

SALMON

<http://www.nmfs.noaa.gov/pr/pdfs/carbamate.pdf>

This Opinion assesses the effects of all pesticides containing carbaryl, carbofuran, or inethomyl on 28 listed Pacific salmonids.

After considering the status of the listed resources, the environmental baseline, and the direct, indirect, and cumulative effects of EPA's proposed action on listed species, NMFS concludes that pesticide products containing carbaryl and carbofuran are likely to jeopardize the continuing existence of 22 listed Pacific salmonids as described in the attached Opinion. NMFS also concluded that the effects of carbaryl and carbofuran are likely to destroy or adversely modify designated habitat for 20 of 26 listed salmonids.

STURGEON

http://www.caseinlet.org/uploads/NWP_48_04-28-2009_NMFS_Opinion_1_.pdf

relatively small area (i.e., up to 600 acres in Willapa Bay and 200 acres in Grays Harbor). Green sturgeon, like juvenile salmon, will be exposed to carbaryl through drinking seawater contaminated with carbaryl and passing it across their gills. We have not found studies of the potential effects thresholds for green sturgeon. However, the USFWS (USFWS 2008) found that certain sturgeon species (Atlantic sturgeon, shortnose sturgeon) have been shown to be very sensitive to chemical exposures relative to other fish species. If so, then the southern DPS of green sturgeon are likely to exhibit similar, if not greater, behavioral effects as experienced by juvenile salmon. Although the studies presented here are based on research in Willapa Bay, we believe that similar conditions and effects exist for listed salmon and sturgeon in Grays Harbor. Green sturgeon occupy Grays Harbor during the spraying of carbaryl. If Columbia River ESUs enter Grays Harbor, they will also be present when carbaryl is being applied. Carbaryl is applied in the same manner, and exposure pathways would be identical to those in Willapa Bay. Based on the analysis above, individual Southern DPS green sturgeon will be exposed to the effects of carbaryl application. Some of the exposed fish will respond to exposure making them more vulnerable to predation, and some of those made more vulnerable will be injured or killed as a result of the application of carbaryl in Willapa Bay and Grays Harbor.

