

CURRICULUM VITAE

NAME: RICHARD HENRY PARRISH

PRESENT POSITION: FISHERY CONSULTANT

1232 Sombria Lane
Pebble Beach, California 93953
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DISCIPLINE: Fishery Biologist

EDUCATION:

BA., Zoology, University of California, Berkeley, 1962
MS., Fisheries & Wildlife, Oregon State University, 1966
PhD., Fisheries with minors in Oceanography & Statistics, Oregon State Univ.,
1977

TITLE OF DISSERTATION:

MS., A review of the Gadopsidae, with a description of a new species from
Tasmania.

Ph.D., An assessment of environmentally related variation in the recruitment of
the California Current
stock of Pacific mackerel *Scomber japonicus* and its implications for
management

EXPERIENCE:

Apr 2006 – Present Private Consultant

Dec 1975 – Mar 2006 Fisheries Biologist (Research) GS-14 Pacific Fisheries
Environmental Group National Marine Fisheries Service
Pacific Grove, California

May 72 - Jan 74 Manager Scientific Research (Oman Project). Del Monte
Corporation San Francisco, California

Apr 69 - May 72 Associate Marine Biologist. Bottomfish Program California
Dept. of Fish and Game, Monterey, California

Jul 66 - Apr 69 Assistant Marine Biologist. Pelagic Fish Program
California Dept. of Fish and Game, Monterey, California

Sep 68 - May 72 Lecturer San Jose State University Moss Landing Marine
Laboratory Moss Landing, California

Dec 62 - Jun 64 Lakes Management Research Officer Victoria Fisheries and
Wildlife
Department Melbourne, Australia.

RESEARCH INTERESTS:

Population Dynamics Fisheries	Marine Climatology	Commercial
Resource Assessment	Fisheries Management	Marine Protected Areas

HONORS AND AWARDS:

U.S. Department of Commerce, Lifetime Achievement Award 2005

Ricketts Memorial Lecture Award: For Exemplary Research in Marine Science;
1994 Monterey Bay Research Symposium

U.S. Department of Commerce, Certificate of Recognition: Awarded for authoring
a Publication on the Comparative Climatology of Eastern Boundary Currents.

SELECTED SERVICE ON SCIENTIFIC COMMITTEES:

1979-81 INP/ CalCOFI Modeling Subcommittee.
1981 IOC Committee on Climate Change and the Ocean (CCCCO) Biology
Panel.
1981-3 IOC/ SCOR Ocean Science in Relation to Living Resources (IOC
Working Group-67).
1982-9 Chairman: NMFS Task Force on Strategic Planing for North Pacific
Albacore.
1983-6 AGU Committee on Climate Variability of the Eastern Pacific and
Western North America.
1987 NMFS External Review Committee for the SWFC Groundfish Program.
1993-4 PICES Working Group 3 (Dynamics of Small Pelagics in Coastal
Ecosystems).
1993-7 SCOR Working Group 98 Worldwide Fluctuations of Sardine and
Anchovy Populations.
1997 STAR Review Team for Stock Assessment of Widow and Chilepepper
Rockfishes: Pacific Fisheries Management Council
1997-00 Coastal Pelagic Species Plan Development Team: Pacific Fisheries
Management Council
1999-01 Marine Reserves Drafting Committee, Pacific Fisheries Management
Council
2000-03 Master Team: California Marine Life Protection Act, Marine Protected
Areas.
2005 Expert Reviewer: GLOBEC Portuguese Sardine Research Program, Lisbon.

RECENT UNPUBLISHED REPORTS:

Parrish, R. H., 2013, Report on Lobster Modeling Project. Final Report to South Bay Cable Liason Committee. April 5, 2013 21p. and Simulation Model.

Parrish, R. H., 2012. Comments to the MBNMS Sanctuary Advisory Council and Research Activity Panel Concerning the MBNMS Forage Fish White Paper. Prepared for California Wetfish Producers Association and Alliance of Communities for Sustainable Fisheries.. July 6, 2012. 27p.

Parrish, R.H., 2012. Reply to RE: NOAA-NMFS-2012-0059 - Advance Notice of Proposed Rulemaking (ANPR); Request for Comments; Consideration of Revision to National Standard 1 Guidelines; see 77 FR 26238. Comments prepared for California Wetfish Producers Association. Oct. 5, 2012 10p.

Parrish, R.H., 2011. California Lobster (Yield-Per Recruit Analysis). Report. Prepared for South Bay Cable/Fisheries Liaison Committee. Sept. 11, 2011. 14p.

Parrish, R.H. 2011. A Review of Ecosystem-based Fisheries Management: (A CPS Perspective). 12p. PFMC Agenda Item. H.1.c, June 2011.

Parrish, R.H., 2010. Comments on the Sardine Control Rule and SST. Letter to Pacific Fishery Management Council prepare for California Wetfish Producers Association Dec. 13, 2010 9p.

Parrish, R.H., 2008. A Review of Traditional and Ecosystem-based Fishery Management in the Monterey Bay National Marine Sanctuary. Consultant Report for Alliance of Communities For Sustainable Fisheries. 38p.

PUBLICATIONS:

Walters, C.J., Hilborn, R., and Parrish, R. 2007. An equilibrium model for predicting the efficacy of marine protected areas in coastal environments. Can. J. Fish. Aquat. Sci. 64:1009-1018.

Jacobson, L.D., S.J. Bograd, R.H. Parrish, R. Mendelssohn, F.B. Schwing. 2005. An ecosystem-based hypothesis for climatic effects on surplus production in California sardine (*Sardinops sagax*) and environmentally dependent surplus production models. Can. J. Fish. Aquat. Sci. 62: 1782-1796.

Parrish, R.H. 2003. Marine reserves to supplement management of west coast groundfish resources. Phase 2 - Draft Concepts for California Waters. Pacific Fisheries Management Council. Portland Oregon

Parrish, R.H., and M. Tegner 2001. California's Variable Ocean Environment. (in) California's Living Marine Resources and their Utilization. (Ed) B. Leet. pp 21-28.

Parrish, R.H. 2000. Yields versus forage considerations in the regime dependent Pacific sardine fishery: a comparison of results from management and migration/forage models. Proceedings of the Sixth NMFS National Stock Assessment Workshop. NOAA Tech. Memo. NMFS-F/SFO-46; 40.

Parrish, R.H., J. Seger, and M. Yoklavich, 2000. Marine reserves to supplement management of west coast groundfish resources. Phase I technical analysis. Pacific Fisheries Management Council. Portland Oregon

Parrish, R.H., F.B. Schwing, and R. Mendelssohn. 2000. Mid-latitude wind stress: the energy source for climatic shifts in the North Pacific Ocean. *Fish. Oceanogr.* 9(3):224-238.

Parrish, R.H., 1999. Marine Reserves for Fisheries Management: Why not! CALCOFI Reports. 40:77-86.

Schwartzlose, R.A., J. Alheit, A. Bakun, T.R. Baumgartener, R. Cloete, R.J.M. Crawford, W.J. Fletcher, Y. Green-Ruiz, E. Hagen, T. Kawasaki, D. Lluch-Belda, S.E. Lluch-Cota, A.D. MacCall, Y. Matsuura, M.O. Nevarez-Martinez, R.H. Parrish, C. Roy, R. Serra, K.V. Shust, M.N. Ward, and J.Z. Zuzunga. 1999. Worldwide large-scale fluctuations of sardine and anchovy populations. *S. Afr. J. mar. Sci.* 21:279-288.

Bargmann, G., D. Hanan, S.F. Herrick, K. Hill, L. Jacobson, J. Morgan, R. Parrish, J. Spratt, and M. Walker. 1998. The coastal pelagic species management plan. Pacific Fishery Management Council. Portland Oregon, Dec 1998.

Parrish, R.. 1998. Life History Strategies for Marine Fishes in the Late Holocene. In: Global Versus Local Changes in Upwelling Systems: Proceedings of the First International CEOS Workshop, (M.H. Durand, P. Cury, R. Mendelssohn, C. Roy, A. Bakun, and D. Pauly, eds.) ORSTOM, Paris, France. pp. 525-535.

Schwing, F. B. , R. Parrish, and R. Mendelssohn. 1998. Recent Trends in the Spatial Structure of Wind Forcing and SST in the California Current System. In: Global Versus Local Changes in Upwelling Systems: Proceedings of the First International CEOS Workshop, (M.H. Durand, P. Cury, R. Mendelssohn, C. Roy, A. Bakun, and D. Pauly, eds.) ORSTOM, Paris, France. pp. 101-125.

Parrish, R.H., F.B. Schwing, and R. Mendelssohn. 1998. Shifting Mid-Latitude Winds: A Mechanism for Decadal Climate Change in the North Pacific. *EOS, Trans. Am. Geophys. Union.* 79(1): 72.

Parrish, R.H. 1997. Regime Scale Fluctuations in the Circulation of the North Pacific. Workshop Report: Estuarine and Ocean Survival of Northeastern Pacific Salmon. NOAA Technical Memorandum. NOAA-TM-NMFS-NWFSC-29. Seattle, WA. pp. 95-103.

Parrish, R.H. 1997. Time, Space and Fish Scales: Applications of Retrospective Environmental Data to Fisheries Research. pp. 24-29 in: Boehlert, G.W. and J.D. Schumacher, eds. *Changing Oceans and Changing Fisheries: Environmental Data for Fisheries Research and Management.* NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-239. 146 p.

Schwing, F.B., R. Parrish and R. Mendelssohn. 1997. Decadal-scale variability in the coastal Northeastern Pacific. In: *Estuarine and ocean survival of Northeastern Pacific salmon: Proceedings of the workshop*, (R.L. Emmett and M.H. Schiewe, eds.) U.S. Department of Commerce, NOAA Technical Memorandum. NOAA-TM-NMFS-NWFSC-29, Seattle, WA. pp. 105-111.

Schwing, F.B., R. Mendelssohn, and R. Parrish. 1996. Interdecadal variability in the spatial structure of wind and SST in the California Current System. In: *Proceedings of the Twelfth Annual Pacific Climate (PACCLIM) Workshop* (C.M. Isaacs and V.L. Tharp, eds.) Interagency Ecological Studies Program for the Sacramento-San Joaquin Estuary, Tech. Rep. 46, pp. 53-61.

Schwing, F.B., R. Parrish and R. Mendelssohn. 1996. Regional differences in the climate change signal in the California Current System. (Abstract) *EOS- Trans. Amer. Geophys. Union.* 76(3): OS181.

Cury, P., C. Roy, R. Mendelssohn, A. Bakun, D. Husby and R. Parrish. 1995. Moderate is Better: Exploring Non-linear Climatic Effects on the Northern Anchovy (*Engraulis mordax*). In R.J. Beamish (ed.) *Climate Change and Northern Fish Populations.* Canadian Journal Special Publication of Fisheries and Aquatic Sciences. 121:417-424.

Parrish, R. and D. Mallicoate. 1995. Variation in the condition factors of California pelagic fishes and associated environmental factors. *Fisheries Oceanography.* 4(2):171-190.

VenTresca, D.A., R.H. Parrish, J.L. Houk, N.L. Gingras, S.D. Short and N.L. Crane. 1995. El Niño effects on the somatic and reproductive condition of blue rockfish (*Sebastes mystinus*). CalCOFI Reports. 36:167-174.

Ainley, D.G., B. DeLong, S. Herrick, L. Jacobson, E. Konno, J. Lanfersieck, M. Lowry, R. Parrish, C. Thomson and P. Wolf. 1993. Draft fishery description for the Pacific coastal pelagic species fishery management plan. Admin. Rep. LJ-930-15. 186pp.

Parrish, R.H. 1995. Lanternfish Heaven: the Future of World Fisheries. NAGA-ICLARM Quarterly. 18(3): 7-9.

Ainley, D.G., W.J. Sydeman, R.H. Parrish and W.H. Lenarz. 1993. Oceanic factors influencing distribution of young rockfish (*Sebastes*) in central California: A predator's perspective. CalCOFI Reports. 34:133-139

Ainley, D., B. DeLong, S. Herrick, L. Jacobson, E. Konno, J. Lanfersieck, M. Lowry, R. Parrish, C. Thomson and P. Wolf. 1993. Draft fishery description for the Pacific coastal pelagic species fishery management plan. Admin. Rep. LJ-93-15. 186p.

Lluch-Belda D., R.A. Schwartzlose, R. Serra, R. Parrish, T. Kawasaki, D. Hedgecock and R.J.M. Crawford. 1992. Sardine and anchovy regime fluctuations of abundance in four regions of the world oceans: a workshop report. Fisheries Oceanography. 1(4):339-347.

Bakun, A. and R.H. Parrish. 1991. Comparative studies of coastal pelagic fish reproductive habitats: the anchovy (*Engraulis anchoita*) of the southwestern Atlantic. J. Cons. int. Explor. Mer. 48:342-361.

Bakun, A. and R.H. Parrish. 1990. Comparative studies of coastal pelagic fish reproductive habits -- a tropical western ocean boundary example: the Brazilian sardine (*Sardinella aurita*). J. Cons. Explor. Mer. 46:269-283.

Sakagawa, G.T., N. Bartoo, S.F. Herrick Jr., D.J. Mackett, R. McInnis, W. Parks, R. H. Parrish and J. Wetherall. 1990. Tuna Management Information Document: A scenario of forces and trends affecting tuna resources and fisheries to the year 1995. Southwest Fisheries Center. 101 p

Parrish, R.H., R. Serra and W.S. Grant. 1989. The monotypic sardines, *Sardina* and *Sardinops*: their taxonomy, distribution, stock structure and zoogeography. Can. J. Fish. Aquat. Sci. 46(11):2019-36.

Parrish, R.H. 1989. The South Pacific oceanic horse mackerel (*Trachurus picturatus murphyi*) fishery. In D. Pauly, P. Muck, J. Mendo and I. Tsukayama (eds.). The Peruvian Upwelling Ecosystem: Dynamics and interactions. ICLARM Studies and Reviews 18. Instituto del Mar del Peru (IMARPE), Callao, Peru; Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), GmbH, Eschborn, Federal Republic of Germany; and International Center for Living Aquatic Resources Management (ICLARM), Manila, Philippines. p 321-331.

Parrish, R.H., N.W. Bartoo, S.F. Herrick Jr., P.M. Kleiber, R.M. Laurs and J.A. Wetherall. 1989. Albacore Management Information Document. NOAA Tech. Mem. NMFS-SWFC-126. 56pp.

Lluch-Belda, D., R.J.M Crawford, T. Kawasaki, A.D. MacCall, R.H. Parrish, R.A. Schwartzlose, and P.E. Smith. 1989. World-wide fluctuations of sardine and anchovy stocks: The regime problem. S. Afr. J. mar. Sci. 8:195-205.

Parrish, R.H., D.L. Mallicoate and R.A. Klingbeil. 1986. Age dependent fecundity, number of spawnings per year, sex ratio, and maturation stages in northern anchovy, *Engraulis mordax*. Fishery Bulletin. 84(3):503-17.

Bakun, A. and R.H. Parrish. 1986. Comparative climatology of pelagic fish reproductive habitats: The Brazilian sardinella. (Abstract) EOS - Trans. Amer. Geophys. Union. 67:991.

Parrish, R.H. and A. Bakun. 1986. Comparative climatology of pelagic fish reproductive habitats: The southwest Atlantic anchovy. (Abstract) EOS- Trans. Amer. Geophys. Union. 67:991-992.

Parrish, R.H. 1985. Operational Plan for NMFS Albacore Program. NOAA Tech. Mem. NMFS-SWFC-52, 31 pp.

Parrish, R.H., D.L. Mallicoate and K.F. Mais. 1985. Regional variations in the growth and age composition of northern anchovy. Fishery Bulletin. 83(4):483-96.

Parrish, R.H. and D. Mackett. 1984. The Strategic Plan for the National Marine Fisheries Service's North Pacific Albacore Fishery Program. Admin. Rept. LJ-84-09. 29pp.

Parrish, R.H., A. Bakun, D.M. Husby and C.S. Nelson. 1983. Comparative Climatology of selected environmental processes in relation to eastern boundary current pelagic fish reproduction. In Proceedings of the expert consultation to examine changes in abundance and species composition of neritic fish resources. FAO Fisheries Rept. 291(3):731-778.

Bakun, A., P. Bernal, S. Coombs, O. Guillen, P. Lagos, R. Parrish, F. Robles. 1983. Environmental studies and monitoring. In Sharp and Csirke (eds.) Proceedings of the Expert Consultation to Examine Changes in Abundance and Species of Neritic Fish Resources, San Jose, Costa Rica, 18-29 April 1983. FAO Fish Rep. 291(1).

Parrish, R.H. and D.L. Mallicoate. 1983. On the variability of population biology rates: examples for the California pelagic fisheries. (Summary only). In: sharp, G. D. and J. Csirke (eds.), Proceedings of the Expert Consultation to Examine Changes in Abundance and Species Composition of Neritic Fish Resources. FAO Fisheries Rept. 291(3): 1039-40.

Bakun, A. and R.H. Parrish. 1982. Turbulence, transport, and pelagic fish in the California and Peru Current systems. Calif. Coop. Oceanic Fish. Rep. 23:99-112.

Barber, R.T., J. Csirke, R. Jones, R. Lasker, R. Parrish, & M. Tomcza. 1982. Report of SCOR/ACMRR Working Group 67, Oceanography, Marine Ecology and Living Resources. SCOR/WG-67 21p.

Parrish, R.H. 1982. A comparison of the spawning habits of anchovies and pilchards in the Benguela, California, and Peru Current systems (Abstract) EOS-Trans. Amer. Geophys. Union. 63:942

Bakun, A., D.M. Husby, C.S. Nelson, and R.H. Parrish. 1982. Comparative studies: transport, turbulence, anchovies, and sardines. Int. Cons. Explor. Sea, 70th Statutory Meeting, C.M. 1982/H: 28-POSTER.

Mallicoate, D.L. and R.H. Parrish. 1981. Seasonal growth patterns of California stocks of northern anchovy, (*Engraulis mordax*), Pacific mackerel, (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*). Calif. Coop. Oceanic Fish. Invest. Rep. 22: 69-81.

Parrish, R.H., C.S. Nelson and A. Bakun. 1981. Transport mechanisms and reproductive success of fishes in the California Current. Biol. Oceanogr. 1(2):175-203.

Bakun, A. and R.H. Parrish. 1981. Environmental inputs to fishery population models for eastern boundary current regions, In G.D. Sharp (ed.) Proceedings of workshop on the effects of environmental variation on the survival of eggs and larvae of pelagic fishes. IMARPE, Callao, Peru, April 21 - May 5, 1980, IOC Workshop Rep. No. 28, pp 67-104.

Bakun, A., C.S. Nelson, and R.H. Parrish. 1980. Determination of surface drift patterns affecting fish stocks in the California Current upwelling region.

IOC/WNO Seminar on Oceanographic Products and the IGOSS Data Processing and Services System. Moscow, 2-6 April 1979.

Bakun, A., C.S. Nelson and R.H. Parrish. 1979. Determination of surface drift patterns affecting fish stocks in the California Current upwelling region. pp. 7-21. In: Papers Submitted to the Joint IOC/WMO Seminar on Oceanographic Products and the IGOSS Data Processing and Services System, IOC Workshop Rep. 17, Intergovernmental Oceanographic Commission, UNESCO, Paris. 572pp.

Parrish, R.H. and A. Bakun. 1979. Record swordfish landings preceded by anomalously low upwelling indices in the California Current region. Coastal Oceanography and Climatology News. 1(2):13.

Parrish, R.H. and A. Bakun. 1979. Strong rockfish year class predicted to enter California recreational and commercial fisheries in 1981. Coastal Oceanography and Climatology News. 1(2):13.

Seckel, G.R., A. Bakun and R.H. Parrish. 1979. Climate impact on the fisheries resources of the eastern North Pacific. Proceedings of the 14th Pacific Science Congress. Khabarovsk, USSR.

Parrish, R.H. and A.D. MacCall. 1978. Climatic Variation and Exploitation in the Pacific Mackerel Fishery. Calif. Dept. Fish and Game. Fishery Bulletin. 167, 110 pp.

Parrish, R.H. 1978. Climatic variation and the Pacific mackerel fishery. In Climate and Fisheries: Proceedings of a Workshop on the Influence of Environmental factors on Fisheries Production. Center for Ocean Management, Univ. of Rhode Island. pp. 130-131.

Seckel, G.R., A. Bakun and R.H. Parrish. 1978. Large-scale atmospheric circulation and the west coast upwelling regime in 1976/77 and 1977/1978. In: Proceedings of the Third Annual Climate Diagnostics Workshop, U.S. Dept. of Commerce, Wash., D.C. (7):1-12.

Parrish, R.H. 1977. An assessment of environmentally related variation in the recruitment of the California Current stock of Pacific mackerel *Scomber japonicus* and its implications for management. PhD Thesis. Oregon State University. 126pp.

Parrish, R.H. 1976. An assessment of environmentally related variation in the recruitment of the California Current stock of Pacific Mackerel and its implications for management. NMFS/EDS, April 26-29 1976, Workshop on Climate and Fisheries. Columbia, Mo.

Knaggs, E.H. and R.H. Parrish. 1973. Maturation and growth of Pacific mackerel *Scomber japonicus* Houttuyn. Calif. Fish and Game 59(2):114-120.

Parrish, R.H. 1973. The California sablefish fishery for the period 1953-1969. Calif. Fish and Game 59(3):168-177.

Knaggs, E.H. and R.H. Parrish. 1973. Maturation and growth of Pacific mackerel *Scomber japonicus* Houttuyn. Calif. Fish and Game 59(2):114-120.

Parrish, R.H. 1972. Symbiosis in the blacktail snailfish, *Careproctus melanurus*, and the box crab, *Lopholithodes foraminatus*.. Calif. Fish and Game 58(3):239-240.

Parrish, R.H. and E.H. Knaggs. 1972. The Southern California Pacific mackerel fishery and age composition of the catch for the 1964-65 through 1967-68 seasons. Calif. Fish and Game 58(1):13-21.

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Blunt, C.E. Jr., and R.H. Parrish. 1969. The Pacific mackerel Fishery: A summary of biological knowledge and the current status of the resource. CDF&G, MRO Ref No. 69-7. 25p.

Parrish, R.H. 1966. Occurrence of the smooth toadfish *Sphaeroides glaber* (Fremerville) in fresh water. The Victorian Naturalist. 83(5):103-104