XJHW 6RXQG WR IHHG RQ FKXP VDO

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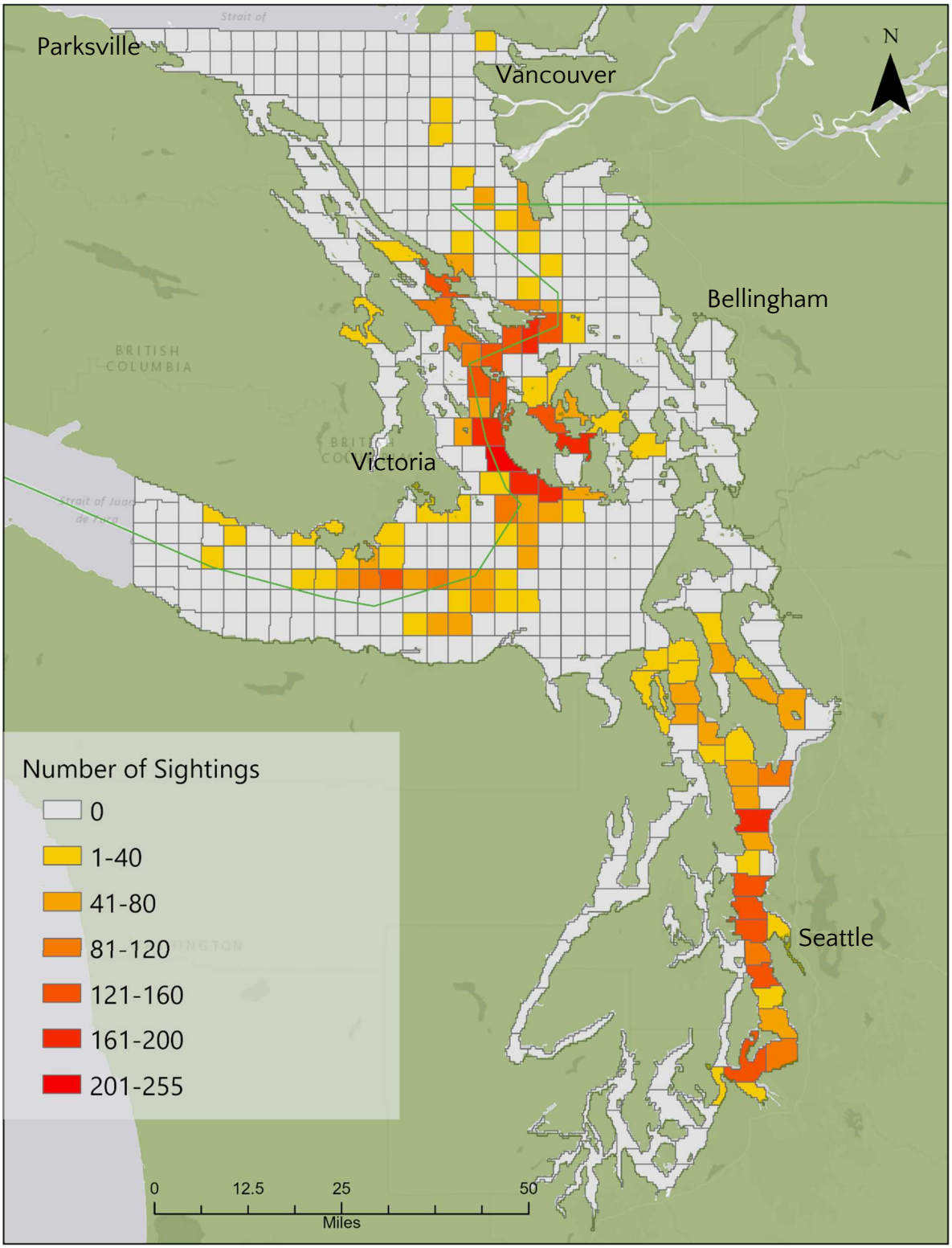

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IRU WKDW DUHD 7KH ZDUPHU WKH JUDGLHQW WKH KLJKHU

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3UHOLPLQDU\ SUHVHQWDWLRQV RI WKLV GDWDVHW ZHUH PD
LQ DQG 7KH 2UFD 0DVWHU 6LJKWLQJV GDWD ZDV DC
ZRUNVKRSV UHODWHG WR 6RXWKHUQ 5HVLGHQW NLOOHU ZK
E\ 12$$ DQG ')2 7ZR RI WKH ZRUNVKRSV WRRN SODFH LQ 6H
-DQXDU\ 7KH WKLUG ZRUNVKRS WRRN SODFH LQ 9DQFR
SUHVHQWDWLRQV RI WKLV GDWDVHW KDYH EHHQ PDGH
7UDLQLQJ 3URJUDP DQG DW 7:0¶V 5HVHDUFK 6\PSRVLXPV ,
E\ WKLV GDWDVHW ZHUH DOVR SUHVHQWHG E\ 7:0 DW WKH
6HDWWOH :$

'DWD IURP 2UFD 0DVWHU KDYH EHHQ VKDUHG ZLWK FRXQWC
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GDWDVHW LV LQFUHDVLQJO\ XVHG IRU HQYLURQPHQWDO LP
0XVHXP DV SDUW RI D FRQWUDFW ZLWK WKH 6QRKRPLVK &I
KLVWRULFDO UHYLHZ RI WKH XVDJH RI $GPLUDOW\ ,QOHW E
EDVHG PRVWO\ RQ WKH 2UFD 0DVWHU 'DWDVHW :RRG HW D
FRQWUDFWV ZLWK WKH :DVKLQJWRQ 6WDWH)HUULHV RQH
RQH FRQWUDFW ZLWK $(&20 12$$)LVKHULHV DQG RQH FR
0XVHXP FRQGXFWHG KLVWRULFDO UHYLHZV RI 65.: XVDJH R
9DVKRQ 6RXWKZRUWK &RXSHYLOOH (GPRQGV 0XNLOWHR
3RVVHVVLRQ 6RXQG 3RUW *DUGQHU DUHDV WKDW ZHUH EDV
:RRG D F 2OVRQ DQG :RRG 2OVRQ D G 2OVRQ

$ PDQXVFULSW VXPPDUL]LQJ WKH RYHUDOO WUHQGV DQG L
7:0 VWD(IQ GQQJHUHG 6SHZFKLHVK5HDVHDUFK EHHQ PDGH DYDLC
,QVOHH¶V 65.: 7DVN)RUFH 2OVRQ HW DO 7KLV PDQXV
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WKHVLV SURMHFWV 2OVRQ +DXVHU 0F&OXVNH\
2VERUQH *LOHV 3HHU UHYLHZHG SXEOLFDWLRQV
ZULWWHQ E\ 'RQQD +DXVHU +DXVHU HW DO 'HER
0RQLND :LHODQG 6KLHOGV 6KLHOGV HW DO

6XPPDU\ &RS\ RI 'DWD

7KH SULPDU\ SURGXFWV RI WKLV FRQWUDFW DUH WKH
V\VWHPDWLFDOO\ DVVHVVHG DQG LQWHJUDWHG LQWR D VLC
06 ([FHO IRUPDW $SSHQGLFHV , ,, 7KLV LQIRUPDWLRQ K
%R[WR 12$$¶V 1RUWKZHVW)LVKHULHV 6FLHQFH &HQWHU D
3URWHFWHG 5HVRXUFHV 'LYLVLRQ

$FNQRZOHGJHPHQWV

7KH :KDOH 0XVHXP VWDII DGPLQLVWHUHG JUDQW IXQGV LQ
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DQG DVVHVVPHQW ,QGLYLGXDOV RXWVLGH RI 7KH :KDOH 0X
WR WKH FRPSLODWLRQ DQG DVVHVVPHQW RI WKH GDWD
6058 &RQVXOWLQJ 5LFN +XH\ RI :6'27 6XVDQ %HUWD DQG -
DQG 0DUN DQG 0D\D 6HDUV 6SHFLDO WKDQNV WR WKH SUL
GDWDVHWV 'U %RE 2WLV RI 5LSRQ &ROOHJH $ODQQD)UDV
*URXS DQG 0RQLND :LHODQG RI 2UFD %HKDYLRU ,QVWLWXW
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5HIHUHQFHV

$EGHO 5DKHHP 6 7 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW &RQWUDFW 5HSRUW WR +DUW &URZVHU GLY RI +DOH\ D

$EGHO 5DKHHP 6 7 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW 5HSRUW WR :DVKLQJWRQ 6WDWH 'HSDUWPHQW RI 7UDQV

$EGHO 5DKHHP 6 7 2OVRQ - . :RRG - DQG 5 : 2VERU :KDOH 6LJKWLQJ &RPSLODWLRQ ± +LVWRULFDO 'DWDEDV 0 '1))3 1:)6& 10)6 12$$ 6HDWWOH :$ S

%DOFRPE . & - 5 %RUDQ 5 : 2VERUQH DQG 1 - +DHQHO :KDOHV 2UFLQXV RUFD LQ *UHDWHU 3XJHW 6RXQG 6W 8 6 'HSW RI &RPPHUFH 6SULQJILHOG 9$

%RUDQ - 5 7KH :KDOH +RWOLQH &HWXV 9RO 1R

&KDUDSDWD 3 $ 7UD[OHU - :RRG DQG 5 : 2VERUQH 6LJKWLQJ &RPSLODWLRQ ± +LVWRULFDO 'DWDEDVH 5$) &4 1:)6& 10)6 12$$ 6HDWWOH :$ S

(LVHQKDUGW ( )LQDO 3URJUDP 5HSRUW 6RXQGZDWFH 3URMHFW 12$$ &RQWUDFW $%) &1 7KH :KD +DUERU :$

(LVHQKDUGW ( )LQDO 3URJUDP 5HSRUW 6RXQGZDWFH 3URMHFW 12$$ &RQWUDFW 5$) &4 7KH :KD +DUERU :$

(LVHQKDUGW (DQG . .RVNL)LQDO 3URJUDP 5HSRUW (GXFDWLRQ 3URMHFW 12$$ &RQWUDFW 5$) &4)ULGD\ +DUERU :$

)HOOHPDQ) / - 5 +HLPOLFK %RUDQ DQG 5 : 2VERUQH :KDOH 2UFLQXV RUFD ,Q .: 3U\RU DQG . 6 1RUULV 'LVFRYHULHV DQG SX]]OHV %HUNHOH\ 8QLYHUVLW\ RI

)UD\QH $ 6KHGG 7 (6HHO\ DQG 5 2VERUQH)LQD 3XEOLF 2XWUHDFK %RDWHU (GXFDWLRQ 3URMHFW 1 0 '1))3 7KH :KDOH 0XVHXP)ULGD\ +DUERU :$

*LOHV 'HERUDK $ 6RXWKHUQ 5HVLGHQW .LOOHU :KDOH DGDSWLYH PDQDJHPHQW SUDFWLFHV IRU YHVVHO EDVH $ QRYHO QRQLQYDVLYH PHWKRG WR YHVVHO FRPSOLDQFH ZLWK UHJXODWLRQV DQG 7KH HII EHKDYLRU RI VRXWKHUQ UHVLGHQW NLOOHU :KDOH *HRJUDSK\ 8QLYHUVLW\ RI &DOLIRUQLD 'DYLV 'DYLV &

*LOHV 'HERUDK $ DQG . / .RVNL 0DQDJLQJ 9HVVHO &ULWLFDO $VVHVVPHQW RI WKH (YROXWLRQ IURP 9ROX 6DOLVK 6HD -RXUQDO RI ,QWHUQDWLRQDO :LOGOLIH /D

+DLIOH\ $ $EGHO 5DKHHP 6 7 2OVRQ - . :RRG - DQG 5HVLGHQW .LOOHU :KDOH 6LJKWLQJ &RPSLODWLRQ ± +L &RQWUDFW 5HSRUW 0 '1))3 1:)6& 10)6 12$$ 6

+DLIOH\ $ $EGHO 5DKHHP 6 7 2OVRQ - . :RRG - DQG 5HVLGHQW .LOOHU :KDOH 6LJKWLQJ &RPSLODWLRQ ± +L &RQWUDFW 5HSRUW 0 '1))3 1:)6& 10)6 12$$ 6

+DXVHU ' ' : 6HDVRQDO +DELWDW 8VH ,QFOXGLQJ $U
E\ 6RXWKHUQ 5HVLGHQW .LOOHU :KDOHV 2UFLQXV RUF
&ROXPELD 6WXGHQW SDSHU)LHOG 0HWKRGV LQ 0DULG
:DVKLQJWRQ)ULGD\ +DUERU /DERUDWRULHV)ULGD\ +D
+DXVHU ' ' : 6XPPHU VSDFH XVH RI 6RXWKHUQ 5HVLGH
ZLWKLQ :DVKLQJWRQ DQG %ULWLVK &ROXPELD LQVKRUH
:DVKLQJWRQ S
+DXVHU ' ' : * 5 9DQ%ODULFRP ((+ROPHV DQG 5 : 2
XVH RI ZKDOH ZDWFH GDWD LQ GHWHUPLQLQJ NLOOHU 2
- &HWDFHDQ 5HVHDUFK DQG 0DQDJHPHQW
+DXVHU ' ' : 0 /RJVGRQ ((+ROPHV * 5 9DQ%ODULFR
6XPPHU GLVWULEXWLRQ SDWWHUQV RI 6RXWKHUQ 5HVL
DUHDV DQG VSDWLDO VHJUHJDWLRQ RI VRFLDO JURXSV

+HLPOLFK %RUDQ - 5 %HKDYLRUDO (FRORJ\ RI .LOOH
1RUWKZHVW &DQDGLDQ -RXUQDO RI =RRORJ\
.RVNL .)LQDO 3URJUDP 5HSRUW 6RXQGZDWFK 3XEOL
12$$ &RQWUDFW $%) 6(7KH :KDOH 0X
+DUERU :$
.RVNL ./ DQG 5 : 2VERUQH 7KH HYROXWLRQ RI DGD
YHVVHO EDVHG ZLOGOLIH YLHZLQJ LQ WKH ERXQGDU\ Z
:DVKLQJWRQ 6WDWH 3URFHHGLQJV RI WKH 3XJHW 6RXQ
&RQIHUHQFH 3XJHW 6RXQG :DWHU 4XDOLW\ $FWLRQ
ZZZ SVDW ZD JRY 3XEOLFDWLRQV BSURFHHGLQJV LQG
.RVNL .)LQDO 3URJUDP 5HSRUW 6RXQGZDWFK 3XEOL
12$$ &RQWUDFW $%) 6(7KH :KDOH 0X
+DUERU :$ 1:)6& 10)6 12$$ 6HDWWOH :$ S
.RVNL .)LQDO 3URJUDP 5HSRUW 6RXQGZDWFK 3XEOL
12$$ &RQWUDFW $%) 6(7KH :KDOH 0XVHX
.RVNL .)LQDO 3URJUDP 5HSRUW 6RXQGZDWFK 3XEOL
12$$ &RQWUDFW $%) 6(7KH :KDOH 0XVHX
.RVNL .)LQDO 3URJUDP 5HSRUW 6RXQGZDWFK 3XEOL
12$$ &RQWUDFW $%) &1 7KH :KDOH 0XVHX
:$
.RVNL .)LQDO 3URJUDP 5HSRUW 6RXQGZDWFK 3XEOL
12$$ &RQWUDFW $%) &1 7KH :KDOH 0XVHX
:$
.RVNL . 12$$ &RQWUDFW $%) &1)LQDO 3URJ
3XEOLF 2XWUHDFK %RDWHU (GXFDWLRQ 3URMHFW 7
:$
.RVNL . 12$$ &RQWUDFW $%) &1)LQDO 3URJ
3XEOLF 2XWUHDFK %RDWHU (GXFDWLRQ 3URMHFW 7
:$
0F&OXVNH\ 6 0 6SDFH 8VH 3DWWHUQV DQG 3RSXODWL
:KDOH &RQVHUYDWLRQ &RUSRUDWLRQ WR 'LVWULEXWLRQ DQG $EX

2QFRUK\QFKXV VSS LQ WKH ,QODQG 0DULQH :DWHUV &ROXPELD 0 6 7KHVLV 7KH 8QLYHUVLW\ RI :DVKLQJWR

2OVRQ - 0 7HPSRUDO DQG VSDWLDO GLVWULEXWLRQ &RPPXQLW\ DQG WUDQVLHQW RUFDV LQ WKH LQODQG ZI 0 6 7KHVLV +X[OH\ &ROOHJH RI (QYLURQPHQWDO 6WXG %HOOLQJKDP :$

2OVRQ - . D 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW IRU W &RQWUDFW 5HSRUW WR 8 6 'HSDUWPHQW RI WKH 1DY\

2OVRQ - . E 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW IRU 3X =RQHV RI ,QIOXHQFH &RQWUDFW 5HSRUW WR :DVKLQJW

2OVRQ - . F 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW IRU 3X :LQJZDOOV 5HSODFHPHQW 3URMHFW &RQWUDFW 5HSRU

2OVRQ - . G 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW IRU 3 0RQLWRULQJ 3URMHFW &RQWUDFW 5HSRUW WR :DVKLQ

2OVRQ - . D 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW IRU 1 8SJUDGH &RQWUDFW 5HSRUW WR $(&20 ,PSDFW $VVHVV

2OVRQ - . E 0DULQH 0DPPDO 6LJKWLQJ 5HSRUW IRU 3X =RQHV RI ,QIOXHQFH 8SGDWH &RQWUDFW 5HSRUW

2OVRQ - . DQG - :RRG D 0DULQH 0DPPDO 6LJKWLQJ 5 $QDFRUWHV 7LHXS 6OLS 3URMHFW =RQHV RI ,QIOXHQFH)HUULHV S

2OVRQ - . DQG - :RRG E 0DULQH 0DPPDO 6LJKWLQJ 3URMHFW DQG 9DVKRQ 6HLVPLF 5HWURILW =RQHV RI ,Q 6WDWH)HUULHV S

2OVRQ - . DQG - :RRG F 0DULQH 0DPPDO 6LJKWLQJ 7HUPLQDO 7RZHUV 5HSODFHPHQW 3URMHFW &RQWUDFW S

2OVRQ - . DQG - :RRG 0DULQH 0DPPDO 6LJKWLQJ 5 7UHVWOH 3URMHFW &RQWUDFW 5HSRUW WR 8 6 'HSDU

2OVRQ - 0 5 : 2VERUQH DQG . / .RVNL *,6 SORWV PRYHPHQW SDWWHUQV XVLQJ FRPPHUFLDO ZKDOH ZDWF 5HPRWH 6HQVLQJ :RUNVKRS)RXUWHHQWK %LHQQLDO & 9DQFRXYHU % &

2OVRQ - . 5 : 2VERUQH . %HQQHWW DQG ((LVHQKDU :KDOH 6LJKWLQJ &RPSLODWLRQ ± +LVWRULFDO 'DWDEDV 5$) &4 1:)6& 10)6 12$$ 6HDWWOH :$ S

2OVRQ - . 5 : 2VERUQH DQG . %HQQHWW 6RXWKH &RPSLODWLRQ ± +LVWRULFDO 'DWDEDVH)LQDO 1:)6& 10)6 12$$ 6HDWWOH :$ S

2OVRQ - . 5 : 2VERUQH DQG . %HQQHWW 6RXWKH &RPSLODWLRQ ± +LVWRULFDO 'DWDEDVH)LQDO 1:)6& 10)6 12$$ 6HDWWOH :$ S

2OVRQ - . 5 : 2VERUQH DQG . %HQQHWW 6RXWKH &RPSLODWLRQ ± +LVWRULFDO 'DWDEDVH)LQDO 1:)6& 10)6 12$$ 6HDWWOH :$ S

2OVRQ - . - :RRG 5 : 2VERUQH / %DUUHWW /HQQDUG
VRXWKHUQ UHVLGHQW NLOOHU ZKDOHV LQ WKH 6DOLVK
WHUP RSSRUWXQLVWLF GDWDVHW (QGDQJHUHG 6SHFLH
2OVRQ - . 5 : 2VERUQH DQG . %HQQHWW E 6RXWK
&RPSLODWLRQ ± +LVWRULFDO 'DWDEDVH)LQDO
1:)6& 10)6 12$$ 6HDWWOH :$ S
2VERUQH 5 : 7UHQGV LQ NLOOHU ZKDOH PRYHPHQWV
+DUR 6WUDLW 3URFHHGLQJV RI 3XJHW 6RXQG 5HVHDUF
4XDOLW\ $XWKRULW\ SS
2VERUQH 5 : $ KLVWRULFDO HFRORJ\ RI 6DOLVK 6HD U
ZLWK LPSOLFDWLRQV IRU PDQDJHPHQW 'RFWRUDO WKH
9LFWRULD 9LFWRULD % & S
2VERUQH 5 : - 0 2OVRQ DQG 5 (7DOOPRQ 6RXWKH
DW GLIIHUHQW WLPH VFDOHV XVLQJ VLJKWLQJ DQG SKR
)RXUWHHQWK %LHQQLDO &RQI RQ WKH %LRO 0DU 0DP
2VERUQH 5 : 5 (7DOOPRQ - 2OVRQ DQG 5 (2WLV
6LJKWLQJ &RPSLODWLRQ)LQDO FRQWUDFW UHS
10)6 12$$ 6HDWWOH :$ S
2VERUQH 5 : 5 7DOOPRQ $ 7UD[OHU . .RVNL ' +DXVHU
6RXWKHUQ 5HVLGHQW .LOOHU :KDOH 6LJKWLQJ &RPSLO
FRQWUDFW UHSRUW V $%) 6($%) 6(
12$$ 6HDWWOH :$ S
2VERUQH 5 : $ 7UD[OHU 5 7DOOPRQ . .RVNL DQG 5 2W
:KDOH 6LJKWLQJ &RPSLODWLRQ UG (GLWLRQ
6(1:)6& 10)6 12$$ 6HDWWOH :$ S
56WXGLR 7HDP 56WXGLR ,QWHJUDWHG 'HYHORSPHQW
%RVWRQ 0$ 85/ KWWS ZZZ UVWXGLR FRP !
6HHO\ (OL]DEHWK)LQDO 3URJUDP 5HSRUW 6RXQGZDV
3URMHFW 12$$ &RQWUDFW 5$) &4 7KH :K
+DUERU :$
6HHO\ (OL]DEHWK)LQDO 3URJUDP 5HSRUW 6RXQGZDV
3URMHFW 12$$ &RQWUDFW 5$) &4 7KH :K
+DUERU :$
6HHO\ (6 <RXQJVWURP DQG 5 2VERUQH)LQDO 3UR
2XWUHDFK %RDWHU (GXFDWLRQ 3URMHFW 12$$ &RQ
:KDOH 0XVHXP)ULGD\ +DUERU :$
6KHGG 7 (6HHO\ DQG 5 2VERUQH)LQDO 3URJUDP
2XWUHDFK %RDWHU (GXFDWLRQ 3URMHFW 12$$ &RQ
:KDOH 0XVHXP)ULGD\ +DUERU :$
6KHGG 7 (6HHO\ DQG 5 2VERUQH)LQDO 3URJUDP
2XWUHDFK %RDWHU (GXFDWLRQ 3URMHFW 12$$ &RQ
:KDOH 0XVHXP)ULGD\ +DUERU :$
7UD[OHU $ 5 : 2VERUQH 9 9HLUV . .RVNL DQG 5 2WLV
6LJKWLQJ &RPSLODWLRQ WK (GLWLRQ)LQDO
1:)6& 10)6 12$$ 6HDWWOH :$ S

7UD[OHU $ - :RRG 5 : 2VERUQH 9 9HLUV . .RVNL DQG .LOOHU :KDOH 6LJKWLQJ &RPSLODWLRQ WK (GLWLRQ $%) &1 1:)6& 10)6 12$$ 6HDWWOH :$ S

7UD[OHU $ - :RRG 5 : 2VERUQH 9 9HLUV . .RVNL DQG .LOOHU :KDOH 6LJKWLQJ &RPSLODWLRQ WK (GLWLRQ $%) &1 1:)6& 10)6 12$$ 6HDWWOH :$ S

7UD[OHU $ - :RRG 6 %UDJHU 6RXWKHUQ 5HVLGHQW (GLWLRQ)LQDO FRQWUDFW UHSRUW V $%) 12$$ 6HDWWOH :$ S

7UD[OHU $ DQG 2VERXUQH 5 6RXWKHUQ 5HVLGHQW +LVWRULFDO 'DWDEDVH)LQDO &RQWUDFW 5HSR 10)6 12$$ 6HDWWOH :$ S

9HLUV 6FRWW ³&DQDGLDQ 6RQDU LQ 8 6 :DWHUV´ 2U :RUGSUHVV $SULO KWWS ZZZ RUFDVRXQG QHW XV FULWLFDO KDELWDW

6KLHOGV 0 : - /LQGHOO - :RRGUXII 'HFOLQLQJ VS HQGDQJHUHG ILVKHDWLQJ NLOOHU ZKDOHV UHIOHFWV 3DFLILF &RQVHUYDWLRQ %LRORJ\ KWWSV GRL RUJ

:RRG -: 7ROOLW ' %HUWD 6 DQG + *DUUHWW 5H VSHFLILF V\QWKHVLV &RQWUDFW 5HSRUW WR 6QRKRPL 6QRKRPLVK 38' $GPLUDOW\ ,QOHW 3LORW 3URMHFW 0D 6QRKRPLVK 38' (YHUHWW :$ S

/LVW RI $SSHQGLFHV

$SSHQGL[, 06 ([FHO 6LJKWLQJ &RPSLODWLRQ 'DWDEDVH

$SSHQGL[,, *,6 0RQWKO\ 6LJKWLQJV 0DS IRU